

# Market Valuation of Employee Stock Options: The Spanish Case

Raúl Íñiguez-Sánchez<sup>1</sup>  
Antoni Vaello-Sebastià<sup>2</sup>  
Pablo J. Vázquez-Veira<sup>1</sup>

## ABSTRACT

Focusing on Spanish firms, the aim of this paper is to investigate how investors incorporate the value of a firm's outstanding employee stock options (ESOs hereafter) into its stock price. Aboody (1996) analyzes the same issue on US data, however our approach improves the empirical specification by incorporating analysts' forecasts of future abnormal earnings. We find a negative correlation between the ESOs value and a firm's share price, revealing that "cost effect" dominates "incentive effect".

**Keywords:** Employee stock options; fair value; Firm value; vesting period.

**JEL Classification:** G3, J3.

# Valoración de mercado de opciones sobre acciones para empleados: el caso español

## RESUMEN

Tomando como base una muestra de empresas cotizadas españolas, el objetivo de este trabajo es analizar cómo los inversores incorporan en el precio de mercado el valor de los planes de opciones sobre acciones para empleados. Aboody (1996) estudia este mismo tema con datos de Estados Unidos, pero nuestro enfoque mejora su modelización empírica al incorporar las predicciones de resultados anormales de los analistas financieros. Nuestro estudio encuentra evidencia de una correlación negativa entre el valor de los planes de opciones sobre acciones para empleados y el precio de mercado de la acción, por lo que el denominado "efecto coste" del plan supera al denominado "efecto incentivo".

**Palabras Clave:** Opciones sobre Acciones para Empleados; Valor Equitativo; Valor de Empresa; Período de Adquisición de Derechos.

**Clasificación JEL:** G3, J3.

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<sup>1</sup>Universitat d'Alacant. Dept. Economía Financiera, Contabilidad y Marketing. Crtra. San Vicente del Raspeig s/n. -03690- (Alacant). We gratefully acknowledges financial support from the Ministerio de Ciencia e Innovación (ECO2008-06238-C02-01).

<sup>2</sup>Universitat de les Illes Balears. Dept. Economía de la Empresa, Crtra. Valldemossa, km. 7.5. Palma de Mallorca - 07112- (Illes Balears). Tel. 971 17 20 24. Fax. 971 17 23 89. Antoni Vaello-Sebastià acknowledges the financial support from the Spanish Ministry of Science and Innovation through the grant SEJ2007-67895-C04-03.

## 1. INTRODUCTION

Employee Stock Options (ESOs hereafter) plans have increasingly grown in popularity during the 1990s. In accordance with this popularity, a new strand of literature has turned up attempting to evaluate whether and how investors incorporate ESOs into stock price (e.g. Aboody, 1996; Li and Wong, 2004) or to compare the equity valuation implications of alternative approaches to accounting for ESOs (e.g. Landsman et al., 2005).

Regarding the motivation of our paper, we believe it becomes interesting to analyze ESOs valuation effects in the Spanish firms since it is an unexplored insight and the literature about ESOs in Spain is, at least, scarce. Moreover, we have the opportunity to explore how investors value ESOs in a different accounting system, such is the Spanish case. Finally, this paper follows the abnormal earnings valuation approach considered in Ohlson (1995), using analysts' earnings forecasts to account for the expected future abnormal earnings. Previous research (Aboody, 1996) relies on historical earnings, so we are clearly improving the information set.

ESOs issues affect share prices in two opposing ways: on the one hand, they suppose an extra cost and they dilute the value of the firm's outstanding stock since a new equity issue will be carried out for granting employees (cost effect). On the other hand, compensating employees with ESOs rather than with cash can be attractive to firms, as ESOs provide long-term incentives (incentive effect). So, a negative association between ESO value and share prices is expected if the "cost effect" dominates the "incentive effect". If the opposite holds, we expect a positive relation. Our results support the former.

Beyond investigating whether investors incorporate the ESO value into stock prices, we analyse whether investors' estimate of ESO value depends on the ESOs' vesting stage. On the one hand, granting options promotes an increase in productivity by employees who would like the share price to rise. This benefit is incorporated gradually into earnings and book value as time passes after the initial grant date. On the other hand, insofar as the cost of outstanding options is not entirely recorded by either the accounting numbers or the option pricing model (e.g., because of the presence of a "bad social reputation" cost) some of total cost from granting options remains unrecorded. Therefore, it is possible that with the passage of time the option's benefit becomes smaller than its cost. Results do confirm our expectations. Finally we also study the effects of both the intrinsic value of the ESOs and the number of outstanding ones.

The remainder of the paper is organized as follows. Section 2 discusses briefly international differences in accounting standards on share-based payments. Section 3 presents the ESO valuation model. Sample selection and data are described in section 4. Section 5 shows the empirical tests with its results, while Section 6 presents some additional analysis. Finally, section 7 concludes the paper.

## 2. INTERNATIONAL DIFFERENCES IN ACCOUNTING STANDARDS ON SHARE-BASED PAYMENT

Since our study is focused in Spain, it could be interesting to analyse the ESOs valuation implications in a different setting than U.S. studies. Following Aboody (1996), in the U.S. in October 1995 the *Financial Accounting Standards Board* (FASB) issued *Statement of Financial Accounting Standards* (SFAS) n°123 and suggested firms to estimate the fair value of ESOs at the grant date using an option pricing model. Nevertheless, firms are allowed to charge to earnings or only to disclose in footnotes the estimated value of options. FASB allows adjustments to the option value, as it can be used the option's expected life (accounts for early exercise) and the number of options expected to vest (accounts for employment termination). However, FASB does not allow adjusting over time the underlying stock parameters (as dividend yield, risk-free rate and volatility). *U.S. Generally Accepted Accounting Principles* (GAAP) also allowed share-based payments to be accounted for with intrinsic value method at grant date (*Accounting Principles Board* (APB) n° 25). The intrinsic value is the difference between share price and exercise price of the option, so share-based payments will be remeasured through profit or loss at each reporting

date until the option expires.

Relating to *International Financial Reporting Standards* (IFRS), IFRS 2 was issued in February 2004 to solve the difficulties in this area and fill the gap that existed in the treatment of ESOs. The accounting treatment depends on how the ESOs will be settled: through the issuance of an equity instrument or through the payment of cash. In the first case, the compensation cost is based on the fair value at the grant date and requires an increase of equity; in the second case a liability is remeasured each period. The expense should be recognised as the services are received: the issuance of fully vested shares relate to past services and full amount of the grant fair value is expensed immediately, while an issuance of ESO with a vesting period of 4 years is expensed through the 4 years.

Finally we should refer to the Spanish GAAP. Although share-based payments are not specifically addressed in the Spanish standards, the ICAC (*Instituto de Contabilidad y Auditoría de Cuentas*) pointed out in 2001 that the compensation should be included as an expense in the period the services are received; and a provision for share-based payments should be registered in the liabilities. The compensation expense is equal to the difference between exercise price and market price, and constitutes the retribution that employees will obtain. So it should be calculate the best possible estimation of this difference at the vesting date. Then, each fiscal year end and until the options are exercised, the firm should re-estimate the difference, according to all available information. This will cause the provision to increase or reduce, and a gain or loss will be registered. Finally, when an option is exercised its provision will be cancelled and a profit or loss would appear depending on the amount of the difference in the exercise date, while if an option is not exercised its provision will be cancelled and a profit would appear.

Therefore, since the method followed by Spanish firms is similar to the cash-settled share-based payment method, the valuation implications of ESOs in a different accounting system as Spain should be of research interest. As long as in Spain firms should include this compensation as an expense, researchers can investigate, in contrast to the US, how investors react to the accounting charge.

Relying on Spanish GAAP, contemporaneous accounting earnings should incorporate the entire expected cost from the share-based payments. However, benefits from incentives should be recognized on a long-run perspective. From the investors' point of view, both cost and benefit are immediately incorporated into price, once they are known. Whereas contemporaneous earnings fail to recognize the entire benefit from incentives, expected future earnings do not, because the bulk of the incentive effect is already recorded in a five-year horizon. So, we expect to find a non significant coefficient estimate on the ESO value when we include expected future earnings in the model, instead of contemporaneous earnings.

### 3. THE EMPLOYEE STOCK OPTION VALUATION MODEL

The aim of this paper is to analyse the valuation implications of ESOs. In order to carry out this analysis we need to estimate the value of the ESOs. Traditionally, ESOs have been valued using the intrinsic-value-based method. Through this method, the valuation of one ESO grant at time  $t$  would be

$$ESO_t = \max(S_t - K, 0)$$

where  $S_t$  is the underlying share price at time period  $t$  and  $K$  is the exercise price.

Following this approach, the cost of "at" and "out of the money" ESOs, should be zero. Obviously, this is an unrealistic approach, particularly for long-term options where the market share price can change widely. We would like to remark that in our sample the most common cases are ESOs granted at the money with a time to maturity of five years.

As we have seen before, since 1995 the SFAS n°123 encourages firms to adopt a fair-value-method for pricing ESOs. Firstly, someone can be tempted to use Black-Scholes (1973) closed-form formula; however ESOs have some differences with conventional options. Among others, the main differences between conventional options and ESOs are:

1. Vesting Period: During this initial period, employees are not allowed to exercise the options; for European-style ESOs, the vesting period is so long as the time to maturity.
2. Departure risk: If the holder of the ESO leaves the firm, he/she must exercise the vested ESOs, even though it is possibly not the optimal. If the ESOs are "at" or "out" of the money their cash flows will be 0. Moreover, if departure happens during the vesting period the holder loses the ESOs, independently of the moneyness.
3. Non-liquidity of ESOs and lack of diversification: On the one hand, ESOs cannot be sold. Thus the holder of the option has to exercise the ESO to achieve the gain although it could be the best to sell it if were tradable. On the other hand, employees cannot take short positions in firm's equity. Therefore employee portfolios support a large proportion of firm idiosyncratic risk (besides ESOs, employees are usually granted with restricted stocks of the company too). In consequence, the ESO holder behaviour is far from the risk-neutral one. This lack of both liquidity and diversification supposes early exercise behaviour, well documented empirically in several studies such as Huddart and Lang (1996), Carpenter (1998) or Bettis et al. (2005)<sup>1</sup>. The theoretical foundations of the "suboptimal" exercise behaviour of the executives can be found in Lambert et al. (1991) or Hall and Murphy (2001) among others.

In order to consider all these features, we use the Hull and White (2004) valuation method (HW hereafter). The model is a version of the Cox et al. (1979) binomial tree (CRR hereafter). Many studies also employ binomial trees to value ESOs: Ammann and Seiz (2004) use the CRR tree to propose a new way to value ESOs, while Bettis et al. (2004), Carpenter (1998) or Aboody (1996) also employ binomial trees in their empirical applications.

One advantage of the HW model over intrinsic-value method or Black-Scholes price is that it considers the possibility that the ESOs' holder leaves the firm. It explicitly incorporates an annual probability,  $\varepsilon$ , of firm's leaving. This probability is called exit rate. Suppose that the length of one time step of the binomial tree is  $dt = T/N$ , where  $T$  is the time to maturity of the ESOs in years and  $N$  is the total number of time steps in the tree. Then, the ESOs may be exercised every step with  $\varepsilon \cdot dt$  probability after the vesting period due to employee forfeiture, although exercise could not be the optimal. Nonetheless, during the vesting period, the ESOs can be cancelled every time step with the same probability. With probability  $(1 - \varepsilon \cdot dt)$  the employee remains in the firm and can hold the ESO or to exercise it.

Other feature that HW model incorporates is the (voluntary) early-exercise behaviour, which is modelled as a barrier. Following this approach, the first time the stock price reaches the barrier, the ESOs are exercised voluntarily. The barrier is fixed as  $M \cdot K$ , where  $K$  is the exercise price and  $M$  is the early-exercise multiple.

To summarize, ESOs will be exercised voluntarily when the stock price reaches the barrier ( $S_t > M \times K$ ), and involuntarily with probability of  $\varepsilon \cdot dt$  at every time step.

The tree for the underlying asset is built in the usual way under the risk neutral measure. We denote  $S_{t,j}$  as the stock price at time  $t$  and node  $j$ ,  $\nu$  is the vesting period,  $r$  is the risk-free rate and  $p$  is the risk-neutral probability of an up movement of the underlying asset. Then, the rules for the backward induction are the followings:

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<sup>1</sup>An analysis of the effects of these features on ESOs costs can be seen in Mun (2005).

$$\begin{aligned}
& C_{N,j} = \max(S_{N,j} - K, 0) && \text{(at maturity)} \\
\text{for } \nu \leq i \cdot dt \leq N - 1 & \text{ (vested ESOs)} && \\
\text{if } S_{i,j} > M \times K & C_{i,j} = \max(S_{i,j} - K, 0) && \text{(above the barrier)} \\
\text{if } S_{i,j} < M \times K & C_{i,j} = (1 - \varepsilon dt)e^{-rdt} [pC_{i+1,j+1} + (1 - p)C_{i+1,j}] + && \text{(below the barrier)} \\
& \varepsilon dt \max(S_{i,j} - K, 0) && \\
\text{for } 0 \leq i \cdot dt \leq \nu & \text{ (unvested ESOs)} && \\
& C_{i,j} = (1 - \varepsilon dt)e^{-rdt} [pC_{i+1,j+1} + (1 - p)C_{i+1,j}] &&
\end{aligned}$$

where  $C_{i,j}$  denotes the value of the derivative at time step  $i$  and node  $j$ .

Hull and White establish the barrier as a multiple of the exercise price for calibration reasons. Some studies report information of ESOs exercises characteristics. Carpenter (1998) has found in a U.S. sample, that ESOs with ten years to maturity are exercised, in mean, with a ratio , while Huddart and Lang (1996) obtain a value of 2.2 for the same ratio. Then, these values may be used as  $M$  proxies. Moreover, for the Carpenter (1998) sample the average cancellation rate of ESOs is 7.3 % meanwhile the median rate is 4.5%. These values may be used as a proxy of the exit rate.

In the Spanish case, there are no evidences for the exercise ratio  $S/K$  and for the exit rate  $\varepsilon$ . Then, for our purpose we use different values of the parameters to value the ESOs. We consider three possible early-exercise multiple,  $M \in \{1.5, 2, 2.5\}$ , and two possible exit rate values,  $\varepsilon \in \{0.05, 0.1\}$ . These assumptions allow us to calculate up to six different values for every ESO plan. We use  $M$  values lower than in Carpenter (1998) or Huddart and Lang (1996) because the exercise ratio is related with the time to maturity: the longer the time to maturity, the larger becomes the ratio. The samples of the studies of Carpenter (1998) or Huddart and Lang (1996) have ESOs plans of U.S. firms with ten years to maturity. Meanwhile, our sample has ESOs plans for Spanish firms and the average time to maturity is around five years, and always lower than ten years, as we show later in Table 2.

Despite of the above commented differences between ESOs and tradable call options, some studies, such as Ikäheimo et al. (2006), consider that the Black-Scholes (BS henceforth) value of the ESO can be a proxy of the ESO cost. Notice that the BS price is an upper bound for the cost of the ESO, since it is obtained without considering departure risk or suboptimal exercise rules. Therefore, we also consider the BS value as a proxy of the ESO cost in order to obtain some bounds for the size of parameter associated to the ESO cost. To summarize, we will repeat our estimations seven times ( $6 + 1$ ), considering the six different situations of  $(\varepsilon, M)$  plus the BS case.

Finally, we employ one thousand time steps in the lattice in order to improve the convergence because it is slow for binomial trees with barriers.

#### 4. SAMPLE SELECTION AND DATA

##### *The ESOs Sample*

Since year 1998, for all firms traded in the Spanish stock exchange it is mandatory to provide information about share-based payments to the *Comisión Nacional del Mercado de Valores* (CNMV hereafter). We extract the information about ESOs plans from the communications available at the *Relevant Information about Share-Based Payments* database.

Up to year 2004, there are communications for 65 different firms. For our research we use only "Stock Options plans", therefore, we exclude other share-based payments as convertible bonds, free deliveries or financed sales of shares. Moreover, we exclude firms which do not report

in their communications enough information that allow us carrying out the valuation process<sup>2</sup>. For ESOs plans that not disclose the exercise price we assume that ESOs are granted at the money (the usual way). Finally, our sample contains information about ESOs plans for 29 firms during the period 1998-2004 (29 firms x 7 years). We would like to remark that we do not have one firm observation per year. In particular, some firms began to report information after 1998 while others did not have an ESO plan alive on a certain year. The final sample includes 129 observations.

Figure 1 shows the distribution of the sample across the sample period in relative terms. We can appreciate how the number of ESOs plans clearly increases.

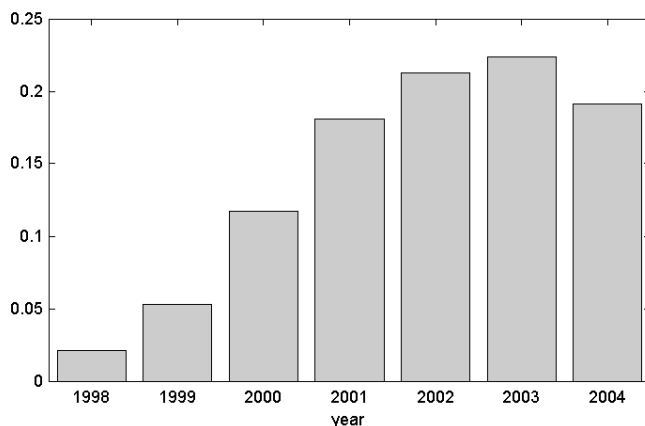


Figure 1. Sample Distribution - The figure shows how distributes our ESO sample across the sample period in relative terms. Number of observations: 129

In Table 1 we present the option style for our sample. The most common cases are the American style ESOs with an initial vesting period (first column). Also European style ESOs are relevant (in this category we include Asian style ESOs too). Table 2 shows descriptive statistics for the time to maturity,  $T$ , the vesting period,  $\nu$ , the annualized volatility of returns,  $\sigma$ , and the dividend yield,  $d$ . The stock prices and dividend payments are obtained from the *Sociedad de Bolsas S.A.* The volatility,  $\sigma$ , has been calculated as the annualized standard deviation of the underlying asset. For this calculation we use the daily returns obtained by the underlying asset one year before the fiscal year end. The risk-free rate,  $r$ , is the weighted average rate implied in the repos operations over Spanish Treasury Bonds.

American & Vest	American	European	Others (Bermuda)
50.84 %	1.69 %	35.59 %	11.86 %

Table 1. Distribution of ESOs plans by option style

<sup>2</sup>Note that 65 is the number of firms that have made a communication about Share-Based Payments in the Relevant Information section of the CNMV web page between years 1998 and 2004. Several of these 65 cases were not ESOs plans, and were simply free deliveries of shares or other share-based payments, but without any share option. These cases are deleted of our sample. Finally, some firms are deleted because of the lack of information (we do not know the number of options, the exercise price, etc. or we do not have any analysts forecasts).

	T	$\nu$	$\sigma$	$d$
Mean	4.7	3.29	0.309	0.0243
Median	5	3	0.2964	0.0222
Standard deviation	1.451	1.415	0.1098	0.0253
1st quartile	3	2.5	0.2282	0.0099
3rd quartile	6	4	0.3685	0.0320

Table 2. Summary statistics of ESOs characteristics, volatility and dividend yield

**Note:**  $T$ : time to maturity;  $\nu$ : the vesting period;  $\sigma$ : the yearly volatility of returns;  $d$ : the dividend yield.

As we mention previously, in contrast to other empirical works as Aboody (1996) or Carpenter (1998) where the common case are ESOs with ten years to maturity and a vesting period of two years, in our sample, the common case are ESOs with five years to maturity and a vesting period for 3 years. The annualized volatility is around 30 % and the continuous dividend yield is 2.43 % in mean.

#### *Accounting and financial data*

In our valuation analyses we use the following accounting and financial data: historical data (earnings, book value of equity, and dividends); and expected information (analysts' earnings forecasts). We use the JCF Quant 5.0 database to obtain all this information, and the specific items we need to carry out the empirical analyses are shown later<sup>3</sup>.

As in Collins et al. (1999), we use "price-levels" regressions, as we are not interested in the timeliness of information. The timing of information is of primary concern in the event study research design. Following Beaver (2002): "*One chooses the levels design when the problem is to determine what accounting numbers are reflected in firm value, whereas one chooses the first differences research design when the problem is to explain changes in value over a specific period of time*"<sup>4</sup>. Hence, we use a levels approach in order to analyze the relation between the ESO value, the accounting data and stock price.

Easton and Sommers (2003) show the existence of an overwhelming influence of large firms in price-levels regressions using US data. They refer this overwhelming influence as the "scale effect". This prevents the researcher from obtaining unbiased coefficient estimates. Following Easton and Sommers (2003), we deflate the regressions by market capitalization via a weighted least squares regression (WLS) in order to mitigate this effect.

## 5. EMPIRICAL TESTS AND RESULTS

As in Aboody (1996), the valuation approach leads to the popular value-relevance regression used in market-based accounting research. Share price are determined by accounting earnings and the book value of equity through the following empirical regression model (hereafter, the Basic Accounting Model):

<sup>3</sup>FactSet Research System has acquired JCF Group and now the database is called FactSet Estimates or ExtelConnect. This database includes all around the world quoted firms that are followed at least by one analyst.

<sup>4</sup>As an example, suppose that a firm's ESO plan is granted (and accounted) on February, but investors had anticipated the information two months ago. Since returns only comprise annual investors' reactions, regressing returns on earnings would be useless, in this case, to investigate how the market reacts to the compensation plan.

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \varepsilon_{it} \quad (1)$$

where  $P_{it}$  is the firm's share price at the end of period  $t$ ,  $BV_{it}$  is the firm's book value per share at the end of period  $t$ ,  $EPS_{it}$  are the firm's accounting earnings per share for period  $t$ , and  $\varepsilon_{it}$  is the error term.

We extend this valuation framework using the abnormal earnings model proposed in Ohlson (1995) in order to investigate whether ESO value is reflected in share prices. This model relates the value of the firm with the accounting information provided in the financial statements. According to the abnormal earnings valuation approach, the current-period stock price depends on current and future accounting numbers as follows (see Ohlson 1995, among others),

$$V_t = BV_t + \sum_{s=1}^{\infty} \frac{E_t(EPS_{t+s} - k_t BV_{t+s-1})}{(1+k_t)^s} = BV_t + \sum_{s=1}^{\infty} \frac{E_t(AE_{t+s})}{(1+k_t)^s} \quad (2)$$

where  $V_t$  is the value of one share at the end of period  $t$ ,  $BV_t$  is the book value per share at the end of period  $t$ ,  $EPS_t$  are the earnings per share for period  $t$ ,  $k_t$  is the discount rate for equity at time  $t$ , assumed to be the expected rate of return for future periods, and  $AE_t$  are the abnormal earnings per share earned in period  $t$  ( $EPS_{t+s} - k_t BV_{t+s-1}$ ).

Abnormal earnings will be positive if the firm earns more than normal earnings, being normal earnings equal to the profits of a risk equivalent investment of the open book value. The main assumption required to compute the future abnormal earnings is the "clean surplus relation": future book values of equity are expected to increase by expected earnings and decrease by expected dividends.

Nonetheless, despite we use the abnormal earnings valuation approach, we do not assume any linear information dynamics as in Ohlson (1995), as this last procedure implies estimating a persistence  $AR(1)$  parameter, which would require longer time-series of accounting data. Our procedure is in the line of Ohlson (2001) suggestion of including analyst earnings forecasts in the valuation, which made both methodologies (with and without a linear information dynamics) quite similar. As a result we predict future accounting numbers directly through the analyst earnings forecasts, similar to studies such as Frankel and Lee (1998) or Lee et. al (1999).

Also we justify our decision in previous literature, and we do not expect differences in the results of our study derived of this issue, as Sougiannis and Yaekura (2001) find evidence in the U.S. that the estimated values using analyst forecasts are less biased than  $AR(1)$  (4). Nevertheless the differences are not significant in the ability to explain market prices. Regarding the comparison of our procedure with other popular valuation models, Francis et al. (2000) and Penman and Sougiannis (1998) show the superiority of the abnormal earnings valuation model with analyst forecasts over the dividend discount valuation model and the cash flow valuation model.

Therefore, instead of using current earnings as a proxy of the future ones, we consider analysts' earning forecasts. Specifically, we use the JCF Quant 5.0 consensus forecasts as proxies for market expectations of future earnings and dividend payout policy. Since earnings forecasts are available from the JCF Quant 5.0 data set only for the upcoming five years, we adapt expression (1) and use the five-year out price-to-book premium to represent the terminal value in year  $t+5$  (see Liu and Thomas 1998)<sup>5</sup>:

$$\begin{aligned} P_t &= BV_t + \sum_{s=1}^5 \frac{E_t(EPS_{t+s} - k_t BV_{t+s-1})}{(1+k_t)^s} + \frac{E_t(P_{t+5} - BV_{t+5})}{(1+k_t)^5} \\ &= BV_t + \sum_{s=1}^5 \frac{E_t(AE_{t+s})}{(1+k_t)^s} + \frac{E_t(P_{t+5} - BV_{t+5})}{(1+k_t)^5} \end{aligned} \quad (3)$$

<sup>5</sup>The discount rate has been computed exactly as the study of Liu and Thomas 1998, as we base our abnormal earnings formulae (expression 3) in their work. It is based in the CAPM:  $k_t = r_t + \beta_t x 5\%$ ; where  $r$  is the risk-free interest rate,  $\beta$  is the beta of the firm (taken from JCF Quant database). We use a premium of 5% as in Liu and Thomas 1998. In their study the results are not affected with premiums between 3% and 8%.



Therefore, we propose, then, the following empirical model (hereafter, the Analysts' Forecast Model):

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \varepsilon_{it} \quad (4)$$

where  $EAE_{it}$  are the present value per-share of expected (analysts' forecasts) abnormal earnings of firm  $i$  at time  $t$ .

$$EAE_{it} = \sum_{s=1}^5 \frac{E_t(AE_{t+s})}{(1+k_t)^s} + \frac{E_t(P_{t+5} - BV_{t+5})}{(1+k_t)^5} \quad (5)$$

### 5.1. Basic Accounting Model vs. Analysts' Forecasts Model

In this subsection we go deeper into the comparison between the Basic Accounting Model and the Analysts' Forecasts Model. Incorporating expected future earnings (EAE) instead of contemporaneous earnings (EPS) allow us to test whether there is a different effect on the ESO value coefficient estimate, since they convey different information<sup>6</sup>. Let us develop the expected implications.

#### 1. Basic Accounting Model

First we base our analysis on the basic empirical accounting model (expression 1). Besides it is a recurrent tool in Market-based Accounting Research (MBAR), this model also allows us to address an interesting issue: do firms, following Spanish GAAP, properly record the compensation cost? We address this question by incorporating the ESO value estimate to the basic accounting model. This leads to the following expression:

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \delta_1 ESO_{it} + \varepsilon_{it} \quad (6)$$

where  $ESO_{it}$  is the estimated ESO value per share of firm  $i$  at time  $t$ .

As we stated before, the ICAC, in contrast to the FASB, establishes that the compensation cost should be recorded as an expense in the period the services are received. This implies that both book value of equity (regarding previous issued ESO plans) and contemporaneous earnings (regarding new ESO plans) are already recording this charge. So, only the "incentive" effect remains unrecorded. As long as the accounting charge matches the "market" charge, by including the ESO value as an additional independent variable we should expect to find: i) a gain in the goodness-of-fit of the model (model 6 in comparison with model 1), and ii) a positive sign on the ESO value coefficient estimate.

#### 2. Analysts' Forecasts Model

The Spanish case, due to the differences in the accounting standards, could be of research interest. Besides, we contribute to existent literature by including analysts' forecasts in the model as a relevant improvement from Aboody's (1996) work.

Coefficients estimates from equation (6) could be biased and inconsistent, since  $ESO_{it}$  is correlated with the error term ( $\varepsilon_{it}$ ). As Aboody (1996) points out: "This follows from the observation that equation (2) does not adequately explain the variation in  $P_{it}$ . Therefore, the error term includes omitted variables that explain  $P_{it}$ , and  $P_{it}$  is a component of the option pricing model that calculates the ESO value". Thus, if we are able to achieve a better specification, e.g. equation (4), the omitted variables problem will be mitigated. Assuming that equation (4) is better specified than equation (1), we propose the following regression:

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \beta_1 ESO_{it} + \varepsilon_{it} \quad (7)$$

<sup>6</sup>We are grateful to an anonymous reviewer who drew our attention on this issue.

Also, there is an important fact that derives from incorporating the analysts' forecast to the model: as we are including expected future earnings we are already considering the "incentive" effect in the model, whereas Aboody (1996) does not. Thus, knowing that equation (4) is better specified than equation (1) and assuming that both the "cost" effect (captured by book value of equity) and the "incentive" effect (captured by analysts' forecasts) are properly incorporated to the model, we expect to find: (i) an improvement in the coefficient of determination  $R^2$  from equation (1) to equation (4); (ii) a null impact on the  $R^2$  when we incorporate the ESO value to the model; and (iii) a non significant coefficient estimate on the ESO value.

## 5.2. Main Results

We first estimate equations (1) and (4) in order to compare the explanatory power of both specifications. Table 3 presents the results of estimating both equations. The main result is that  $R^2$  becomes higher for the second model (87.09% versus 65.66%), revealing that equation (4) is better specified than equation (1). As commented before, we expect to find an increase in the explanatory power of model (4) as we are improving the set of information by adding "expert" expectations of future performance.

$$\text{Model [1]: } P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \varepsilon_{it}$$

$$\text{Model [4]: } P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \varepsilon_{it}$$

	Intercept	BV	EPS	EAE	R2adj
<b>Model [1]</b>	0.6929 (0.86)	1.1739** (5.18)	2.9280** (2.48)	-	0.6566
<b>Model [4]</b>	0.0928 (0.45)	1.1072** (27.46)	-	0.6541** (18.43)	0.8709

\*\* Statistically significant at 1%. t-Statistics (in brackets)

Table 3. Valuation equations [1] and [4]

**Note:**  $P_{it}$ : share price at the end of period  $t$ ;  $BV_{it}$ : book value per share at the end of period  $t$ ;  $EPS_{it}$ : earnings per share for period  $t$ ;  $EAE_{it}$ : the present value of expected (analysts' forecasts) abnormal earnings of firm  $i$  at time  $t$ ;  $R2adj$ : adjusted r-squared. The equations are estimated through a pool regression, and following Easton and Sommers (2003)'s solution for the scale effect.  $N$ : number of observations = 129

Our next step is to introduce the ESO value in the model. However, as stated before, running a regression where the share price is the dependent variable and the ESO value the independent one, could generate biased and inconsistent coefficient estimates. As in Aboody (1996), we apply the technique of instrumental variables estimation in order to mitigate this problem. This estimation replaces ESO value with new variables that are both correlated with it and nor correlated with the error term.

Building on the formula for calculating ESO value:

$$ESO\ value = \sum_{j=1}^8 NOPTION_j * VALUE_j \quad (8)$$

where  $NOPTION_j$  is the number of outstanding options that expire in one to eight years, and  $VALUE_j$  is the value of those options calculated by the option pricing model. Aboody

(1996) selects the number of options ( $NOPTION_j$ ) as the natural candidate. We also choose this variable as the instrumental one.

We use a two-stage least-squares estimation procedure to implement the instrumental variables approach. In the first stage, the ESO value is regressed on all predetermined variables (book value and the present value of expected abnormal earnings) and instruments ( $NOPTION_j$ ),

$$ESO_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \sum_{j=1}^8 \lambda_{jt} NOPTION_{jit} + \eta_{it}^* \quad (9)$$

$$ESO_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \sum_{j=1}^8 \lambda_{jt} NOPTION_{jit} + \mu_{it}^* \quad (10)$$

In the second stage, equations (6) and (7) are re-estimated, but now replacing ESO in this equation with the predicted value of ESO calculated in the previous stage (denoted as  $ESO^*$ ), yielding the following models:

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \beta_1 ESO_{it}^* + \eta'_{it} \quad (11)$$

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \beta_1 ESO_{it}^* + \mu'_{it} \quad (12)$$

Table 4 reports the results from estimating equation (11). As we expected, we find an improvement in the goodness-of-fit of the model when the ESO value is included. Regressing equation (11), instead of equation (1), leads to a 6% gain in the coefficient of determination ( $R^2$ ), which it may be related to the fact that neither book value nor contemporaneous earnings are accounting for the "incentive" effect.

Nevertheless, contrary to what we expected, the coefficient estimate on the ESO value is not significantly different from zero. We expected to find a positive sign, since the compensation cost should be already included in either book value or contemporaneous earnings (following Spanish GAAP), and only the "incentive" effect should be unrecorded. Three reasons could potentially explain this result: first, accounting practice is not properly recording the compensation cost, but our ESO value estimate does; second, investors may be not considering our proposed option pricing model, but the unadjusted Black-Scholes model; and, third, Spanish ESO plans suffer from a bad social reputation during the sample period, a kind of an "image" cost neither recorded by accounting numbers nor by an option pricing model<sup>7</sup>.

The first conjecture may be the true one since the coefficient on our ESO value estimate, although not significant, is close to minus one (the theoretical coefficient on a well-recorded cost without any incentives). However, as long as there has to be an obvious "positive" effect (agency costs are reduced through an ESO plan), a coefficient estimate lower than minus one indicates that our option pricing model fails to record properly the total cost. This leads to our second conjecture. In order to test whether our proposed option pricing model underestimates the ESO value, we recalculate this value using the unadjusted Black-Scholes model. Results in last row of Table 4 show that the main conclusions remain unchanged. Therefore, we believe that "bad reputation" cost is driving our results. Notice that the value of coefficient on  $ESO^*$  does not change widely for the 6+1 candidate values considered.

Table 5 reports the results from estimating equation (12) (based on the Analysts' Forecasts Model). As we noted before, we expected to find no gain from including the ESO

<sup>7</sup>The following articles are a sign of the existing social aversion to the ESO plans: "Aznar -former Spanish President- asks Villalonga -former Telefonica's Chairman- to renounce stock options" (Expansión, 17/10/2000); "Stock options: A moral question" (El Mundo, 17/01/2000); "Felipe González -former Spanish President: In postmodern language, shady business is called stock options" (El País, 31/01/2000); "UGT and CCOO -the most important Spanish unions- reject Telefónica's ESO plan" (ABC, 08/02/2000).

$$\text{Model [11]: } P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \beta_1 ESO_{it}^* + \mu'_{it}$$

$(m, \varepsilon)$	Intercept	BV	EPS	ESO*	R2adj
(1.5, 0.05)	-0.1760	1.4324**	2.7288**	-1.4897	0.7142
	(-0.21)	(4.88)	(2.14)	(-0.94)	
(1.5, 0.10)	-0.1768	1.4327**	2.7243**	-1.5169	0.7143
	(-0.21)	(4.88)	(2.13)	(-0.93)	
(2.0, 0.05)	-0.1761	1.4325**	2.7286**	-1.4913	0.7142
	(-0.21)	(4.88)	(2.14)	(-0.94)	
(2.0, 0.10)	-0.1767	1.4333**	2.7225**	-1.5417	0.7144
	(-0.21)	(4.88)	(2.13)	(-0.95)	
(2.5,0.05)	-0.1759	1.4334**	2.7252**	-1.5287	0.7143
	(-0.21)	(4.89)	(2.14)	(-0.96)	
(2.5,0.10)	-0.1767	1.4336**	2.7212**	-1.5482	0.7145
	(-0.21)	(4.88)	(2.13)	(-0.95)	
<b>Black-Scholes</b>	-0.1695	1.4324**	2.7268**	-1.4170	0.7137
	(-0.2019)	(4.93)	(2.15)	(-0.9801)	

\*\* Statistically significant at 1%. t-Statistics (in brackets)

Table 4. Valuation equation [11]

**Note:**  $P_{it}$ : share price at the end of period  $t$ ;  $BV_{it}$ : book value per share at period  $t$ ;  $EPS_{it}$ : earnings per share of firm  $i$  at period  $t$ ;  $ESO^*$ : predicted value of ESO ( $ESO_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EPS_{it} + \sum_{j=1}^8 \lambda_{jt} NOPTION_{jit} + \mu_{it}^*$ );  $R2adj$ : adjusted r-squared. We use the two-stage least-squares estimation procedure to implement the instrumental variables approach.  $N$ : number of observations = 129

value to the Analysts' Forecasts Model since expected future earnings already include expected future benefits from ESO plans (i.e., the "incentive" effect). However, we find both an increase in the coefficient of determination (a 2.5% gain in the  $R^2$ ) and a negative coefficient estimate on the ESO value (lower than -4) for the 6+1 proposed candidate values<sup>8</sup>. It seems, again, that a kind of "bad reputation" cost could be exerting a strong influence on the observed evidence.

In short, we have obtained that: i) when introducing analysts' forecasts instead of current earnings, the model is better specified, ii) ESO plans do not mean any incentive effect to firms, and iii) the impact of ESO in the firm value is negative. We dedicate next section to perform some additional analysis.

<sup>8</sup>Though we do not expected to find neither a gain in the explanatory power nor a negative coefficient estimate on the ESO value, results confirm that the variable EAE, in contrast to EPS, accounts for the "incentive" effect, leading to a minor improvement in the  $R^2$  when the ESO value is incorporated to the model (2.5% vs. 6%) and a lower ESO value coefficient estimate (-4.5 vs. -1.5).

$$\text{Model [12]: } P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \beta_1 ESO_{it}^* + \mu'_{it}$$

$(m, \varepsilon)$	Intercept	BV	EAE	ESO*	R2adj
(1.5, 0.05)	-0.0613	1.1833**	0.6697**	-4.4175**	0.8965
	(-0.26)	(13.63)	(11.98)	(-10.83)	
(1.5, 0.10)	-0.0637	1.1839**	0.6691**	-4.5373**	0.8968
	(-0.27)	(13.65)	(11.99)	(-11.53)	
(2.0, 0.05)	-0.0612	1.1833**	0.6698**	-4.4177**	0.8965
	(-0.26)	(13.63)	(11.98)	(-10.83)	
(2.0, 0.10)	-0.0619	1.1836**	0.6691**	-4.5411**	0.8970
	(-0.26)	(13.66)	(12.01)	(-11.56)	
(2.5,0.05)	-0.0586	1.1831**	0.6698**	-4.4209**	0.8969
	(-0.25)	(13.65)	(12.01)	(-10.90)	
(2.5,0.10)	-0.0615	1.1837**	0.6691**	-4.5390**	0.8972
	(-0.26)	(13.67)	(12.02)	(-11.60)	
<b>Black-Scholes</b>	-0.0397	1.1791**	0.6725**	-4.1567**	0.8967
	(-0.17)	(13.61)	(11.87)	(14.28)	

\*\* Statistically significant at 1%. t-Statistics (in brackets)

Table 5. Valuation equation [12]

**Note:**  $P_{it}$ : share price at the end of period  $t$ ;  $BV_{it}$ : book value per share at the end of period  $t$ ;  $EAE_{it}$ : the present value of expected (analysts' forecasts) abnormal earnings of firm  $i$  at time  $t$ ;  $ESO^*$ : predicted value of ESO ( $ESO_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \sum_{j=1}^8 \lambda_{jt} NOPTION_{jit} + \mu_{it}^*$ );  $R2adj$ : adjusted r-squared. We use the two-stage least-squares estimation procedure to implement the instrumental variables approach.  $N$ : number of observations = 129

## 6. ADDITIONAL ANALYSIS

In this section we extend our analysis by considering the effects of the intrinsic and temporal value of the ESO and the number of outstanding options, as well as the relation between the ESO value and the vesting period.

As results in section 5 are robust to the choice of the ESO valuation model parameters,  $M$  and  $\varepsilon$ , now we consider only one case:  $M = 2$  and  $\varepsilon = 0.05$ . Results remain unchanged if we consider the other cases and if we consider the Black-Scholes model.

### 6.1. The intrinsic value and the number of outstanding options

Besides the analysis of the relation between the fair value of ESOs and the firm value, it is also interesting to study the effects of the intrinsic and temporal value of the ESO and the number of outstanding options.

Following Aboody (1996), the value of an option consists of two parts: the intrinsic value (share price minus exercise price) plus the time value (total value of the option minus intrinsic

value). While the intrinsic value can be computed easily, the time value is more difficult as it requires the estimation of the option pricing model parameters. Now we try to determine if investors estimate a time value when valuing firms' share prices.

To carry out this analysis, we separate the variable *ESO* between *VINTR* and *VTEMP* which stand for the intrinsic and temporal values respectively. Then, we estimate the following model:

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \delta_1 VINTR_{it} + \delta_2 VTEMP_{it} + \varepsilon_{it}, \tag{13}$$

where *VINTR<sub>it</sub>* is the intrinsic value of the ESO of the firm *i* at time *t*, and *VTEMP<sub>it</sub>* is the temporal value of the ESO of firm *i* at time *t*.

Table 6 shows the results of estimating equation (13). As it can be observed, the coefficients of *VINTR* and *VTEMP* are both negative, although only the effects of the intrinsic value are significant. This means that the negative relation between the share price and the ESO cost is due to the moneyiness rather than the temporal value of the ESO. Thus, firms that issue ESOs deep in the money are penalized severely.

**Model [13]:**  $P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \delta_1 VINTR_{it} + \delta_2 VTEMP_{it} + \varepsilon_{it}$

	Intercept	BV	EAE	VINTR	VTEMP	R2adj
Model [13]	-0.020	1.1729**	0.6837**	-3.86759**	-8.7544	0.9019
	(-0.09)	(13.77)	(11.65)	(-2.83)	(-1.34)	

\*\* Statistically significant at 1%. t-Statistics (in brackets)

Table 6. Valuation equation [13]

**Note:** *P<sub>it</sub>* : share price at the end of period *t*; *BV<sub>it</sub>*: book value per share at the end of period *t*; *EAE<sub>it</sub>*: the present value of expected (analysts' forecasts) abnormal earnings of firm *i* at time *t*; *VINTR<sub>it</sub>*: the intrinsic value of the ESOs. *VTEMP<sub>it</sub>*: the temporal value of the ESOs. *R2adj*: adjusted r-squared. The equations are estimated through a pool regression, and following Easton and Sommers (2003)'s solution for the scale effect. *N*: number of observations = 129

As an alternative to investigate whether ESO value is associated with firm's share prices, Aboody (1996) also examines if investors consider the number of outstanding options when determining firm's value. Therefore, we also conduct this examination by estimating the following regression:

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \rho_1 NOPTSUM_{it} + \varepsilon_{it} \tag{14}$$

where *NOPTSUM<sub>it</sub>* is the number of outstanding options by firm *i* at time *t*.

Table 7 displays the results obtained from regressing equation (14). The coefficient on firm's outstanding options is negative and significantly different from zero ( $\rho_1 = -1.27$ ), suggesting that investors do consider the size of the ESO package when deciding share prices.

6.2. Vesting period effects

We go deeper into previous analysis by investigating whether investors' estimate of ESO value depends on the ESOs' vesting stage. In Section 5 we have provided evidence about the fact that neither the accounting numbers nor the option pricing model are able to record properly for the total cost from ESO granting. So, some of the total cost from an ESO plan remains unrecorded, leading to a strongly negative coefficient estimate on the ESO value. On the other

**Model [14]:**  $P_{it} = a_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \rho_1 NOPTSUM_{it} + \varepsilon_{it}$

	Intercept	BV	EAE	NOPTSUM	R2adj
<b>Model [14]</b>	0.0961	1.1386**	0.6439**	-1.2744**	0.6569
	(0.42)	(29.55)	(15.10)	(-7.42)	

\*\* Statistically significant at 1%. t-Statistics (in brackets)

Table 7. Valuation equation [14]

**Note:**  $P_{it}$ : share price at the end of period  $t$ ;  $BV_{it}$ : book value per share at the end of period  $t$ ;  $EAE_{it}$ : the present value of expected (analysts' forecasts) abnormal earnings of firm  $i$  at time  $t$ ;  $NOPTSUM_{it}$ : the number of outstanding options;  $R2adj$ : adjusted r-squared. The equations are estimated through a pool regression, and following Easton and Sommers (2003)'s solution for the scale effect.  $N$ : number of observations = 129

hand, granting options promotes an increase in productivity by employees who would like the share price to rise. This benefit is incorporated gradually into earnings and book value as time passes after the initial grant date<sup>9</sup>. Therefore, we expect to find that, with the passage of time, the option's benefit becomes smaller than its cost.

To carry out this analysis, we split our ESOs sample into two categories. The first category incorporates currently granted options and outstanding options that have progressed up to and including 50% of the vesting period. Meanwhile, the second one includes outstanding options that have progressed more than 50% of the vesting schedule, up to and including 100% of the vesting period.

We test the coefficient on ESO value for both groups by performing the following method. First, we calculate the ESO value for each group ( $ESO_{young}$  and  $ESO_{old}$  respectively). Then, for each group we regress book value, present value of expected future abnormal earnings, and the instruments that belong to each group on their ESO value. These two regressions yield predicted values for the ESO value of both groups (named  $ESO^*_{young}$  and  $ESO^*_{old}$ ). Lastly, we regress book value, expected future abnormal earnings,  $ESO^*_{young}$  and  $ESO^*_{old}$  on price. That is,

$$P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \beta_1 ESO^*_{young,it} + \beta_2 ESO^*_{old,it} + \mu'_{it} \quad (15)$$

Results shown in Table 8 reveal that the coefficient on  $ESO^*_{young}$  is positive but not significant ( $\beta_1 = 1.4162$ ). The coefficient becomes negative and significantly different from zero (at the 1% level) when we consider the options that have progressed more than the 50% of the vesting period ( $\beta_2 = -4.3513$ ). These results suggest that from the investors' point of view, as time passes from the initial grant date, the cost of outstanding options is larger than the benefits associated with the granting of those options<sup>10</sup>.

<sup>9</sup>Regarding expected earnings, we are dealing with a five-year forecast horizon. So, as long as we expect the benefit from granting options to extend further than this five year horizon, the "incentive" effect will not be totally recorded when ESOs are just granted. So, at the beginning, the total "incentive" effect is not already recorded; nevertheless, as we move to end of the vesting period both book value of equity and expected future earnings should be accounting for the most of the benefit.

<sup>10</sup>It could be of research interest to find some additional evidence about vesting stage, focusing on progression of 25% (4 groups) in place of 50% (2 groups). Nonetheless, due to the scarcity of our sample we have considered not to carry out this analysis, since one category would become very sparse.

$$\text{Model [14]: } P_{it} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EAE_{it} + \beta_1 ESO_{young,it}^* + \beta_2 ESO_{old,it}^* + \mu'_{it}$$

	Intercept	BV	EAE	$ESO_{young,it}^*$	$ESO_{old,it}^*$	R2adj
Model [15]	-0.0737	1.1794**	0.6618**	1.4162	-4.3513**	0.9020
	(-0.31)	(13.61)	(10.31)	(0.07)	(-8.65)	

\*\* Statistically significant at 1%. t-Statistics (in brackets)

Table 8. Valuation equation [15]

**Note:**  $P_{it}$  : share price at the end of period  $t$ ;  $BV_{it}$ : book value per share at the end of period  $t$ ;  $EAE_{it}$ : the present value of expected (analysts' forecasts) abnormal earnings of firm  $i$  at time  $t$ ;  $ESO_{young,it}^*$ : currently granted options and outstanding options that have progressed up to and including 50% of the vesting period;  $ESO_{old,it}^*$ : outstanding options that have progressed more than 50% of the vesting schedule, up to and including 100% of the vesting period.  $R2adj$ : adjusted r-squared. We use the two-stage least-squares estimation procedure to implement the instrumental variables approach.  $N$ : number of observations = 129

## 7. CONCLUSIONS

The main objective of the article is to show the effects of ESOs plans in the market value of Spanish firms using ESO data from years 1998 to 2004. Up to our knowledge this is the first work that deals with this topic in our country so it is of research interest to show evidence of the valuation of ESOs plan in a different context and accounting system.

In order to show the valuation effects of ESOs plan we based on the Ohlson (1995) model, but without using a linear information dynamics. In contrast with previous articles, we use the analysts earnings forecast as a proxy of the expected abnormal earnings in the valuation model improving the information set in comparison with previous studies. Also we value ESOs through a valuation model (Hull and White, 2004) that consider the main differences between conventional options and the peculiar characteristics of ESOs. To confirm the robustness of our results we consider too the popular Black-Scholes (1973) option valuation model.

Using the instrumental variables technique we find a negative relation between ESOs plans and firm market value. These results suggest that the "cost effect" (which it also may include, besides the obvious charge from an ESO grant, a "bad social reputation" cost) dominates the "incentive effect" (compensating employees with ESOs provides long-term incentives to enhance stock prices). This result is robust to the early exercise parameters used in the ESO valuation. We also obtain negative coefficients when testing the effects of both the number of outstanding options and the intrinsic value of the ESO.

Finally, we extend the analysis separating ESOs in two groups according to their vesting stage. We find a negative effect for ESOs close to exercise dates and a positive effect, but not significant, for ESOs early in their vesting period. This result is consistent with other empirical works and with the idea that when the exercise date is far, the "incentive effect" is bigger than the "cost effect", but as time passes, and the ESOs are closer to the expiration date, the "incentive effect" is decreasing, and the "cost effect" dominates the "incentive effect".

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