

---

# Earnings management as an explanation of the equity issue puzzle in the spanish market

**María J. PASTOR-LLORCA**

Dpto. de Economía Financiera, Contabilidad y Marketing  
Universidad de Alicante

**Francisco POVEDA-FUENTES**

Dpto. de Economía Financiera, Contabilidad y Marketing  
Universidad de Alicante

**Abstract:** The poor stock price performance of firms which raise capital through seasoned equity offerings is one of the recent puzzles in financial literature. Despite the fact that offerings in the Spanish market are with subscription rights, we detect this market anomaly and we investigate whether earnings management practices can affect these results. Consistent with this explanation, we find that firms issuing rights make use of discretionary accruals to report higher earnings at the time of the offering decision. Most interestingly, firms with higher levels of discretionary accruals seem to experience more negative long-run abnormal returns.

**Key words:** Corporate Finance, Seasoned Equity Offerings, Earnings Management, Accounting Accruals.

**JEL Classification:** G14; G32; M41.

**Titular:** Manipulación de beneficios como explicación a la anomalía de las ampliaciones de capital en el mercado español.

**Resumen:** El bajo rendimiento de las acciones de empresas que amplían capital es una de las anomalías que están recibiendo mayor atención por parte de la literatura financiera. A pesar de que las ampliaciones de capital en el mercado español se llevan a cabo con derechos de suscripción, se detecta esta anomalía y se analiza si la manipulación de beneficios en torno a la ampliación puede explicar estos resultados. En esta línea, se observa que las empresas que amplían capital con derechos hacen uso de los ajustes por devengo discrecionales para revelar mayores beneficios en el ejercicio de la ampliación. Adicionalmente, las empresas con mayores niveles de ajustes por devengo discrecionales experimentan rentabilidades anormales a largo plazo más negativas.

**Palabras clave:** Finanzas Corporativas, Ampliaciones de capital, Manipulación de beneficios, Ajustes por devengo discrecionales.

---

\* We are grateful for the helpful comments and suggestions of the anonymous referee as well as for the suggestions made by the editor Gonzalo Rubio. We acknowledge financial support from *Fundación Banco Herrero*, from the *Conselleria d'Empresa, Universitat i Ciència* through the emergent group project GV06/196, and from the CICYT project number SEJ200509372/ECON. A previous version has been published as *Working Paper* (WP-AD 2005-04) in the *Instituto Valenciano de Investigaciones Economicas* (IVIE).

\*\* Corresponding author. María J. Pastor-LLorca. Departamento. Economía Financiera, Contabilidad y Marketing. Universidad de Alicante. Ap 99, 03080, Alicante, Spain. Tlf./Fax: +34 965 90 36 21 email: [maria.pastor@ua.es](mailto:maria.pastor@ua.es)

## 1. INTRODUCTION

Seasoned equity securities are issued in a variety of ways; however the two flotation methods typically used in common stock offerings for cash are firm commitments and rights issues. The relative importance of these flotation methods depends on the issuing firm's country. In the Spanish stock market the flotation method usually employed in stock offerings for cash is that of rights issues<sup>1</sup>.

Previous empirical research has mainly focused on firm commitment offerings, and has chiefly studied the US market. These studies have documented negative abnormal returns in the offering announcement<sup>2</sup>, mainly explained by the information conveyed by this decision in a context of information asymmetry (Myers and Majluf, 1984). That is, investors penalize the firm because they consider it to be overvalued. Furthermore, the evidence for firm commitment offerings in the US market has found that offerings firms suffer poor stock price performance in periods up to five years following the equity issue decision (Loughran and Ritter 1995, 1997; Spiess and Affleck-Graves 1995; Lee, 1997; and Jegadeesh, 2000), and accounting profitability underperformance in the same post-offering periods (McLaughlin et al. 1996; and Loughran and Ritter, 1997).

The interpretation of this abnormal pattern has been the subject of considerable debate. On the one hand, several authors document important biases in measuring and testing returns in large periods; thus the long-run abnormal returns could be explained by these biases (Barber and Lyon, 1997; Kothari and Warner, 1997; and Lyon et al., 1999). On the other hand, this evidence is consistent with directors timing equity offerings when earnings are high, taking advantage of stock overvaluation with the subsequent underperformance being the consequence of the gradual correction of this initial overvaluation (Loughran and Ritter, 1997). Most interestingly, it is even possible that firms wishing to issue equity manipulate the information reaching the market in order to originate this overvaluation. Concretely, directors could be making use of the discretion allowed in accounting rules to overstate earnings at the time of the offering and, if investors can not see through these accounting practices, they overvalue issuing firms. In the years following the offering, negative abnormal returns would be due to a gradual correction of the initial overvaluation as earnings management reverses. In this line of investigation, Teoh, Welch and Wong (1998a), Rangan (1998), Shivakumar (2000), Zhou and Elder (2003), and Heron and Lie (2004) verify that firm commitment offerings in the US market are preceded by significant increases in abnormal accruals. Moreover, Teoh, Welch and Wong (1998a) and Rangan (1998) report a negative relationship between pre-offering abnormal accruals and post-offering stock returns.

Although equity offerings with rights are the predominant flotation method in most developed and emergent markets, research on rights offerings is much less prevalent. As subscription rights minimize wealth transfers, in this type of equity issue, the company's interest

- 1 Before 1998, the only flotation method allowed in Spain for equity issues for cash were rights offerings. From 1998 companies have had the ability to exclude rights with some conditions, although despite this change rights issues continue to be the most commonly employed flotation method for equity issues for cash. In the sample period analyzed there are only six public offerings without rights, all of them after 1999.
- 2 Mikkelsen and Partch (1986), Asquith and Mullins (1986), Masulis and Korwar (1986), Hess and Bhagat (1986), Muhtaseb and Philippatos (1991).

---

in being overvalued is expected to be lower. However, several studies have observed a negative reaction to rights offerings<sup>3</sup> and, as with firm commitment, the evidence for rights issues also reveals negative long-run abnormal returns (Cai 1998; and Kang et al. 1999; in Japan; Jeanneret, 2000 in France; and Stehle et al. 2000 in Germany) and operating underperformance in the post-offering years (Cai, 1998 in Japan; and Kabir and Roosenboom, 2002 in Holland). This evidence suggests that firm commitments and rights issues appear to provide similar information to the market and to have the same consequences on stock prices and operating performance. Thus, if investors consider them to be qualitatively similar operations, it is reasonable to think that their explanations could be the same.

In this context, our objective in this study is three-fold. Firstly, we study the long-run market reaction to equity issues with rights in the Spanish market. Secondly, we test the existence of earnings management practices at the time of these offerings and thirdly, we examine the possible relationship between these opportunistic accounting practices and post-issue stock returns.

With this study we expand previous empirical literature in several ways. Firstly, we extend the empirical literature on rights offerings in Spain, expanding our knowledge on the effects of the equity offering decision in our market. Previous studies in Spain have mainly focused on stock price formation in the subscription period (Blasco and Ruiz, 1997a, 1997b; Riaño et al. 2004) and on the market reaction to rights issues announcements; showing a negative effect (Rubio, 1986, 1987; Arrondo, 1999, 2002; and Martín, 2000, 2003). With regard to the long-run market reaction, Pastor and Martín (2004) find that the stock prices of firms issuing rights in Spain under-perform the different benchmarks employed, which does not seem to be explained by omitted risk factors; and that these companies experience a decrease in accounting profitability for some pre- to post-issue periods. These results are consistent with excessive optimism about the long-term prospects of equity issuers.

However, several authors hold that the biases documented for long-run event-studies could be affecting results. For example Álvarez and González (2005), analyzing long-run returns following Spanish initial public offerings, argue that abnormal returns depend on the methodology employed. In this study we employ a larger and more contemporary sample than Pastor and Martín (2004) and Álvarez and González (2005), and we expand the methodology employed to test and compute long-run abnormal returns in order to get more robust results.

As a second contribution, we argue the possibility of earnings management around rights offerings and we are pioneers in testing for the existence of these accounting practices in the Spanish market, which is an interesting case to study due to the fact that the only flotation method for equity issues for cash is rights offerings. Previous studies, based on the Myers and Majluf (1984) model, have argued that there are no incentives to manage earnings in rights offerings because with this flotation method the possibility of wealth transfers between new and current stockholders is minimized. That is, in firm commitment offerings current shareholders are highly interested in firm overvaluation at the moment of the offering as wealth transfers characteristic of this type of flotation method benefit them. Thus, managers following the interests of current shareholders could have incentives to manage earnings upward to benefit from overvaluation. However, given that subscription rights avoid wealth transfers, the interest of current shareholders in being overvalued when the firm issues equity with rights is expected to be lower. In fact, if current shareholders

---

3 Hansen (1989), Eckbo and Masulis (1992) and Singh (1997), in the US market and Levis (1995), Slovin, et al (2000) in the UK.

exercise their rights they would not obtain any benefit from overvaluation. Therefore, if directors follow the interests of current shareholders, incentives for managers to manipulate earnings are presumably weak, or perhaps nonexistent, as the firm is not raising equity for new shareholders.

With this idea, if the company can choose the flotation method, it is expected that current shareholders would be especially interested in firm commitments when they want to benefit from firm overvaluation. Therefore, in countries where both flotation methods coexist, such as the United States, it has been argued that it is more probable to find issuing firms' overvaluation and earnings management around firm commitments offerings but not around offerings with rights. In fact, Heron and Lie (2004) find no evidence of earnings management practices for rights offerings in the US market.

However, our context in Spain is quite different because the flotation method allowed for equity issues for cash is rights issues. More importantly, the Myers and Majluf (1984) model is based on the idea of managers being perfect agents of current shareholders. We argue that managers could be following their own interest by trying to sell stocks at a higher price than their fundamental value. That is, even when equity offerings are with rights, directors could have incentives to be overvalued, and to manage earnings upward, following their own interests instead of those of current shareholders. In addition, even current shareholders who decide not to subscribe their rights and sell them could also be interested in overstated earnings because they would also obtain benefit from overvaluation as these rights would be also overvalued.

This rights issue overvaluation would be consistent with the long-run post-issue stock price underperformance following right offerings (Cai 1998; and Kang, Kim and Stulz 1999; in Japan; Jeanneret, 2000 in France; and Stehle, Ehrhardt and Przyborowsky, 2000 in Germany) and with the operating underperformance in the post-offering years (Cai, 1998 in Japan; and Kabir and Roosenboom, 2002 in Holland). For Spanish rights issues Pastor and Martín (2004) also document long-run underperformance in the three-year period following the offering. Furthermore, Pastor and Gómez (2006) find that analysts' earnings forecasts for rights issuers are unusually favorable and the long-run underperformance is more pronounced for issuing firms with more optimistic predictions. They also observe a negative market reaction to earnings announcements in the years following the offering.

Thus, despite the fact that in Spain equity issues are with rights, all this evidence appears to be in line with investors being overly optimistic about the prospects of these companies, with a correction of this initial overvaluation in the post-offering years. For this reason, we consider it highly interesting to test whether overvaluation in Spanish right issues could be affected by earnings management practices. Despite there being subscription rights, managers could be following their own interests and could have incentives to manage earnings to ensure that the issue is fully subscribed, or priced higher to garner greater proceeds, because their compensation and/or reputation depends on the success of the issue, or because they are interested in the personal benefits of an increase in the firm's size. If this is so, earnings management could also be detected around rights offerings, especially in the Spanish context where companies have restrictions on issuing without rights.

The amount of evidence regarding earnings management around rights offerings is very low and mixed. Heron and Lie (2004) find no evidence of earnings management for rights offerings in the US market and Ching, et al. (2002) in the Hong Kong market detect a negative relationship between pre-issue discretionary accruals and subsequent abnormal returns, but they do not test for the existence of significant abnormal accruals. Thus we try to fill this dearth of research into

earnings management around rights issues and we are pioneers in testing for these accounting practices in a market which is particularly interesting to study as companies have restrictions on issuing without rights. Additionally, we are innovative in our earnings management tests by employing a new measure of abnormal accruals based on a methodology recently developed by Poveda (2005). This new approach to estimating the abnormal component of current accruals has shown good specification properties and more power than traditional models in detecting earnings management in the Spanish stock market.

Finally, given that there is still considerable debate around the reason for long-run abnormal returns and the possibility of them originating exclusively from methodological biases; the fact that this abnormal pattern is present in the Spanish market and could be affected by earnings management practices, despite offerings having subscription rights, will be of great use to the growing body of literature aiming to explain this anomaly.

The paper is organized as follows. The next section describes the sample selection and data used. Section 3 analyzes the long-run performance of post-issue stock returns. Section 4 discusses the measurements of earnings management. Section 5 studies the existence of earnings management practices by SEO firms. Section 6 examines the relationship between earnings management and post-offering stock return underperformance. Finally, our conclusions are presented in Section 7.

## 2. SAMPLE AND DATA SOURCES

To identify firms issuing equity, we use the register of the *Comisión Nacional del Mercado de Valores* (CNMV) during the period from January 1991 to December 2002. As Table 1 reports, 408 equity offerings of companies listed in the *Sistema de Interconexión de las Bolsas Españolas* (SIBE) are found. From this initial sample an exhaustive revision of relevant events in the CNMV is made in order to exclusively filter rights offerings for cash<sup>4</sup>, leaving us with 119 offerings. We then filter out financial companies, as the nature of their accruals is very different from that of industrial firms. Hence the sample is narrowed down to 99 offerings. In addition, for inclusion in the final sample, we require accounting data in CNMV for the year of the offering and the previous year, because in order to estimate firms' accounting accruals we use variables in first differences. These exclusions further refine our sample down to 75 equity rights offerings.

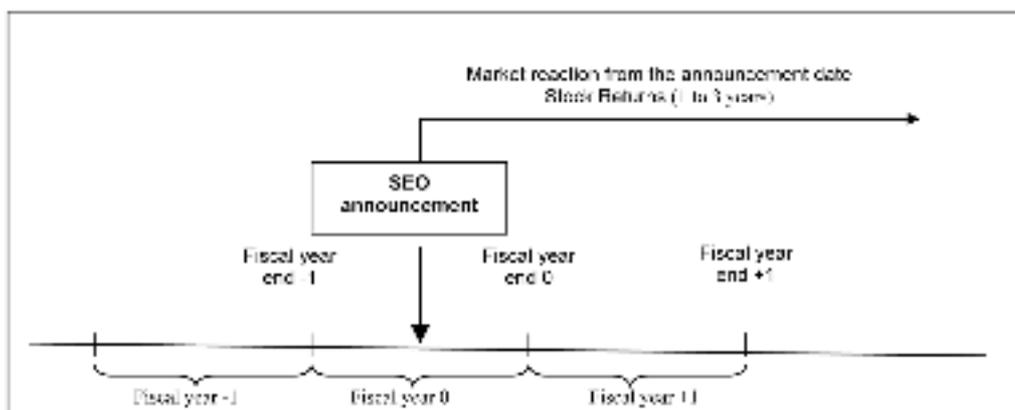
**Table 1**  
Event sample: seasoned equity offerings 1991-2002

Seasoned Equity Offerings registered in CNMV 1991-2002	408
Relevant events filter	(289)
Rights Offerings for cash	119
Financial companies	(20)
Objective sample	99
Non availability of accounting data	24
	<b>FINAL SAMPLE</b> 75

4 We exclude offerings charged to reserves, equity to compensate credits or to convert bonds, equity issues as payments for employees, managers or clients and public offerings without subscription rights. Neither do we consider equity issues to exchange other companies' stocks due to acquisition or merger processes.

Figure 1 illustrates the timing convention. The fiscal year in which the SEO is announced is year 0. Thus, fiscal year -1 ends before the announcement of the SEO, and fiscal year 0 includes information preceding and following the offer announcement. Although companies in Spain publish quarterly earnings and semiannual financial statements, we only have available data in the CNMV of audited financial statements at the end of each fiscal year. It is probable that accounting earnings for fiscal year end -1 are managed, since investors are aware of these earnings at the time of the right issue announcement. In the same way, if there is any information about year 0 earnings, through quarterly or semiannual publications prior to the offering announcement, it is also expected that they are manipulated. Thus, it is important to understand that although audited financial statements are available in the CNMV at the end of fiscal year 0 investors have information about year 0 earnings throughout the year so they are also likely to be overstated. What is more, incentives to manage earnings upward are likely to persist after the offering announcement for different reasons.

**Figure 1**  
Time line illustration



Firstly, directors could be interested in manipulating earnings upward after the offer announcement till the moment of its execution to raise capital at more favorable terms. In Spain the time lag between the announcement and the execution of the offering is around a month, in some cases even more, so we are likely to find earnings manipulation after the offer announcement at least till the execution. However, and more importantly, most offering firms enter into "lock-up agreements" with their underwriters which prevent insiders at issuing firms from selling their holdings until a number of months, usually six, after the offering date. So, insiders who want to sell their shares at the end of this lock-up period clearly have incentives to support the stock price of the firm and to manage earnings upward until the end of this lock-up period. If we take into account both aspects, there is a period of at least seven months after the offering announcement during which there could be incentives to overstate earnings<sup>5</sup>.

<sup>5</sup> Furthermore, firms face unusual legal and possibly reputational scrutiny in the SEO aftermath. Immediate accounting reversals may render earnings management activities transparent enough to trigger lawsuits against the firm and its management.

Following a similar argument Rangan (1998) hypothesized that earnings management is most likely in earnings for the quarter immediately preceding and the three quarters subsequent to the offering announcement. But he obtains positive discretionary accruals statistically significant only for quarter 0 and +1, with quarter 0 having the first earning after the offering announcement; so he only finds significant abnormal accruals after the offer announcement but not before. We find a similar explanation and results in Teoh, Welch and Wong (1998b) and Teoh, Wong and Rao (1998), where they document positive abnormal accruals in the two fiscal years subsequent to the initial public offering announcement. Although there are some studies which detect abnormal accruals immediately before the SEO announcement (Teoh, Welch and Wong, 1998a; Shivakumar, 2000; Heron and Lie, 2004) they also find significant abnormal accruals after the offer announcement. In fact, in nearly all of these studies the highest level of significant positive discretionary accruals is located in year 0 earnings (Rangan, 1998; Teoh, Welch and Wong, 1998a; Zhou and Elder, 2003; and Heron and Lie, 2004).

In this paper we analyze abnormal accruals for the previous year, the announcement year and the three following years. We extend the accrual analysis period to three years after the offering announcement because this is our returns analysis period<sup>6</sup>.

### 3. POST-ISSUE STOCK RETURNS PERFORMANCE

In this section, to measure the long-run market reaction to seasoned equity offerings, in common with all event-studies, we analyze abnormal returns beginning from the offer announcement date. Concretely, we examine stock returns in the one, two and three-year periods following the SEO announcement. To examine post-offering abnormal returns we apply two alternative procedures, an *event time* analysis and a *calendar time* methodology. In the *event-time analysis* we examine returns adjusted by the market portfolio. Specifically, we calculate the abnormal return of company  $i$  in the post-offering period  $\tau$ ,  $ACoR_{i,\tau}$ , as the compound return of the issuing firm  $i$  minus the compound market return<sup>7</sup>:

$$ACoR_{i,\tau} = \prod_{t=1}^{\tau} (1 + R_{i,t}) - \prod_{t=1}^{\tau} (1 + R_{M,t}) \quad (1)$$

where  $R_{it}$  and  $R_{Mt}$  are the returns of firm  $i$  and the market portfolio in month  $t$ , respectively, and  $\tau$  is the number of months in the post-offering period analyzed. Although the market index is the most widely-used reference portfolio when computing adjusted returns, this alternative does not control the cross-section variability of mean returns. To address this question, we also estimate expected returns with a reference portfolio selected on the basis of the size and/or BTM ratio<sup>8</sup>.

6 Pastor and Martin (2004) find negative abnormal returns in the three-year post-issue period, so we consider it appropriate to examine the same temporal horizon.

7 As we have stock prices available till 2003, the sample used in the analysis of event time returns ends in the year 2000. Furthermore, in order to avoid cross-section dependence, we do not allow the analysis periods of the same firm to overlap. Thus, the sample employed in the event time analysis included 57 rights issues.

8 Moreover, regressions in the following section aiming to explain the long-run abnormal returns will include, as control variables, firm size and BTM ratio.

Figure 2 shows the mean abnormal compound return for the event sample during the 36 months following the offering decision. We observe how adjusted returns are positive until four months following the offer announcement, after which there is a very sharp decrease until the two-year post-issue point. During the third post-offering year adjusted returns continue to decline but more gently. To test the statistical significance we apply the bootstrap technique to simulate the empirical distribution of the traditional t and the skewness-adjusted t statistic. Kothari and Warner (1997) and Lyon et al. (1999) showed that this procedure has fewer misspecification problems and that it is appropriate for long-run event-studies.

**Figure 2**  
Long-run abnormal returns following the offer announcement

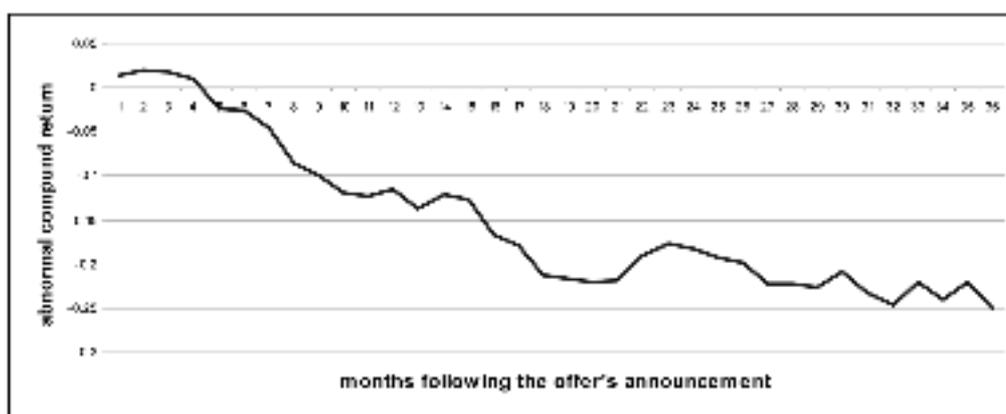


Table 2 reports average abnormal compound returns for the one, two and three-year post-issue period. For the first year following the offer announcement the mean abnormal return is -13.19%, which worsens as the temporal horizon increases. Adjusted returns have a mean of -19.25% and -24.70% for the two and three-year periods respectively. Table 2 also shows how negative abnormal returns are highly significant with both tests and with any horizon. In Appendix 1 we can see how the results with control portfolios selected on the basis of size and/or BTM ratio are very similar. Thus, the results show that issuing firms experience negative abnormal returns in the three years following the offering decision.

The alternative procedure to estimate and test post-offering long-run abnormal returns is to analyze the abnormal monthly mean return by applying a *calendar time* portfolio approach. This methodology examines the strategy of holding a portfolio which is made up, in each calendar month, of the stocks affected by the event over the last  $\tau$  months. This *calendar time* approach enables us to check the robustness of results, to avoid problems of accumulating returns over long periods and to use the sample of 75 events. We can compute the monthly return of the calendar portfolio  $p$  in each month  $t$  as:

$$R_{ct} = \frac{\sum_{s=t-\tau}^t R_s}{N_s} \tag{2}$$

**Table 2**  
Stock return performance following the offer announcement

Panel A shows the mean abnormal compound return for issuing firms in the one, two and three year period following the offering announcement. This panel also reports results of traditional t test and skewness-adjusted t test using the bootstrap technique to evaluate statistical significance. Panel B shows the abnormal monthly mean return in the post-offering period as usual with the Fama-French model in calendar-time regressions. We first estimate the Fama-French regression using White's two-stage estimator, consistent with heteroskedasticity. Secondly, we estimate the regression with weighted least squares estimation, where the weighting factor is based on the number of securities in the portfolio in each calendar month.

Panel A. Abnormal compound return in the post-offering period.					
Analysis period	AACOR (%)	Traditional t statistic	Bootstrap p-value	Skewness adjusted t	Bootstrap p-value
12 months	-12.19%	-2.94	(0.00)	-2.94	(0.01)
24 months	-19.25%	-3.14	(0.00)	-3.09	(0.00)
36 months	-24.70%	-3.01	(0.01)	-2.83	(0.00)

Panel B. Abnormal monthly mean return with Fama-French model in calendar-time regressions						
Analysis period	White estimation			Weighted least squares estimation		
	$\hat{\alpha}_p$ (%)	t-stat.	p-value	$\hat{\alpha}_p$ (%)	t-stat.	p-value
12 months	0.50	-2.06	(0.04)	-0.53	-2.15	(0.03)
24 months	-0.48	-2.00	(0.05)	-0.50	-2.57	(0.01)
36 months	-0.72	-2.15	(0.03)	-0.55	-2.74	(0.01)

where  $R_{jt}$  is the return of firm  $j$  in month  $t$  and  $N_{pt}$  is the number of stocks in the portfolio in month  $t$ . Thus, we obtain the time series of the calendar portfolio monthly returns and we apply the Fama and French (1993) three-factor model to this time series to test the portfolio's abnormal monthly mean return:

$$R_{w,t} - R_{f,t} = \alpha_p + \beta_{1,p} \cdot (R_{M,t} - R_{f,t}) + \beta_{2,p} HML_t + \beta_{3,p} SMB_t + \varepsilon_{p,t} \quad (3)$$

where  $R_{f,t}$  is the one-month Treasury bill (risk free) rate of return,  $HML_t$  is the difference in returns between portfolios made up of stocks with high and low book-to-market ratios and  $SMB_t$  is the difference in returns between portfolios made up of stocks with high and low trading volumes, both orthogonalized. The Jensen's alpha,  $\alpha_p$ , measures the calendar-time portfolio's abnormal monthly mean return.

We complete the *calendar time approach* by applying the t test to the time series of the calendar monthly abnormal returns. The monthly abnormal return of the calendar portfolio  $p$  in each month is calculated as:

$$MAR_{p,t} = \frac{\sum_{j=1}^{N_{p,t}} AR_{j,t}}{N_{p,t}} \quad (4)$$

where  $AR_{j,t}$  is the abnormal return of firm  $j$  in month  $t$  calculated by employing size and/or BTM control portfolios.

Panel B of Table 2 reports the results of the Fama-French calendar-time regression. We apply this methodology with a time horizon  $\tau$  of 12, 24 and 36 months. In this way,  $\alpha_p$  measures the

abnormal monthly mean return of SEO firms over the following 12, 24 and 36 months, respectively. Given that the change in the composition of the portfolio each month could lead to heteroskedasticity problems, as the variance depends on the number of firms in the portfolio, we estimated the regression using White's covariance estimator consistent with heteroskedasticity. Alternatively, following Lyon et al. (1999), a better correction for the heteroskedasticity can be performed using a weighted least squares estimation, where the weighting factor is based on the number of securities in the portfolio in each calendar month. With both approaches the intercept from the Fama-French model,  $\alpha_p$ , is negative and significant for the three horizons analyzed. Thus, this evidence indicates that the abnormal monthly mean return of offering firms in the one, two and three-year post-issue period is statistically negative, which is in line with the negative abnormal compound returns illustrated in Panel A. Additionally, in Appendix 1 we can see how the results of applying the t test to the time series of the calendar monthly abnormal returns also confirm the existence of negative abnormal returns following the offering decision.

#### 4. MEASURING EARNINGS MANAGEMENT

Accounting accruals are the centre point of earnings management tests. They are defined as the difference between earnings before extraordinary items and discontinued operations, and cash-flow from operations. The accrual adjustments reflect business transactions which affect future cash-flows even though cash has not currently changed hands. Under generally accepted accounting principles, firms have the discretion to recognize these transactions so that reported earnings reflect the true underlying business conditions of the company. However, managerial flexibility in accruals also opens opportunities for earnings management. Specifically, in this study we utilize the standard definition of current accruals<sup>9</sup>:

$$ACC_{it} = (\Delta CA_{it} - \Delta CASH_{it}) - (\Delta CL_{it} - \Delta STD_{it}) \quad (5)$$

where  $ACC_{it}$  are current accruals,  $\Delta CA_{it}$  is the change in current assets,  $\Delta CASH_{it}$  is the change in cash and cash equivalents,  $\Delta CL_{it}$  is the change in current liabilities, and  $\Delta STD_{it}$  is the change in short-term debt. Subscripts  $i$  and  $t$  refer to company and period, respectively.

Observable current accruals,  $ACC_{it}$ , can theoretically be broken down into two unobservable components: the nondiscretionary or normal part,  $NACC_{it}$ , and the abnormal component,  $AACC_{it}$ , which can be used as a proxy for earnings management. Several theoretical models have attempted to obtain this break-down by estimating the pattern of accruals in the absence of accounting discretion. Thus, the part of accruals not explained by the model is used as a proxy for earnings management, as a variation in this component will represent a manager's effort to manipulate earnings more than a change in exogenous economic conditions.

<sup>9</sup> We employ current accruals, leaving aside depreciations, owing to the aggregation of accounts in the CNMV database. In particular, the level of gross property, plant and equipment, which is required as a control variable in order to estimate normal depreciation, does not appear. Moreover, as we analyse the pattern of accruals following equity offering, it is advisable to focus on processes with homogeneous reversion.

One of the most recent and innovative models developed to estimate abnormal accruals, has been published in Poveda (2005). In this article, the author proposes a new approach to estimate the abnormal component of current accruals which has shown good specification and power properties to detect earnings management in the Spanish stock market. From an operational point of view, the main innovative advantage of the model is the separate estimation of each component of current accruals controlling each one by the variables which really drive its normal behaviour. In this way, it is possible to avoid the problems of an aggregate estimation, which entails simultaneous employment of relevant control variables for some components with irrelevant control variables for the others. The other important operational advantage of the Poveda model is the fact that sales are considered as a potentially managed variable which must be used as an independent variable in order to extract its abnormal component. That is, sales are not an exogenous variable but potentially managed so it is not appropriate to employ them as an independent variable in the models. What is more, as sales are not an independent variable, it is suitable to control them by cash flows, which are robust to earnings management<sup>10</sup>. The power of earnings management tests based on sales or purchases is superior using this specification instead of traditional models such as the modified Jones model.

From a methodological point of view, the narrow data availability does not allow us any time series approach as in Spain we only have accounting data from 1990. Therefore, the optimal specification to exploit the information contained in our financial statements data base is the panel data approach. In this context, we have to remember that, owing to the data employed in the area of earnings management, explicative variables would probably be correlated with regression residues. Thus, to avoid the problem of endogeneity, we introduce an unobservable heterogeneity component into the panel-data models. This component enables us to control individual characteristics which are not observable, or not identified by investors, but which could be correlated with the residue employed as a proxy for discretion. In this way, the model has been estimated in each sector-panel (requiring temporal series with a minimum of four observations in addition to the minimum of ten firms in each sector-year cluster) using the following fixed-effects specification:

$$\left. \begin{aligned} \frac{NSALES_{jt}}{MTA_{jt}} &= \mu_j + \sum_{i=1991}^{2007} DY_{it} \rho_i + \alpha_j + \beta_{1j} \frac{CFS_{jt}}{MTA_{jt}} + v_{jt} \\ \frac{NP_{jt}}{MTA_{jt}} &= \eta_j + \sum_{i=1991}^{2007} DY_{it} \lambda_i - \gamma_j + \beta_{2j} \frac{CFP_{jt}}{MTA_{jt}} + \omega_{jt} \\ \frac{\Delta INVENT_{jt}}{MTA_{jt}} &= \tau_j + \sum_{i=1991}^{2007} DY_{it} \phi_i + \kappa_j - \beta_{3j} \frac{CFP_{jt}}{MTA_{jt}} - \beta_{4j} \frac{CFS_{jt}}{MTA_{jt}} + \delta_{jt} \end{aligned} \right\} \quad (6)$$

Where the subscript  $j$  refers to the firms and the subscript  $s$  refers to the activity sector which the  $j$  companies belong to.  $NSALES_{jt}$  is the value of net sales,  $MTA_{jt}$  is the mean total assets from year  $t-1$  to year  $t$ ,  $CFS_{jt}$  is the cash-flow generated by sales and services,  $NP_{jt}$  is the value of net purchases,  $CFP_{jt}$  is the cash-flow generated by purchases and  $\Delta INVENT_{jt}$  is the inventory variation, for firm  $j$  in year  $t$ . The unobservable heterogeneity coefficients are inserted in each

10 A similar argument could be applied to purchases.

equation, and the year dummy variables  $\{DY_y : y = 1991...2002\}$  are to identify possible changes in mean current accruals based on the economic cycle, price trends etc. Once the model is estimated using samples of sector-panels "clear" of earnings management, coefficients are used to "predict" the normal component of the accrual. Abnormal accruals are then computed as the difference between these variables and the normal component estimation.

As pointed out in Fields et al. (2001), the most relevant problem in using abnormal accrual models to test earnings management is specification error when sample firms have extreme financial performance<sup>11</sup>. In this context, Kothari et al. (2005) propose controlling for the impact of performance on estimated discretionary accruals using a performance-matched firm discretionary accrual. Their results indicate that matching on ROA provides the best specified and most powerful measures of discretionary accruals. Moreover, Kothari et al. (2005) show that performance matching is critical to designing a well-specified test of earnings management. The procedure we have followed to obtain the performance-matched abnormal accruals consists of matching SEO firms with non-issuing firms in the same year and industry and closest in terms of ROA. Therefore, the performance-matched abnormal accrual results from the difference between the abnormal accrual for the issuing firm and the abnormal accruals for their matching companies. The assumption underlying this procedure based on Kothari et al (2005) is that the real discretionary accruals of the control firm is zero or near to zero, and the only single component of discretionary accrual proxy is due to the common measure error induced by performance:

$$MAACC_{i,t}^m = \left( \frac{AACC_{i,t}^m}{DA_{i,t} + \eta_{i,t}^m} \right) - \left( \frac{AACC_{m,t}^m}{DA_{m,t} - \eta_{m,t}^m} \right) \quad (7)$$

$$MAACC_{i,t}^m = DA_{i,t} + \underbrace{(\eta_{i,t}^m - \eta_{m,t}^m)}_{\text{BIA matched } \neq 0}$$

where  $MAACC_{i,t}^m$  is the matched-performance abnormal accrual proxy for firm  $i$  in year  $t$  estimated using model  $m$ ;  $AACC_{i,t}^m$  is the abnormal accrual proxy for firm  $i$  in year  $t$  estimated using model  $m$ ;  $DA_{i,t}$  is the discretionary accrual for firm  $i$  in year  $t$ ; and  $\eta_{i,t}^m$  is the measure error induced by model  $m$  for firm  $i$  in year  $t$ . All tests of abnormal accruals (estimated with the Poveda model) are based on the performance matching procedure developed by Kothari et al. (2005) in order to assess a correct specification in a context where correlation between the analysed event and the firm's accounting performance exists.

## 5. ACCRUALS PATTERN AROUND THE TIME OF THE OFFERING

### 5.1. Current accruals around the issue of equity

As a first approximation, we examine the pattern of current accruals without getting into the estimation of the normal component. In order to control for temporal effects on this profile with

11 Dechow et al. (1995), Guay, et al. (1996), Healy (1996) and Dechow et al. (1998) among others, have verified the correlation between abnormal accruals estimated by common accruals models and firm performance.

regard to the specific year in which the offering is made, or related to isolated sector patterns, we also analyse the performance of current accruals in relation to non-event control samples. With this aim, and in order to ensure the robustness of results, control firms are selected following two alternative criteria. Table 3 displays the results of this first approximation.

**Table 3**  
Current total accruals around seasoned equity offerings

Obs: Number of observations; Mean ACC: mean current total accruals deflated by lagged assets; p-value mean ACC: p-value of the two-sided test of the null hypothesis of  $\text{Mean}(ACC)=0$ ; p-value median ACC: p-value of the Wilcoxon test of the null hypothesis of  $\text{Median}(ACC)=0$ ; Mean MACC: mean of the matched current total accruals with the matching variable indicated in each panel; p-value mean MACC: p-value of the two-sided test of the null hypothesis of  $\text{Mean}(MACC)=0$ ; p-value median MACC: p-value of the Wilcoxon robust test of the null hypothesis of  $\text{Median}(MACC)=0$ ; Event Year: Year of SEO; Year (j- Year) relative to the SEO year. Significant coefficients, at least at 10% nominal size, are shown in bold.

PANEL A: Matched-performance current total accruals around seasoned equity offerings					
	Obs	Mean MACC	p-value mean MACC	Median MACC	p-value median MACC
Year -1	47	0.0411	0.29	0.0509	0.09
Event Year	47	<b>0.0635</b>	0.04	<b>0.0287</b>	0.02
Year +1	47	0.0357	0.10	0.0124	0.31
Year +2	47	-0.0048	0.83	-0.0034	0.78
Year +3	47	0.0350	0.12	0.0154	0.06

PANEL B: Matched-sector current total accruals around seasoned equity offerings					
	Obs	Mean MACC	p-value mean MACC	Median MACC	p-value median MACC
Year -1	53	0.0422	0.15	0.0349	0.27
Event Year	53	<b>0.0585</b>	0.03	0.0193	0.10
Year +1	53	0.0380	0.01	-0.0058	0.37
Year +2	53	0.0173	0.25	0.0121	0.17
Year +3	53	0.0056	0.65	0.0038	0.38

Firstly, in Panel A of Table 3, the "MACC" variable measures the excess of offering firms' current accruals in relation to non-event firms with similar ROA, in the same sector-year. The mean pattern of this adjusted variable reaches the maximum value (0.0635) in year 0 where it is statistically significant with a p-value of 4% in a two-sided t-Student test. In the post-issue years there is a clear decline and values are not statistically different from zero. If we focus on medians, once again the maximum statistically significant value of performance adjusted accruals is located in the event year (0.0287) with a Wilcoxon p-value of 2%.

Secondly, to provide an alternative adjusted measure of abnormal accruals, in Panel B of Table 3, the "MACC" variable measures the excess of offerings firms' current accruals in relation to the non-event sector medians. Observing the time profile of means, the highest level is reached in the event year with an excess of 0.0585, statistically significant at a level of 3%. If we focus on the years after the offering, the pattern of adjusted accruals once again reflects a progressive decline in the mean of excess. Using non-parametric tests, results are qualitatively similar but there is not enough evidence to defend the statistical significance of the medians. The minimum p-value is again located in the event year but it is around 10%.

## 5.2. Matched abnormal accruals analysis

In this subsection we analyse whether the accrual pattern holds if we break down accruals into their normal and abnormal components using the procedure presented in Section 4. Table 4 shows the matched abnormal accruals around the SEO date<sup>12</sup>.

**Table 4**  
Matched abnormal accruals following seasoned equity offerings

Obs: Number of observations; Mean: mean of the matched abnormal accruals from the panel data Poveda (2005 model) and with the matching variable included in each panel; pv mean: p-value of the two-tailed test of the null hypothesis of Mean=0; pv med: p-value of the Wilcoxon robust test of the null hypothesis of Median=0; Year 0: Year of SEO; Year -1: Year j relative to the SEO year. Significant coefficients, at least at 10% nominal size are shown in bold.

	Obs	Matched by return on assets				Matched by sector median			
		Mean	pv mean	Median	pv med	Mean	pv mean	Median	pv med
Year -1	48	<b>0.0561</b>	0.26	0.0165	0.26	<b>0.0634</b>	0.02	0.0193	0.21
Year 0	48	<b>0.0698</b>	0.01	<b>0.0437</b>	0.01	<b>0.0710</b>	0.00	<b>0.0502</b>	0.01
Year +1	46	<b>0.0291</b>	0.09	0.0760	0.31	<b>0.0518</b>	0.00	<b>0.0434</b>	0.00
Year +2	48	0.0281	0.13	0.0112	1.00	<b>0.0404</b>	0.02	0.0201	0.13
Year +3	46	<b>0.0371</b>	0.02	0.0267	0.52	<b>0.0424</b>	0.01	0.0139	0.26

We notice how the highest level of abnormal accruals is located in the event year regardless of the matching procedure employed. This maximum is supported by low p-values giving statistical significance at 1%, which allow us to reject the absence of earnings management. Concretely, with the performance matching procedure described in Section 4, the maximum mean value (0.0698) is reached in year 0 with a statistical p-value of around 1%. In the following years a clear decline can be observed. If we focus on medians, results are quite similar, also with a peak (0.0437) in the event year, which is significant at 1% using the non parametric test of Wilcoxon. On the right side of Table 4, we replicate the same analysis but measuring the excess of abnormal accruals in relation to the median of the non-event firms' sector-year. Results are very similar with a mean and median pattern showing the maximum value in the event year and a subsequent decrease.

Therefore, the results show that the peak in abnormal accruals is in fiscal year 0. The highest matched abnormal accruals, both in mean and median, positive and statistically significant is located in year 0. Moreover, the results are robust to different models and matching abnormal accruals by ROA or by sector medians. Although we argue that it could be possible to find overstated earnings in year -1, in this year not only is the level of abnormal accruals lower than in year 0 but they are only statistically significant in mean and not in median analysis. Therefore, these results suggest that earnings management practices persist immediately after the offer announcement, as we argued previously; in fact, in some cases we obtain significant abnormal accruals even in year +1.

In summary, we can say that the results seem to confirm that issuing firms make use of discretion to overstate earnings around the offering year. The new question is if these accounting practices have any relationship with the stock price underperformance suffered by equity issuers in the years following this decision.

12 Tests have been replicated using the modified Jones model developed by Dechow et al. (1995) estimated by cross section and with panel data. Results are qualitatively similar to those presented in the tables for the panel data Poveda model so they are robust to model specification and estimation procedures. These results are available from the authors.

## 6. EARNINGS MANAGEMENT AND POST-OFFERING STOCK UNDERPERFORMANCE

The results in the previous section show the highest level of positive abnormal accruals in year 0 earnings; that is, in the earnings published immediately after the offering announcement. Now we would like to turn our attention to the question of whether these unusually abnormal accruals affect post-offering stock returns. To test this relationship, we must take into account the fact that the return analysis period should start after the market receives accruals information. Thus, to allow the market to implement a strategy based on the accrual information, this information should be available prior to the return accumulation period. This data availability constraint on the accruals forces us to examine post-issue returns beginning the month after the publication of the year 0 financial statement as Teoh, Welch and Wong, (1998b) and Rangan (1998) propose. Accordingly we apply the methodological procedures explained in Section 3 to analyze the stock return performance of offering firms after the publication of the year 0 financial statement. In Figure 3 we can see the time line illustration.

**Figure 3**  
Accumulation period to implement the strategy

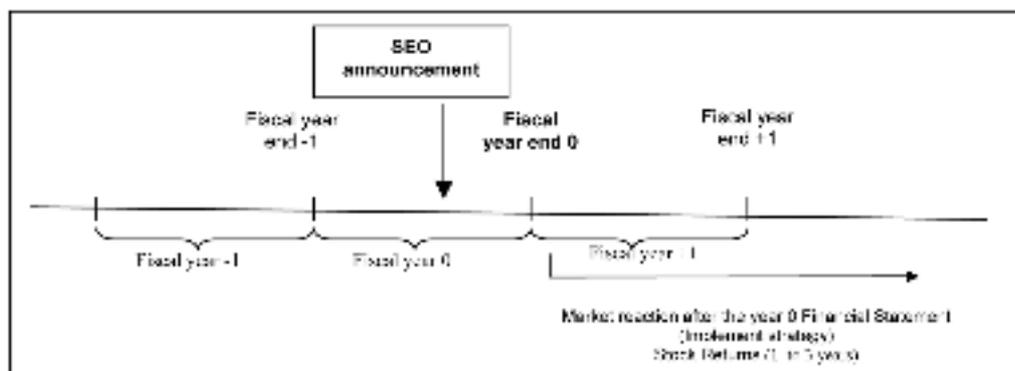


Figure 4 shows the mean abnormal compound return for the SEO sample during the 36 months following the year 0 financial statement. As this publication is always several months after the offer announcement, in this figure we do not observe the positive abnormal returns detected in Figure 2 for the first months after the announcement. This figure shows that once the figures provided by financial statements become known the market starts, or perhaps has already started, to correct its optimism. So, in light of these results, it is possible that the market's overoptimism could be induced by different sources. For example, overstated financial statements, not only yearly but also prior quarter or semi-annual publications and/or analysts' forecasts<sup>13</sup>. This hypothesis would be in line with the results obtained for the Spanish market by Pastor and Gómez (2006). These authors document that analyst forecast errors, defined as the difference between the real earning and analyst predictions, are significantly more negative for offering firms; consistent with the existence of overoptimistic expectations about the future earnings of issuing firms. They also analyze the relationship between these forecast errors and post-offering abnormal returns, finding that stock price underperformance is more pronounced for issuing firms with higher analyst optimism.

<sup>13</sup> We acknowledge the anonymous referee for giving us this possible interpretation of the results.

**Figure 4**  
Long-run abnormal returns following year 0 financial statement

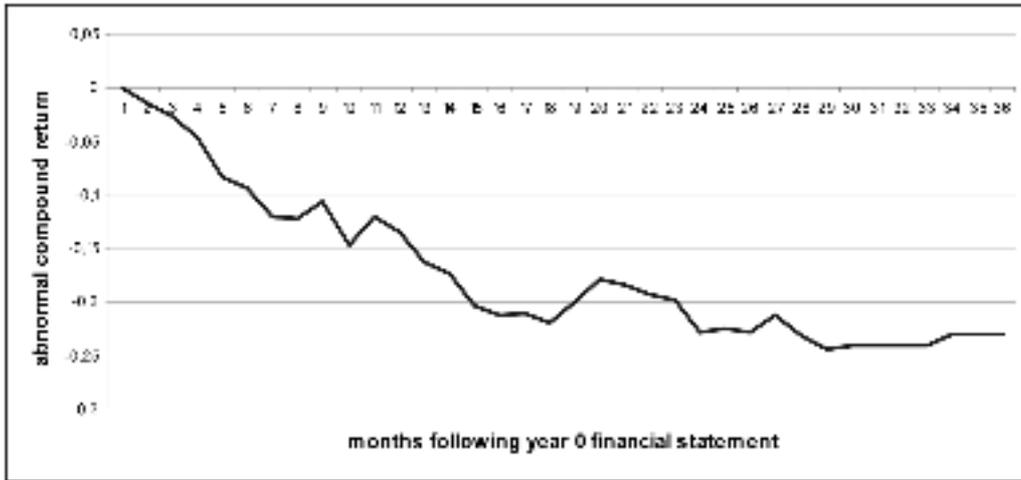


Table 5 reports average abnormal compound returns for the one, two and three-year period following the year 0 financial statement. Results are very similar to those in Table 2, adjusted returns are negative and statistically significant for the three periods analyzed. In the same way as in Table 2, we also analyze the abnormal monthly mean return estimated with the Fama and French (1993) model in calendar-time regressions and find qualitatively similar results; the intercept from the Fama-French model is negative and significant for the three horizons analyzed.

**Table 5**  
Stock return performance following the year 0 financial statement

Panel A shows the mean abnormal compound return for issuing firms in the one, two and three-year period following the year 0 financial statement. This panel also reports results of traditional t-test and skewness-adjusted t-test using the bootstrap technique to evaluate statistical significance. Panel B shows the abnormal monthly mean return in the post-offering period estimated with the Fama-French model in calendar-time regressions. We first estimate the Fama-French regression using White's covariance estimator, followed with heteroskedasticity. Secondly, we estimate the regression with weighted least squares estimation where the weighting factor is based on the number of securities in the portfolio in each calendar month.

Panel A. Abnormal compound return in the post-offering period						
Analytic period	AAComp (%)	Traditional statistic	Bootstrap p-value	Skewness-adjusted	Bootstrap p-value	
12 months	-16.33%	-2.98	(0.00)	-2.69	(0.00)	
24 months	-22.79%	-3.33	(0.00)	-3.01	(0.00)	
36 months	-22.82%	-3.33	(0.00)	-3.15	(0.00)	

Panel B. Abnormal monthly mean return with Fama-French model in calendar-time regressions						
Analytic period	White estimation			Weighted least squares estimation		
	$\hat{\alpha}_0$ (%)	t-stat	p-value	$\hat{\alpha}_0$ (%)	t-stat	p-value
12 months	-0.61	-2.72	(0.00)	-0.69	-2.43	(0.01)
24 months	-0.68	-2.70	(0.00)	-0.72	-2.37	(0.02)
36 months	-0.59	-1.98	(0.05)	-0.67	-2.14	(0.03)

Despite the fact that, as we have just explained, market overoptimism could be induced by several sources, in this study our key objective is to evaluate the extent to which unusually high abnormal accruals detected in year 0 have an influence on these post-offering returns<sup>14</sup>. To address this possible relationship we first examine differences in stock returns among three tercile portfolios grouped by levels of year 0 matched abnormal accruals. Alternatively, we carry out a regression analysis of post-issue returns on year 0 matched abnormal accruals.

### 6.1. Post-offering returns by matched abnormal accruals terciles

In this section we study the relationship between discretionary accruals and post-offering returns by examining the stock return performance of tercile portfolios grouped by levels of year 0 discretionary accruals. Figure 5 shows the abnormal return performance for the SEO firms grouped in terciles by performance matched abnormal accruals. We can observe how tercile returns are monotonic; the higher the discretionary accruals the poorer the stock return performance. Abnormal returns for the first conservative tercile are near to zero. The second tercile underperforms but the third aggressive tercile suffers from the most dramatic decrease<sup>15</sup>.

**Figure 5**

SEO firms' abnormal return performance by matched abnormal accruals

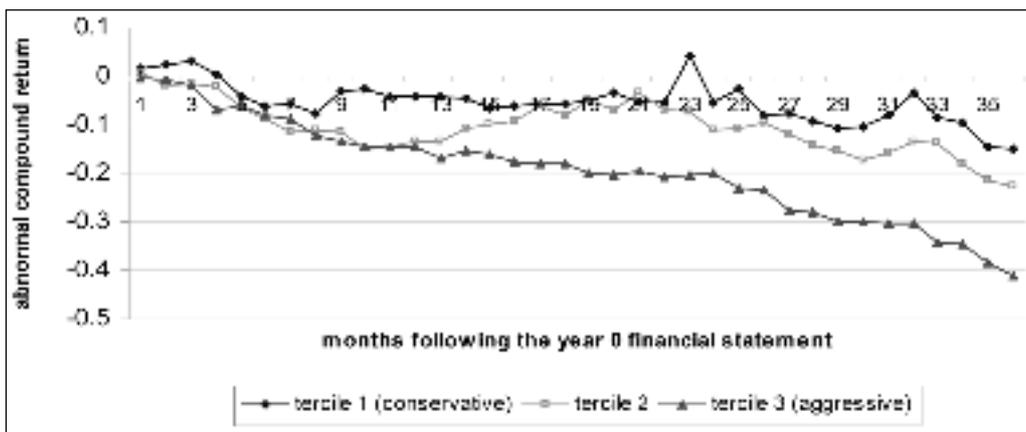


Table 6 reports abnormal compound returns and their statistical significance for the three tercile portfolios, in the one, two and three-year periods. As Figure 5 illustrated, the higher the discretionary accruals, the poorer the stock return performance. Concretely, for the one-year period the mean abnormal return for offering firms in the first conservative tercile is -4.16% and it is not statistically significant. However, abnormal returns for the second and third tercile experience a strong decrease to -13.64% and -14.73% respectively. This last result for the more aggressive tercile is statistically significant, inferring the empirical distribution by bootstrap, with p-values of 2% and 3% after correcting for asymmetry.

<sup>14</sup> All abnormal returns in this section are computed starting after the publication of year 0 financial statement.

<sup>15</sup> Results are qualitatively similar sorting SEO firms on the basis of matched abnormal accruals by sector medians. We have also replicated the analysis using the modified Jones model and the results are similar to those presented here.

If we focus on tercile returns for the second year period we detect a very similar pattern, terciles with higher discretionary accruals experience more negative abnormal returns. Specifically, the mean adjusted returns for the first and second terciles are -5.47% and -11.22, respectively and they are not statistically significant, while the mean abnormal return for the third tercile is -20.05% and statistically significant. Centering our attention on the three-year period, once again tercile returns have the same behavior. In this case, the mean abnormal returns for the first and second tercile are -14.91% and -22.57%, respectively, and they are not statistically significant; with the adjusted return for the third aggressive tercile being -41.32% and statistically significant. Thus, the results in Table 5 confirm that the post-issue stock return underperformance is larger for companies with higher abnormal accruals.

**Table 6**  
SEO firms' stock return by matched abnormal accruals terciles

Panel A displays the mean abnormal compound return for SEO firms' terciles based on matched abnormal accruals in the one, two and three-year period following the year 0 financial statement. It also reports results of multivariate tests and *t*-tests (two-sided) just using the bootstrap technique to evaluate statistical significance of abnormal returns. T1 is the conservative tercile, i.e. the tercile formed by SEO firms with lower discretionary adjusted accruals, T2 is the middle tercile, and T3 is the aggressive tercile, formed by firms with higher earnings management. Panel B shows the abnormal monthly mean return for SEO firms' accruals terciles. The abnormal monthly mean return,  $\hat{\alpha}_p$ , is estimated as the intercept of the formal benchmark model in calendar-time regressions estimated by weighted least squares.

Terciles	12 months period			24 months period			36 months period		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
<b>Panel A. Mean Abnormal Compound Returns by discretionary accruals terciles.</b>									
AAR (adj %)	-1.16	-13.01	-14.91	-5.47	-11.22	-20.05	-14.91	-22.57	-41.32
t-statistic	-0.02	-1.61	-2.62	-0.53	-0.61	-2.18	-1.50	-1.23	-3.45
Bootst. p-value	(0.78)	(0.11)	(0.09)	(0.59)	(0.48)	(0.04)	(0.14)	(0.29)	(0.03)
Skew. Adj. t	-0.51	-1.73	-2.53	-0.49	-0.75	-1.97	-1.24	-1.14	-1.52
Bootst. p-value	(0.74)	(0.09)	(0.06)	(0.61)	(0.46)	(0.07)	(0.29)	(0.29)	(0.09)
<b>Panel B. Calendar-time analysis by discretionary accruals terciles.</b>									
$\hat{\alpha}_p$ (%)	0.56	-0.49	-0.82	-0.05	-0.30	-1.43	-0.23	-0.28	-1.01
t-statistic	0.70	-1.08	-1.98	-0.14	-0.90	-3.92	-0.77	-0.49	-2.51
p-value	(0.48)	(0.31)	(0.05)	(0.89)	(0.37)	(0.00)	(0.45)	(0.62)	(0.01)

Additionally, we investigate the relationship between previous earnings management and post-offering stock returns by applying the previously explained calendar-time approach to each abnormal accrual tercile. Results are shown in Panel B of Table 6. For the one-year period, the abnormal monthly mean return,  $\hat{\alpha}_p$ , for SEO firms in the first conservative tercile is 0.56%, and it worsens for the second tercile with a monthly mean value of -0.49%. In any case, both values lack statistical significance. Looking at the third aggressive tercile, we observe how the abnormal monthly mean return is much more negative with a value of -0.82%, significant with a statistical p-value of 5%. If we focus on terciles for the second year period, we detect a very similar pattern in their regression intercepts. For the first and second terciles the values are -0.05% and -0.30%, respectively and they are not statistically significant. However, the abnormal monthly mean return for the third aggressive tercile is -1.43% and significant with a statistical p-value near to zero. Looking at the three-year period, once again tercile returns experience the same behavior. In this case, the abnormal monthly mean returns for the first and second terciles are -0.23% and -0.28%, respectively, and they are not statistically significant; the abnormal

monthly return for the third tercile is -1.01% and statistically significant at 1%. These results are in line with those obtained with the abnormal compound return analysis and confirm that the post-offering stock return underperformance is larger for companies with higher discretionary accruals. Thus, the results in both panels of Table 6 indicate that year 0 discretionary accruals affect abnormal returns in the subsequent years.

## 6.2. Post-offering returns and earnings management: regression analysis

In this section we employ a regression analysis to examine whether year 0 abnormal accruals influence subsequent poor stock price performance. With this aim we run the following regression:

$$ACoR_{i\tau} = \mu + \sum_{j=1}^{\tau} DY_{jt} - \sum_{s=1}^{\tau} DS_{st} + \beta MAACC_i^0 + \beta LSIZE_i + \alpha LBTM_i - \alpha SLGW_i + \gamma GROSS_i + v_{i\tau} \quad (8)$$

where  $ACoR_{i\tau}$  is the abnormal compound return of company  $i$  in period  $\tau$ ,  $\tau$  being the one, two and three-year-periods following the offering. As different studies document that firm size and book-to-market ratio explain the cross-section variability in stock returns, we include the log of market capitalization ( $LSIZE_i$ ) and book to market ratio ( $LBTM_i$ ) as control variables. Additionally, the regression also includes pre-offer sales growth ( $SLGW_i$ ), gross proceeds of the issue ( $GROSS_i$ ), sector ( $DS_s$ ) and year ( $DY_y$ ) dummy variables.

$MAACC_i^0$ , is the matched abnormal accruals for year 0, information which is available for investors at the beginning of the period over which abnormal returns are computed. If the market understands the implications of these discretionary adjustments, the coefficient on  $MAACC_i^0$  will be zero. However, if investors misinterpret these accounting practices, believing that high earnings due to discretionary accruals reflect good expectations, they could overvalue equity issuers and gradually correct this overvaluation in the post-offering period. So, according to this argument a negative relationship would be expected between the level of year 0 discretionary accruals and post-offering abnormal returns. That is, the greater the earnings management at the time of the offering, the larger the post-issue price correction.

Table 7 displays the results of regression (8) computing abnormal accruals matched by ROA and, alternatively, by sector medians. The lack of certain information to estimate these variables entailed the reduction of the event sample. We run each regression with the number of events,  $N$ , with enough information to estimate abnormal accruals. To conserve space, we do not report coefficient estimates for control variables. On the left hand side of Table 7, the explanatory variable is the abnormal accrual matched by ROA. For the three temporal horizons analyzed, the coefficient of the matched abnormal accruals is negative, thus confirming that the higher the level of earnings manipulation the lower the post-issue return performance. Moreover, this negative relationship is more pronounced as the return analysis period increases. However, these negative estimation coefficients are not statistically significant. Thus, although the results of the tercile analysis, both with the event time and with the calendar time approach, are robust showing a significant negative relationship between matched abnormal by ROA accruals and abnormal returns; with this regression analysis the relationship appears to be negative but results lack statistical significance.

Next we repeat the regression analysis but with abnormal accruals matched by sector median as the explanatory variable. Again the coefficients of matched abnormal accruals are negative for

the three temporal horizons and once again these coefficients are more negative as the analysis period of returns increases. In addition, in this case and similar to the results in Table 6, the negative relationship is statistically significant for the three temporal horizons analysed. Therefore, the estimation coefficients of abnormal accruals are always negative, confirming the negative relationship, however when matching abnormal accruals by ROA it lacks statistical significance.

**Table 7**  
Matched abnormal accruals in year 0 and subsequent stock performance

Panel A table reports coefficients of equation (9) as well as their p-values in brackets.  $ACAR_{it}$ ,  $ACAR_{it}$  and  $ACAR_{it}$  are abnormal returns for the one, two and three-year post-offering period, respectively.  $MAACC_{it}^0$  is the level of matched abnormal accruals in the SEO year. Panel B reports coefficients of equation (13) as well as their p-values in brackets.  $UE_{it}$  is the unexpected ROA variation. Significant coefficients at a least 10% nominal level are shown in bold.

	Matching by return on assets			Matching by sector median		
	$ACAR_{it}$	$ACAR_{it}$	$ACAR_{it}$	$ACAR_{it}$	$ACAR_{it}$	$ACAR_{it}$
<b>Panel A. Matched abnormal accruals and subsequent stock returns.</b>						
N	41	41	38	44	44	39
coeff $MAACC_{it}^0$	-0.226	-0.5345	-1.1842	-0.5168	-0.8202	-1.3646
p-value	(0.50)	(0.23)	(0.42)	(0.27)	(0.09)	(0.02)
<b>Panel B. Matched abnormal accruals and subsequent stock performance: Rangan's approach.</b>						
N	41	41	38	44	44	39
coeff $MAACC_{it}^0$	-0.2457	-0.7978	-1.1414	-0.6025	-1.3068	-2.3674
p-value	(0.29)	(0.02)	(0.48)	(0.28)	(0.01)	(0.02)
coeff $UE_{it}$	1.3164	6.1702	4.2064	1.0216	5.0727	3.2713
p-value	(0.83)	(0.02)	(0.02)	(0.11)	(0.00)	(0.11)

In order to complete the study of how abnormal accruals affect subsequent long-run returns we develop an alternative regression analysis employing a framework similar to Rangan (1998). Concretely, this author links abnormal returns with earnings changes and abnormal accruals:

$$ACAR_{it} = \gamma_0 + \gamma_1 UE_{it} + \gamma_2 MAACC_{it}^0 + \alpha_{it} \tag{9}$$

Hence abnormal compound returns in the post-offering period can be expressed as a function of two components. The first,  $UE_{it}$  represents unexpected ROA variation not explained by the earnings management of the SEO year. If the decline in stock prices following the issue is due to a gradual correction of market expectations as earnings reverse, a positive relationship between stock returns in the post-offering period and the unexpected change in ROA is expected ( $\gamma_1$  will be positive). The second component,  $MAACC_{it}^0$ , are matched abnormal accruals for the SEO year. In this context, if the market is efficient, it will react only to the unexpected earnings and not to abnormal accruals, so the  $\gamma_2$  coefficient will be zero. However, if investors fail to understand the implications of these discretionary adjustments for ROA,  $\gamma_2$  will be negative.

We run regression (9) with control variables of the log of market capitalization and book to market ratio, pre-offer sales growth, gross proceeds of the issue, and sector and year dummy variables. Coefficient estimations of this equation as well as their p-values in brackets are reported in Panel B of Table 7. To conserve space we do not report coefficients estimates for control variables. The left hand side of Panel B in Table 7 reports results when the explanatory

---

variable is the abnormal accrual matched by ROA. Similar to results in Panel A we observe that, as for every period, the estimation coefficient of the matched abnormal accruals is negative. However, this negative relationship is only statistically significant for the two-year return analysis period. If we look at UE coefficients, as we have anticipated for every period, there is a positive relationship between the decrease in unexpected variation in ROA and the decline in returns; this relationship being statistically significant for the two and three-year periods. On the right side of this panel, we repeat the regression analysis, employing as explanatory variable the matching abnormal accruals by sector median. Once again, the relationship between abnormal accruals and subsequent returns is negative in all cases and, similar to results in Panel A, these negative coefficients of matched abnormal accruals by sector medians are statistically significant for the three temporal horizons.

In short, when we analyse post-offering return performance by matched abnormal accruals terciles we detect a very clear and significant negative relationship between abnormal accruals and future returns with robust for the event time analysis as well as for the calendar time approach. With regard to the regression results, the relationship between abnormal accruals and returns is always negative and significant with abnormal accruals matched by sector median but it lacks statistical significance in most cases when we employ ROA matched abnormal accruals.

## 7. CONCLUSIONS

A controversial topic in financial literature is stock price underperformance following equity issues. For Spanish rights issues, Pastor and Martin (2004) reported negative abnormal returns in the three-year post-issue period. In this study we employ a larger and more contemporary sample and we expand the methodology to test and compute long-run abnormal returns. Our results confirm the existence of negative long-run abnormal returns and we argue that this underperformance could be due to a gradual correction of an initial overvaluation affected by earnings management practices. Thus we analyse whether offering firms in Spain, despite issuing with subscription rights, manipulate earnings in order to influence market perceptions of the firm's value. Concretely, we explore whether discretionary accruals are used to boost reported earnings and if these earnings management practices are associated with post-offering abnormal stock returns. We find a peak in abnormal accruals in the offering year and a gradual decline thereafter. Moreover, the unusually high abnormal accruals in the SEO year are statistically significant matching abnormal accruals by ROA or by sector median.

Next we attempt to discern if there is any relationship between these accounting practices and underperformance in stock returns. We discover that SEO terciles with higher discretionary accruals have poorer stock return performance in the subsequent years, with this significant negative relationship being robust to the two alternative measures of post-offering abnormal returns, the event-time and the calendar time approaches. We also carry out two alternative regression analyses to explore the relationship between post-offering abnormal returns and previous earnings management. Results of all regressions also indicate that abnormal accruals in the offering year are negatively related to adjusted returns in the subsequent years although when we employ ROA matched abnormal accruals this relationship is in most cases not statistically significant.

Together, the results obtained in this study appear to confirm that, despite the fact that in Spain equity offerings are with subscription rights, managers exploit the discretion allowed in accounting rules to overstate earnings around the offering decision. This confirms that regardless of the flotation method directors can follow their personal interests by selling stock at a higher price than its fundamental value. Furthermore, the results show that these earnings management practices affect stock price overvaluation as in nearly all the analyses we obtain a significant negative relationship between year 0 abnormal accruals and post-offering long-run abnormal returns. Thus despite the fact that market overvaluation can be induced by different sources such as quarter or semi-annual financial statements or analyst forecasts previous to the year 0 financial statement, our results suggest that the market does not correctly interpret the implications of earnings management contributing to SEO firms' overvaluation.

The findings obtained contribute to the clarification of the considerable debate that the SEO anomaly has generated in recent years. It appears that there is something other than the biases that arise in long-run event studies, which until now have been the most employed explanation of the equity issue anomaly. Therefore, with this study we help to clarify this controversial topic, verifying that this anomaly is also present in the Spanish market and, although its intrinsic characteristics are very different from the US market and that equity offerings are with rights, this abnormal pattern seems to be affected by opportunistic earnings management. It is important to highlight the importance of having corroborated the abnormal accrual pattern around SEOs in a very different context from the USA, i.e. the Spanish market. Our results add evidence to support the proposal that the equity issue puzzle is not a local anomaly and is present in diverse markets with different legal SEO contexts, and very different accounting rules. The use and flexibility of accounting accruals are very different between Anglo-Saxon accounting systems (like the USA) and continental accounting systems (like Spain). Moreover, the differences between the USA and Spain in ownership concentration, investor protection and legal enforcement lead to different incentives around using accrual discretion to implement earnings management (Leuz et al., 2003; Hung, 2001). Despite all these differences, SEOs produce similar reporting patterns in very different markets as a global anomaly in line with the idea that not only accounting and market rules, but also other firms and/or national characteristics shape the final accounting policy choice (Leuz, 2005; Ball et al., 2003; Holthausen, 2003)<sup>16</sup>.

The implications of our results could be useful for practitioners valuing SEOs in the Spanish stock market as they should take into consideration the different measures of abnormal accruals to predict potential reversions in post-SEO stock performance. Finally, the fact of detecting earnings management practices is a very relevant question for consideration by Spanish market regulators. These institutions should defend and promote correct allocation of economic resources, so any distortion by managers should be closely followed. This kind of article could be helpful for institutions like the Spanish CNMV to understand the need for additional effort in the fight for transparency and quality of financial information revealed by firms.

---

16 We would like to thank the anonymous referee for giving us this possible interpretation of the results.

## Appendix 1

### Abnormal compound returns and calendar time abnormal monthly mean returns estimated with control portfolios

Panel A shows the mean-adjusted compound return (AACCR) for issuing firms in the one, two and three-year period following the offering. To estimate expected returns we employ control portfolios selected on the basis of size, BTM and size and BTM jointly. Concretely, to estimate the expected return we first select companies that have not issued equity in a three-year period before and after the selection date. Then these companies are grouped in size terciles, BTM terciles or size and BTM terciles and the normal return is the return of the issue firm's tercile. Panel A reports results of traditional t-test and skewness adjusted t-test using the bootstrap technique to evaluate statistical significance. Panel B shows calendar time abnormal monthly mean returns (MMAR) employing size and/or BTM control portfolios to estimated normal returns.

Panel A. Abnormal compound return estimated with control portfolios.									
Size control portfolios.									
Analysis period	AACCR (%)	Traditional t statistic	Bootstrap p-value	Skewness adjusted t	Bootstrap p-value				
12 months	-12.34%	2.19	(0.03)	2.53	(0.01)				
24 months	-15.68%	-2.94	(0.00)	-2.90	(0.00)				
36 months	-29.13%	-2.62	(0.01)	-2.62	(0.01)				
BTM control portfolios.									
Analysis period	AACCR (%)	Traditional t statistic	Bootstrap p-value	Skewness adjusted t	Bootstrap p-value				
12 months	10.32%	1.82	(0.06)	1.93	(0.05)				
24 months	-13.78%	-2.09	(0.04)	-2.10	(0.03)				
36 months	21.30%	2.62	(0.01)	2.78	(0.01)				
Size and BTM control portfolios.									
Analysis period	AACCR (%)	Traditional t statistic	Bootstrap p-value	Skewness adjusted t	Bootstrap p-value				
12 months	-11.41%	-2.14	(0.03)	-2.03	(0.04)				
24 months	-17.46%	-2.89	(0.00)	-2.76	(0.01)				
36 months	-25.36%	-2.52	(0.01)	-2.70	(0.01)				
Panel B. Calendar time abnormal monthly mean return estimated with control portfolios.									
	Size control portfolio			BTM control portfolio			Size-BTM control portfolio		
	12 months	24 months	36 months	12 months	24 months	36 months	12 months	24 months	36 months
MMAR (%)	0.82	0.59	0.79	0.65	0.48	0.68	0.71	0.52	0.58
t-stat	2.05	-2.07	-2.74	-1.91	-1.99	-2.76	-1.96	-2.01	-2.34
p-value	(0.04)	(0.04)	(0.01)	(0.06)	(0.05)	(0.01)	(0.05)	(0.04)	(0.02)

## REFERENCES

- Álvarez, S. and V.M. González (2005). The Long-Run Underperformance of Initial Public Offerings: a Methodological Problem? *Revista de Economía Aplicada*, 13, 37, 51-67.
- Arrondo, R. (1999). La Decisión de Financiación en un Contexto de Asimetría Informativa y Costes de Agencia. *IX Congreso Nacional de ACEDE*, Burgos.
- Arrondo, R. (2002). La valoración por el Mercado de capitales español de la decisión de ampliar capital: efecto informativo y costes de agencia. *Revista Europea de Dirección y Economía de la Empresa*, 11, 3, 35-46.
- Asquith, P. and Mullins, D.W. (Jr.) (1986). Equity Issues and Offering Dilution. *Journal of Financial Economics*, 15, 61-89.
- Ball, R.; Robin, A. and Wu, J. (2003). Incentives versus Standards: Properties of Accounting Income in Four East Asian Countries. *Journal of Accounting & Economics*, 36, 235-70.

- Barber, B. M. and Lyon, J. D. (1997). Detecting Long-Run Abnormal Stock Returns: the Empirical Power and Specification of Tests Statistics. *Journal of Financial Economics*, 43, 341-472.
- Blasco, N. and Ruiz, F.J. (1997a). Análisis de la valoración de los derechos de suscripción en relación a las ganancias de capital en el mercado bursátil español. *Revista Española de Financiación y Contabilidad*, XXVI, 90, 197-223.
- Blasco, N. and Ruiz, F.J. (1997b). Ampliaciones de capital y formación de precios exderecho de suscripción. *Información Comercial Española* 764, 95-104.
- Brav, A.; Geczy, C. and Gompers, P. (2000). Is The Abnormal Return Following Equity Issuances Anomalous? *Journal of Financial Economics*, 56, 201-249.
- Cai, J. (1998). The Long-Run Performance Following Japanese Rights Issues. *Applied Financial Economics*, 8, 419-434.
- Ching, K. ; Firth, M. and Rui, O. (2002). Earnings Management, Corporate Governance and the Market Performance of Seasoned Equity Offerings. *Working Paper*, Hong Kong Polytechnic University.
- Dechow, P., S. Kothari and R. Watts (1998). "The Relation between Earnings and Cash Flows". *Journal of Accounting and Economics*, Vol. 25, No.2, pp. 133-168.
- Dechow, P.M.; Sloan, R.G. and Sweeney, P. (1995). Detecting Earnings Management. *The Accounting Review*, 70, 193-225.
- Eckbo, B.E. and Masulis, R.W. (1992). Adverse Selection and the Rights Offer Paradox. *Journal of Financial Economics*, 32, 3, 293-332.
- Fama, E. (1998). Market Efficiency, Long-run Returns and Behavioural Finance. *Journal of Financial Economics*, 49, 283-306.
- Fama, E. F. and French, K. R. (1993). Common Risk Factors in the Returns on Stocks and Bonds. *Journal of Financial Economics*, 33, 3-56.
- Fields, T., T. Lys and L. Vincent (2001). "Empirical Research in Accounting Choice". *Journal of Accounting and Economics*, Vol. 31, No. 1-3, pp. 255-307.
- Guay, W., S. Kothari and R. Watts (1996). "A Market-based Evaluation of Discretionary Accrual Models". *Journal of Accounting Research*, Vol. 34, (Supplement), pp. 83-105.
- Hansen, R.S. (1989). The Demise of Rights Issue. *The Review of Financial Studies*, 1, 3, 289-309.
- Healy, P. (1996). "Discussion of a Market-based Evaluation of Discretionary Accrual Models". *Journal of Accounting Research*, Vol. 34, (Supplement), pp. 107-1
- Heron, R.A. and Lie, E. (2004). A comparison of the Motivations for and the Information Content of Different Types of Equity Offerings. *Journal of Business*, 77, 3, 605-632.
- Hess, A.C. and Bhagat, S. (1986). Size Effects of Seasoned Stock Issues: Empirical Evidence. *Journal of Business*, 59, 4, 567-584.
- Holthausen, R.W. (2003). Testing the Relative Power of Accounting Standards versus Incentives and other Institutional Features to Influence the Outcome of Financial Reporting in an International Setting. *Journal of Accounting & Economics* 36(1-3): 271.
- Hung, M. (2001). Accounting Standards and Value Relevance of Financial Statements: An International Analysis. *Journal of Accounting and Economics*, 30, 401-420.

- 
- Jeanneret, P. (2000). Use of the Proceeds and Long-Term Performance of French SEO Firms, *European Financial Management Association Congress (EFMA)*, Athens.
  - Jegadeesh, N. (2000). Long-Term Performance of Seasoned Equity Offerings: Benchmark Errors and Biases in Expectations, *Financial Management*, 29, 5-30.
  - Johnson, N. J. (1978). Modified t tests and confidence intervals for asymmetrical populations, *Journal of the American Statistical Association*, 73, 536-544.
  - Jones, J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, 29, 193-228
  - Kabir, R. and Roosenboom, P. (2002). Can Stock Market Anticipate Future Operating Performance. *Erasmus Research Institute of Management, ERIM Report Series Research in Management*, ERS-2002-102-F&A.
  - Kang, J. K.; Kim Y. C. and Stulz R. M. (1999). The Underreaction Hypothesis and the New Issue Puzzle: Evidence From Japan. *The Review of Financial Studies*, 12, 519-534.
  - Kothari, S. P. and Warner, J. B. (1997). Measuring Long-Horizon Security Price Performance. *Journal of Financial Economics*, 43, 301-339.
  - Kothari, S.P., A.J. Leone, and C.E. Wasley (2005). "Performance Matched Discretionary Accrual Measures". *Journal of Accounting and Economics*, Vol. 39, No. 1, pp. 163-197.
  - Lee, I. (1997). Do Firms Knowingly Sell Overvalued Equity? *Journal of Finance*, 52, 1439-1466.
  - Leuz, C. (2005). Cross Listing, Bonding and Firms' Reporting Incentives: A Discussion of Lang, Raedy and Wilson. *Forthcoming in the Journal of Accounting and Economics*. Available at SSRN: <http://ssrn.com/abstract=800304>
  - Leuz, C.; Nanda, D. and Wysocki, P. (2003). Investor Protection and Earnings Management: An internacional Comparison. *Journal of Financial Economics*, 69, 505-527.
  - Levis, M. (1995). Seasoned Equity Offerings and the Short and Long-Run Performance of Initial Public Offerings in the UK. *European Financial Management*, 1, 125-46.
  - Loughran, T. and Ritter, J. R. (1995). The New Issues Puzzle. *Journal of Finance*, 50, 23-51.
  - Loughran, T. and Ritter, J. R. (1997). The Operating Performance of Firms Conducting Seasoned Equity Offerings. *Journal of Finance*, 52, 1823-1850.
  - Loughran, T. and Ritter, J. R. (2000). Uniformly Least Powerful Tests of market Efficiency. *Journal of Financial Economics*, 55, 361-389.
  - Lyon J. D.; Barber, B. M. and Tsai C. (1999). Improved Methods for Tests of Long-Run Abnormal Stock Returns. *Journal of Finance*, 54, 165-201.
  - Martín, J.F. (2000). El precio de emisión como señal informativa en las ampliaciones de capital mediante derechos de suscripción preferente. *Revista Europea de Dirección y Economía de la Empresa*, 9,4, 47-60.
  - Martín, J.F. (2003). Equity Rights Issues in Spain: Flotation Costs and Wealth Effects. *Journal of Business Finance and Accounting*, 30, 1277-1304.
  - Masulis, R.W. and Korwar, A.N. (1986). Seasoned Equity Offerings: An Empirical Investigation. *Journal of Financial Economics*, 15, 91-118.
  - McLaughlin R.; Safieddine, R.A. and Vasudevan, G.K. (1996). The Operating Performance of Seasoned Equity Issuers: Free Cash Flow and Post-Issue Performance. *Financial Management*, 25, 4, 41-53.

- Mikkelsen, W.H. and Partch, M.M. (1986). Valuation Effects of Security Offerings and the Issuance Process. *Journal of Financial Economics*, 15, 31-60.
- Muhtaseb, M.R. and Philippatos, G.C. (1991). Determinants of Stock Price Reaction to Announcements of Equity Financing by U.S. Firms. *Applied Financial Economics*, 1, 2, 61-69.
- Myers, S.C. and Majluf, N.S. (1984). Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics*, 13, 2, 187-221.
- Pastor, M. J. and Gómez J. C. (2006). Predicciones de los analistas y expectativas optimistas de los inversores en las ampliaciones de capital. *Revista de Economía Financiera*, 8, 8-33.
- Pastor, M. J. and Martín J. F. (2004). Long-run Performance of Spanish Seasoned Equity Issues with Rights. *International Review of Financial Analysis*, 13, 191-215.
- Poveda, F. (2005). Nuevo Enfoque en la Estimación del Componente Anormal del Resultado. *Moneda y Crédito*, 221, 105-148.
- Rangan, S. (1998). Earnings Management and the Performance of Seasoned Equity Offerings. *Journal of Financial Economics*, 50, 101-122.
- Riaño, Ruiz and Santamaría (2004). Formación de precios de suscripción en el mercado bursátil español: algunas consideraciones. *Investigaciones Económicas*, XXVIII, 1, 141-191.
- Rubio, G. (1986). Emisiones y Eficiencia: Un Análisis Empírico del Mercado Primario de Acciones en España. *Revista Española de Economía*, 3, 2, 225-248.
- Rubio, G. (1987). El Contenido Informativo de los Derechos de Suscripción e Información Asimétrica en los Mercados Primarios. *Investigaciones Económicas* (Segunda época), 11, 2, 219-242.
- Shivakumar, L. (2000). Do Firms Misperceive Investors by Overstating earnings before seasoned equity offerings? *Journal of Accounting and Economics*, 29, 339-371.
- Singh, A.K. (1992). Common Stock Rights Offering and the Standby Underwriting Contract. *Working Paper*, Iowa State University.
- Slovin, M.B.; Sushka, M.E. and Lai, K.W.L (2000). Alternative Flotation Methods, Adverse Selection, and Ownership Structure: Evidence from Seasoned Equity Issuance in the U.K. *Journal of Financial Economics*, 57, 157-90.
- Spiess, D. K. and Affleck-Graves, J. (1995). Underperformance in Long-Run Stock Returns Following Seasoned Equity Offerings. *Journal of Financial Economics*, 38, 243-267.
- Stehle, R.; Ehrhardt, O. and Przyborowsky, R. (2000). Long-Run Stock of German Initial Public Offerings and Seasoned Equity Issues. *European Financial Management*, 6, 173-196.
- Teoh, S.; Welch, I. and Wong, T. J. (1998a). Earnings Management and the Underperformance of Seasoned Equity Offerings. *Journal of Financial Economics*, 50, 63-99.
- Teoh, S.; Welch, I. and Wong, T. J. (1998b). Earnings Management and the Long-Run Market Performance of Initial Public Offerings. *Journal of Finance*, 53, 1935-1974.
- Teoh, S.; Wong, T.J. and Rao, G.R. (1998). Are Accruals during Initial Public Offerings Opportunistic? *Review of Accounting Studies*, 3, 175-208.
- Zhou, J. and Elder, R. (2003). Audit Quality and Earnings Management by Seasoned Equity Offering Firms. *Working Paper*, School of Management, Binghamton University.