THE RECOGNITION AND VALUATION IMPLICATIONS OF EMPLOYEE STOCK OPTIONS FOR PUBLICLY TRADED FIRMS IN PORTUGAL AND SPAIN

Ana Isabel Morais, Ana.morais@iscte.pt
José Dias Curto, Dias.curto@iscte.pt
Instituto Superior de Ciências do Trabalho e da Empresa (ISCTE)

ABSTRACT

Based on a study by Bell *et al.* (2002) and on valuation models presented by Ohlson (1999) and Feltham and Ohlson (1995,1999), we examined whether the accounting proposals for stock options set out in the IASB Exposure Draft 2 – *Share-based payment* and in the FASB SFAS 123 – *Accounting for stock-based compensation* reflect the market evaluation of the effect of employee stock options of publicly traded firms in Portugal and Spain between 2000 and 2002. The results of this study seem to suggest that the market does not evaluate expense relating to employee stock options in the same way as the rest of the company's costs.

1. INTRODUCTION

Employee stock options (ESO) play nowadays an important role in the financial structure of a entity. The quantity and variety of ESO have increased and entities are using this form of compensation both to obtain new funds and to motivate and attract qualified employees.

Despite the increasing use of ESO, there is not a consensus among financial statement preparers, financial statement users, regulators and standard setters about how they should be reflected in financial statements.

The objective of this study is to investigate whether the accounting provisions for stock options proposed in the International Accounting Standards Board (IASB) standard 2: *Share-based payment* (2004) and in the Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standard (SFAS) 123: *Accounting for stock-based compensation* (1995) reflect the market evaluation of the effect of ESO of publicly traded entities in Portugal and Spain. In this study, we use the Ohlson (1999) and Feltham and Ohlson (1995,1999) valuation models.

We predict and find in particular that the market does not evaluate ESO expense in the same way as the rest of the entities' expenses.

The structure of this paper is as follows. Section 2 describes the accounting treatment proposed by IASB and FASB and shows the main differences. Section 3 identifies previous studies on the relation between equity market values and stock-based compensation expense. Section 4 develops the empirical predictions and research design. Section 5 summarizes and concludes.

2. ACCOUNTING FOR EMPLOYEE STOCK OPTIONS

This section describes the accounting treatment of ESO under United States Generally Accepted Accounting Principles (US GAAP) and International Accounting Standards (IAS).

2.1. IASB

The accounting treatment of ESO under IASB standards is established in the IFRS 2: Share based payment (2004).

IFRS 2 requires an entity to recognize all share-based payment transactions in its financial statements and to measure transactions at fair value. IFRS 2 identifies three types of share-based payments:
- Equity share-based payment transactions: transactions in which the entity receives goods or services as consideration for equity instruments of the entity;
- Cash-settled share-based payment transactions: transactions in which the entity acquires goods and services by incurring liabilities to the supplier of those goods or services for amounts based on the value of the entity's share or other equity instrument; and
- Transactions in which the entity receives or acquires goods or services and either the entity or the supplier may choose whether the transaction is settled in cash, by issuing equity instruments, or in amounts based on the value of the entity's equity instruments.

As to the first type of transactions, which may include stock options, IFRS 2 requires a entity to recognise the services in a share-based transaction when it receives the services, recognizing also a corresponding increase in equity.

Additionally, IFRS 2 considers that for equity-settled share-based payment transactions, the services received and the corresponding increase in equity should be measured, either directly at the fair value of the services received or indirectly by reference to the fair value of the equity instruments granted, whichever is more readily determinable.

However, for transactions with employees, IFRS 2 establishes that entities should measure the fair value of services received by reference to the fair value of equity instruments granted, since the latter is more readily determinable than the fair value of services received.

The fair value of stock options granted should be based on market price of similar options, if available, or determined by applying an option valuation model, like the Black-Scholes model or a binomial model. The model used should take into account the exercise price and the life of the option, the shares' price, the expected volatility, the expected dividends and the risk-free interest rate for the life of the option.

2.2. FASB

In the United States of America (USA), the accounting treatment of ESO is established in the *APB Opinion* nº 25: *Accounting for stock issued to employees*, issued in 1972, and *SFAS* 123, issued in 1995 and revised in 2004.

a) APB 25: Accounting for stock issued to employees

APB 25 applies to the accounting for fixed stock options issued to employees.

It requires an entity to recognize stock options as an expense in the period when the number of shares to which the employees are entitled and their exercise prices become known. The ESO must be measured by applying the intrinsic value method at the measurement date. The intrinsic value of a stock option is the difference between its exercise price and the current price of the underlying stock.

However, in the case of fixed options, no compensation expense is ever recognised if the exercise price is greater than or equal to the market price on the grant date. The non-recognition of ESO expense motivated several criticisms which, together with the increasing use of stock options and the development of a stock option pricing-model, led the FASB to reconsider APB 25. In 1995, the FASB issued a new standard: the SFAS 123.

b) SFAS 123: Accounting for stock-based compensation

SFAS 123 applies to all transactions in which an entity acquires goods or services by issuing equity instruments or by incurring liabilities to the supplier in amounts based on the price of the entities' common stock or other equity instruments.

It also requires ESO expense to be recognized during the period when the services are rendered.

Furthermore, SFAS 123 encourages entities to adopt the fair value based method in the accounting for ESO, even though it allows entities to use APB 25 if the stock options are in its scope and the method is adopted for all stock option plans.

The fair value of ESO granted by a public entity shall be estimated using an option valuation model that takes into account factors such as the exercise price and the life of the option, the shares' price, the expected volatility, the expected dividends and the risk-free interest rate for the life of the option. A non-public entity shall estimate the value of its ESO based on the factors described above, except that a non-public entity need not consider the expected volatility of its stock over the expected life of the option (minimum value).

Finally, SFAS 123 requires entities to disclose in the footnotes to the financial statements the *pro forma* effects on earnings of employee compensation expense attributable to amortizing the fair value of ESO at grant date.

Recently, SFAS 123 was revised. The revision of SFAS 123 lead to a standard similar to the IFRS 2. In fact, SFAS 123 requires an entity to recognise as an expense the fair value of stock options.

Table 1 identifies the differences between the accounting approach proposed in APB 25 and SFAS 123.

Table 1 – Differences between *APB* 25 and *SFAS* 123 (1995)

Subject	*APB 25*	*SFAS 123*
Scope	Fixed stock option plans. Stock options issued to employees.	Fixed and variable stock option plans. Stock options issued to employees and nonemployees.
Stock option's value estimation date	Measurement date (date when the number of shares and the exercise price are known).	Grant date.
Recognition	Expense and increase in equity. The expense is not generally recognised.	Expense and increase in equity.
Measurement	Intrinsic value method.	Fair value method or intrinsic value method (for stock options within the scope of *APB* 25).
Number of stock options used in the measurement of the ESO expense	All options issued.	Estimated number of options vested or all options issued.

2.3. *IFRS 2 2/SFAS* 123

As mentioned above, SFAS 123 permits the entities to measure the ESO expense using the fair value method or the intrinsic value method (for fixed ESO).
If we adopt the fair value method and compare SFAS 123 with *IFRS* 2, we reach the conclusion that they are similar. However, if IFRS 2 is compared with SFAS 123, assuming the intrinsic value method, several important differences can be identified. These differences may have a negative effect on the comparability of financial statements.

Table 2 compares *IFRS* 2 with *SFAS* 123, assuming the adoption of fair value method and intrinsic value method.

Table 2 – Comparison between *IFRS 2 (SFAS 123 – 2004)* and *SFAS* 123 (1995)

Subject	*IFRS 2*	*SFAS 123 – Fair value method*	*SFAS 123 – Intrinsic value method (APB 25)*
Scope	Fixed and variable plans.	Fixed and variable plans.	Fixed plans.
Recognition	Expense and equity.	Expense and equity.	Not recognized, if the exercise price is equal to the current price of stock.
Measurement	Fair value method (estimated using an option valuation model).	Fair value method (estimated using an option valuation model, for public entities, or minimum value, for non-public entities).	Intrinsic value method.

3. PREVIOUS STUDIES

This study is closely related to those that investigate whether the recognition and valuation approaches to accounting for ESO reflect the market's assessment of the effects of ESO on entity value.

Aboody (1996) finds a significant negative relation between share prices and his estimated value of outstanding employee stock options, after controlling for the endogeneity bias induced by the mechanical relation between option values and share prices. As in our study, Aboody (1996) must estimate ESO fair values because his sample period predates SFAS 123, which led to a research-estimated problem as pointed out by Skinner (1996).

Aboody, Barth and Kasznik (2002) and Chamberlain and Hseih (1999) also find a negative association between ESO expense and equity value after controlling for endogeneity, indicating that investors view stock-based compensation expense as an expense of the entity. These studies extend Aboody's (1996) since they use the ESO expense disclosed under SFAS 123, instead of estimating it. Finding a significant negative relation between stock-based compensation expense and share price also indicates that stock-based compensation expense is sufficiently reliably measured to be associated with investors' entity valuation assessments (Barth, Beaver and Landsman, 2001).

On the contrary, Rees and Stott (1998) find a significant positive association between the disclosed compensation expense using the fair value method stipulated by SFAS 123 and entity value, which is in opposite direction from other income statement expense. However, Rees and Stott (1998) do not control for the mechanical relation between share prices and option values which can affect inferences.

In contrast, Bell, Landsman, Miller and Yeh (2002), based on a sample of profitable computer software entities, find a positive association between ESO expense and equity value, after controlling for endogeneity bias. This result suggests that ESO create a valuable intangible asset and play an important role in employee attraction, motivation and retention (Ittner, Lambert and Larcker, 2002).

4. RESEARCH DESIGN

4.1. SAMPLE

Sample entities meet the following requirements:
- Entities must be included in PSI 20 and IBEX 35, in 2002.
- Entities must have issued ESO during 2000, 2001 or 2002.
- Entities must disclose, in their annual reports or in information about relevant facts, information about the issuance of ESO that permits the determination of their fair value using Black-Scholes model.

The application of the first requirement resulted in a sample of 55 entities.

The application of the second requirement resulted in a sample of 33 entities in 2000 and 2001 and 34 companies in 2002.

The application of the third requirement is justified by data availability, resulted in a final sample of 30 entities in 2000 and 31 companies in 2002. In fact, 3 entities do not disclose enough information to estimate the ESO expense.

In Portugal, in 2001 it was approved a Rule of CMVM (Rule 07/2001) that requires public traded entities to inform, in the annual review by management or in annex, information about the nature and terms of stock options. The entities must disclose the following information: the justification for adopting the stock option plan, the number and terms of stock options plans, the exercise price and the shares price, the exercise dates, the number and terms of the shares under stock options, the incentives related to shares' acquisition or stock options´ exercise and the management's power to amend or concretize the plan.

Finally, it is also necessary to disclose the number of shares necessary to the exercise of granted options, the number of shares necessary to the exercise of exercisable options and the number of options granted, exercisable or lapsed during the period.

In Spain, companies must disclose similar information about relevant facts related to employee benefits, including stock option plans.

4.2. VALUATION EQUATIONS

Similar to Bell *et al.* (2002), we use in this study the Ohlson (1999) and Feltham and Ohlson (1995, 1999) valuation models to compare the extent to which the IFRS 2 and SFAS 123 (using the intrinsic value method) reflect the market assessment of the effects of ESO on entity value.

4.2.1. VALUATION EQUATION BASED ON *IFRS* 2

IFRS 2 requires the recognition of ESO expense using the fair value method.

In Portugal and Spain, entities must disclose information about ESO plans but are not required to determine and disclose their fair value. We used the Black-Scholes model to estimate the value of ESO expense. In contrary of IFRS 2, we ignored the expected dividends and considered the historic volatility instead of expected volatility. Information about volatility and shares' market price, between 2000 and 2002, was obtained from Datastream database for entities included in PSI 20 and IBEX 35. Information about ESO plans was hand collected from annual reports and information from relevant facts about employee benefits. As pointed out by Skinner (1996), the fair value estimation may lead to a research-estimated problem.

Similar to Bell *et al.* (2002) and Feltham (1995), we do not include ESO in book value of common equity, as required by *IFRS* 2. This position is justified because in book value of common equity we must include only the components of equity that are associated with common shares currently outstanding.

The adoption of the accounting treatment proposed by IFRS 2 results in the following abnormal earnings and valuation equations:

$$\text{RIESOE}_{it} = \omega_0 + \omega_1 \text{RIESOE}_{i,t-1} + \omega_2 \text{ABVE}_{i,t-1} + \varepsilon_{it}^{A} \quad (1a)$$

$$\text{MP}_{it} = \alpha_0 + \alpha_1 \text{RIESOE}_{i,t} + \alpha_2 \text{ABVE}_{i,t-1} + \varepsilon_{it}^{M} \quad (1b)$$

In the first equation (1a), RIESOE_t is the residual income considering the ESO expense. RIESOE_t is equal to $\text{AE}_t - i\text{ABVE}_{t-1}$. AE_t is net income for period t less ESO expense estimated by using *Black-Scholes*. ABVE_{t-1} is adjusted book value and equals book value less accumulated ESO expense. i represents the expected return on book value of common equity. Following, Bell *et al.* (2002), Dechow *et al.* (1999) and Barth *et al.* (1999) we use 12% rate. ε_{it}^{A} reflects random error and other information.

In the second equation (1b), the dependent variable is the stocks' market price in period t (MP_t) and the two independent variables are the adjusted residual income (RIESOE_t) and the adjusted book value of equity (ABVE_{t-1}). ε_{it}^{M} reflects random error rand other information.

4.2.2 VALUATION EQUATION BASED ON *SFAS* 123 (INTRINSIC VALUE METHOD)

SFAS 123 (1995) permits the adoption of intrinsic value method. However, for fixed options no compensation expense is ever recognised if the exercise price is greater than or equal to the market price on the grant date. The adoption of the intrinsic value method permitted by SFAS 123 (1995) results in the following abnormal earnings and valuation equations:

$$\text{RI}_{it} = \omega_0 + \omega_1 \text{RI}_{i,t-1} + \omega_2 \text{BVE}_{i,t-1} + \varepsilon_{it}^{A} \quad (2a)$$

$$\text{MP}_{it} = \alpha_0 + \alpha_1 \text{RI}_{i,t} + \alpha_2 \text{BVE}_{i,t-1} + \varepsilon_{it}^{M} \quad (2b)$$

In the first equation (2a), RI_t i the residual income and it is equal to $\text{NI}_t - i\text{BVE}_{t-1}$. NI_t is net income for period t and BVE_{t-1} the book value of equity for period t-1. i is equal to 12% and represents the expected return on book value of common equity. ε_{it}^{A} reflects random error rand other information. In the second equation (2b), the dependent variable is the market price of the stock for period t (MP_t) and the two independent variables are the residual income for period t ($\text{RI}_{i,t}$) and the book value of equity for period t-1 ($\text{BVE}_{i,t-1}$). ε_{it}^{M} reflects random error rand other information.

4.3. Descriptive statistics

Tables 3 presents selected descriptive statistics relating to the sample. Table 3 reveals that, on average, the market value of equity exceeds the book value of equity for total sample. Except for 2002, the residual income per share is positive, on average (Bell *et al.,* 2002). ESO expense is, on average, near zero, which means that ESO expense may have little impact on earnings. This fact can affect this paper's conclusions.

Table 3 – Descriptive statistics (Portugal and Spain) of market price, book value equity, adjusted book value, residual income, adjusted income and ESO expense

Variable	Year	n	Mean	Median	Standard Deviation
MP	Pooled	91	11.0801	9.2600	7.4020
	2000	30	11.8953	11.6000	7.1643
	2001	30	11.4250	9.3050	7.4339
	2002	31	9.9574	8.4500	7.6971
BVE	Pooled	91	5.4186	2.7511	12.0094
	2000	30	5.6587	2.1965	13.7780
	2001	30	6.5071	3.3736	15.5330
	2002	31	4.1330	2.7511	3.6044
ABVE	Pooled	91	5.4068	2.7445	12.0116
	2000	30	5.6571	2.1875	13.7783
	2001	30	6.5005	3.3713	15.5321
	2002	31	4.1061	2.7445	3.6210
RI	Pooled	91	0.0763	0.0420	1.1022
	2000	30	0.0319	0.0214	0.3564
	2001	30	0.2317	0.0467	1.6297
	2002	31	-0.0310	0.1000	0.9572
RIESOE	Pooled	91	0.1187	0.0774	1.1025
	2000	30	0.0843	0.0254	0.3432
	2001	30	0.2739	0.1466	1.6261
	2002	31	0.0016	0.1137	0.9680
ESOE	Pooled	91	0.0038	0.0007	0.0077
	2000	30	0.0021	0.0002	0.0036
	2001	30	0.0049	0.0010	0.0093
	2002	31	0.0044	0.0011	0.0089

MP	Market price of each common stock outstanding at the end of the year.
BVE	Book value per-share of common stock at the end of the year.
ABVE	Adjusted book value of each common stock outstanding at the end of the year.
RI	Residual income per-share, measured as net income less i% multiplied by book value of common stock.
RIESOE	Adjusted residual income per-share, measured as the adjusted net income less i% multiplied by adjusted book value of common stock.
ESOE	ESO expense per-share estimated by using Black-Scholes model.

Table 4 shows that most of the variables are correlated with each other. Market value is highly correlated with book value of common stock and book value adjusted to reflect ESO expense, especially in 2002.

Table 4 – Pearson correlations among variables: market value, book value, adjusted book value, residual income, adjusted residual income and ESO expense

	MP	BVE	ABVE	RI	RIESOE	ESOE
Total (n=91)						
MP	1.00					
BVE	0.247(*)	1.00(**)				
ABVE	0.248(*)	1.00(**)	1.00			
RI	0.235(*)	0.534(**)	0.534(**)	1.00		
RIESOE	0.235(*)	0.572	0.573(**)	0.996(**)	1.00	
ESOE	0.112	0.156	0.155	0.142	0.182	1.00

Ano 2000 (n=30)						
MP	1.00					
BVE	0.226	1.00				
ABVE	0.226	1.00(**)	1.00			
RI	0.048	-0.360	-0.361	1.00		
RIESOE	0.101	-0.018	-0.018	0.926(**)	1.00	
ESOE	0.265	0.499(**)	0.499(**)	-0.074	0.154	1.00
Ano 2001 (n=30)						
MP	1.00					
BVE	0.233	1.00				
ABVE	0.233	1.00(**)	1.00			
RI	0.231	0.916(**)	0.916(**)	1.00		
RIESOE	0.227	0.914(**)	0914(**)	0.999(**)	1.00	
ESOE	0.142	0.139	0138	0.169	0.196	1.00
Ano 2002 (n=31)						
MP	1.00					
BVE	0.582(**)	1.00				
ABVE	0.585(**)	1.00(**)	1.00			
RI	0.376(*)	0.050	0.052	1.00		
RIESOE	0.364(*)	0.055	0.056	0.997(**)	1.00	
ESOE	0.070	-0.001	-0.008	0.127	0.170	1.00

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

4.4. FINDINGS

4.4.1. IFRS 2

Table 5 presents the results of estimating abnormal returns and valuation equations (1a e 1b) under IFRS 2. The regression models have been estimated using EVIEWS.

Panels A and B in Table present the results form estimating residual income and valuation equations (1a) and (1b), under ED 2, which requires the recognition of ESO expense and its fair value measurement.

In Panel A, the residual income equation shows that pooled adjusted residual income coefficient is negative and significant and that annual adjusted residual income coefficients range from 0.93 to 1.16, higher than those reported in prior research.

In Panel B, the coefficients of adjusted residual income and adjusted book value are near zero which reveals that equity book value is not so underestimated as found in other studies (Bell *et al.*).

Table 5 – Regressions of residual income and market price under IFRS 2

		CONSTANT		RIESOE		ABVE		Adjusted
Year	n	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	R^2

Panel A: Abnormal Earnings Equation

$$RIESOE_{it} = \varpi_0 + \varpi_1 RIESOE_{i,t-1} + \varpi_2 ABVE_{i,t-1} + \varepsilon_{it}^A$$

Year	n	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	R^2
Pooled	60			-0.5698	-5.5721	-0.2100	-3.3892	0.8164
2001	30	0.4177	3.0094	1.1596	6.5716	-0.1094	-5.9227	0.5871
2002	30	-0.4296	-4.1289	0.9327	3.3695	0.1104	16.0159	0.901

Panel B: Valuation Equation

$$MP_{it} = \alpha_0 + \alpha_1 RIESOE_{it} + \alpha_2 ABVE_{it} + \varepsilon_{it}^M$$

Year	n	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	R^2
Pooled	91			0.7275	1.4911	0.0120	0.1910	0.7967
2000	30	11.0399	7.5499	2.1846	0.5615	0.1186	1.224	0.0073
2001	30	10.8315	6.5344	0.3805	0.1806	0.0752	0.3409	0.0145
2002	31	5.0763	3.0097	2.6407	2.3302	1.1967	3.9132	0.4057

CONSTANT coefficients and associated t-statistics for pooled fixed-effects regressions are not reported.

4.4.2. *SFAS* **123 (INTRINSIC VALUE METHOD)**

Table 6 presents the results of estimating abnormal returns and valuation equations (2a e 2b) under FASB SFAS 123 using the intrinsic value method

In Panel A's residual income forecasting equation (2a), the coefficient on pooled lagged residual income (ω_1) is negative and significant. The annual sample coefficient estimates, which range form 0.90 to 1.15, are quite different form those reported in prior research (Bell *et al.*, 2002 and Dechow *et al.*, 1999). We can conclude that our entity sample appear to have a more persistence in residual income. The coefficient on equity book value (ω_2) is significant and approximately zero, consistent with prior research (Barth *et al.*, 1999). The most important difference between Table 4, Panel A and Table 5, Panel A is the increase of pooled residual income forecasting model explanatory power increase, that range form 0.8164 to 0.8423.

In Panel B's valuation equation (2b), the coefficients on adjusted residual income and on adjusted equity book value are not significant, but the explanatory power for Panel B are slightly lower than in table 4.

Table 6 – Regressions of residual income and market price under FASB *SFAS* 123 (intrinsic value method)

Year	n	CONSTANT Coefficient	CONSTANT t-statistic	RI Coefficient	RI t-statistic	BVE Coefficient	BVE t-statistic	Adjusted R^2
Panel A: Abnormal Earnings Equation								

$$RI_{it} = \varpi_0 + \varpi_1 RI_{i,t-1} + \varpi_2 BVE_{i,t-1} + \varepsilon_{it}^A$$

Year	n	CONSTANT Coefficient	CONSTANT t-statistic	RI Coefficient	RI t-statistic	BVE Coefficient	BVE t-statistic	Adjusted R^2
Pooled	60	—	—	-0.5763	-6.4141	-0.2063	-3.5844	0.8420
2001	30	-0.4696	-4.447	0.9029	3.1136	0.1188	15.8453	0.8985
2002	30	0.4321	3.0082	1.1506	6.4123	-0.1089	-5.7823	0.5746

Panel B: Valuation Equation

$$MP_{it} = \alpha_0 + \alpha_1 RI_{it} + \alpha_2 BVE_{it} + \varepsilon_{it}^M$$

Year	n	CONSTANT Coefficient	CONSTANT t-statistic	RI Coefficient	RI t-statistic	BVE Coefficient	BVE t-statistic	Adjusted R^2
Pooled	91	—	—	0.6331	1.3464	0.0197	0.3188	0.7954
2000	30	10.9763	7.5371	2.9902	0.7478	0.1456	1.4073	0.0016
2001	30	10.8972	6.3867	0.5036	0.2363	0.0632	0.2825	0.0136
2002	31	5.0572	3.1262	2.7991	2.5036	1.2066	4.0638	0.4215

CONSTANT coefficients and associated t-statistics for pooled fixed-effects regressions are not reported.

5. SUMMARY AND CONCLUSIONS

This study investigates whether accounting provisions for stock options established in the International Accounting Standards Board Standard 2 – Share-based payment (2004) and in the Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standard (SFAS) 123: *Accounting for stock-based compensation* (1995) reflect the market evaluation of the effect of ESO of publicly traded entities in Portugal and Spain. We used the Ohlson (1995,1999) and Feltham and Ohlson (1999) valuation models and a sample of 31 entities. For each accounting approach, we formulated two equations: the abnormal earnings equation and the valuation equation.

We predict and find in particular that the market does not evaluate ESO expense in the same way as the rest of the entities' expenses. In fact, the explanatory power, which is significant, is lower in the residual income forecasting equation under IFRS 2 than under SFAS 123. Also, the explanatory power in valuation equation, which is not significant, under SFAS 123 is almost equal to the one under IFRS 2. This could mean that the market do not evaluate ESO an expense. However, these results can also be justified by the relatively low values of ESO expense or attributable to measurement error.

Finally, the results' interpretation must attend to the limitations of this study, specially the need to estimate the fair value of stock options.

REFERENCES

Aboody, D., 1996, Market valuation of employee stock options, *Journal of Accounting and Economics* 22 (August-December), pp. 357-391.
Aboody, D., M. Barth and R. Kasznik. 2002. "SFAS 123 Stock-based Compensation Expense and Equity Market Values". Working paper, Stanford University.
Accounting Principles Board, 1972, *APB Opinion nº25: Accounting for Stock Issued to Employees*, New York: AICPA.
Accounting Procedures Committee, 1948, *Accounting Research Bulletin nº37*, New York: AICPA.
AcSEC, 1982, *Accounting for employee capital accumulation plans*.
Antle, R. e A. Smith, 1985, Measuring executive compensation: methods and an application, *Journal of Accounting Research* (Spring), pp. 296-325.
Balsam, S., 1994, Extending the method of accounting for stock appreciation rights to employee stock options, *Accounting Horizons* 8: 52-60.
Barth, M., W. Beaver, J. Hand and W. Landsman. 1999. "Accruals, cash flows and equity values", *Review of Accounting Studies* 4 (December), pp. 205-229.

Bell, T, W. Landsman, B. Miller e S. Yeh, 2002, The valuation implications of employee stock option accounting for profitable computer software firms, *The Accounting Review*, 77 (October), pp. 971-996.

Bohan, M., 1979, Measuring the compensation element in employee stock option plans, *Journal of Accounting, Auditing and Finance*, pp. 261-264.

Budge, B. e J. Weber, 1988, Accounting for employee stock options, *National Public Accountant* 33, pp. 38-41.

Chamberlain, S. and S. Hsieh. 1999. "The effectiveness of SFAS 123 Employee Stock Option Cost Disclosures", Working Paper, Santa Clara University.

Chancelor, M. e W. Byerley, 1990, Stock options: benefits without accounting costs, *Journal of Compensation and Benefits* 5, pp. 249-253.

Crawford, D., D. Franz. e R. Smith, Jr., 1997, Computing employee stock option values with a spreadsheet, *Management Accounting* 79, pp. 44-48.

Dechow, P., A. Hutton and R. Sloan. 1996. "Economic Consequences of Accounting for Stock-Based Compensation." *Journal of Accounting Research* 34, pp. 1-20.

DeFusco, R., R. Johnson e T. Zorn, 1990, The effect of executive stock option plans on stockholders and bondholders, *Journal of Finance* 45, pp. 617-627.

Doyle, W., 1997, New accounting principles for stock-based compensation, *Management Accounting* 78, pp. 38-42.

Feltham, G, 1995, Valuation, clean surplus accounting and anticipated equity transactions, Working paper, University of British Columbia, Vancouver, Canada.

Feltham, G. e J. Ohlson, 1995, Valuation and clean surplus accounting for operating and financial activities, *Contemporary Accounting Research* 11 (Spring), pp. 689-732.

Feltham, G. e J. Ohlson, 1999, Residual earnings valuation with risk and stochastic interest rates, *The Accounting Review* 74 (April), pp. 165-184.

Financial Accounting Standards Board, 1978, *Interpretation nº28: Accounting for stock Appreciation Rights and other Variable Stock Option or Award Plans*, Stamford, Conn.: FASB.

Financial Accounting Standards Board, 1984, *Interpretation nº38: Determining the measurement date for stock option, purchase and award plans involving junior stock*, Stamford, Conn.: FASB.

Financial Accounting Standards Board, 1995, *Statement of Financial Accounting Standards nº123: Accounting for Stock Based Compensation*, Stamford, Conn.: FASB.

Fitzsimons, A. e J. Thompson, 1996, Accounting for stock-based compensation, *Commercial Lending Review* 11, pp. 78-85.

Foster, T., P. Koogler e D. Vickrey, 1991, Valuation of executive stock options and the FASB proposal, *Accounting Review* 66, pp. 595-610.

Fuersich, J. e M. Akresh, 1996, Stock compensation light of new FASB accounting rules, *Journal of Compensation and Benefits* 11, pp. 25-31.

Haugen, R. e L. Senbet, 1981, Resolving the agency problems of external capital through options, *Journal of Finance* 36, pp. 629-648.

Huddart, S. e M. Long, 1996, Employee stock option exercise: an empirical analysis, *Journal of Accounting and Economics* 21, pp. 5-43.

International Accounting Standards Committee, 1998, *International Accounting Standard 19: Employee benefits*.

International Accounting Standards Committee, 2002, *Exposure Draft 2: Share-based payment*.

Ittner, C., R. Lambert and D. Larcker. 2002. "The Structure and Performance Consequences of Equity Grants to Employee of New Economy Firms." *Journal of Accounting and Economics* 34, pp. 89-127.

Jensen, M. e W. Meckling, 1976, Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, pp. 305-360.

Lew, A. e J. Schirger, 1994, Accounting for employee stock options as contingencies, *Journal of Applied Business Research* 10, pp. 19-24.

Lew, M., 1996, Practical implications of FAS 123: accounting for stock-based compensation, *Compensation and Benefits Management* 12, pp. 28-36.

Lundholm, R., 1995, A tutorial on the Ohlson and Feltham/Ohlson Models: answers to some frequently asked questions, *Contemporary Accounting Research* 11 (Spring), pp. 749-761.

Marquardt, C., 2002, The cost of employee stock option grants: an empirical analysis, *Journal of Accounting Research* 40 (September), pp. 1191-1217.

Matsunaga, S., 1995, The effects of financial reporting costs on the use of employee stock options, *The Accounting Review* 70, pp.1-26.

Matsunaga, S., T. Shevlin e D. Shores, 1992, Disqualifying dispositions of incentive stock options: tax benefits versus financial reporting costs, *Journal of Accounting Research* 30, pp. 37-68.

Noreen, E., 1979, Comment: measuring the compensation element in employee stock option plans, *Journal of Accounting, Auditing and Finance*, pp. 67-69.

Norren, E. e M. Wolfson, 1981, Equilibrium warrant pricing models and accounting for executive stock options, *Journal of Accounting Research* 19, pp. 384-398.

Ohlson, J, 1995, Earnings, book values, and dividends in equity valuation, *Contemporary Accounting Research* 11 (Spring), pp. 661-687.

Ohlson, J, 2001, Earnings, book values, and dividends in equity valuation: an empirical perspective, *Contemporary Accounting Research* 18 (Spring), pp. 107-120.

Rees, L. and D. Sttot. 1998. "The Value-Relevance of Stock-Based Employee Compensation Disclosures."Working Paper, Texas A&M University.

Rosenfield, P. e M. Jaiven, 1990, Reporting on employee stock compensation plans: case not closed, *Journal of Accountancy* (December): 73-78.

Rouse, R. e D. Barton, 1993, Stock compensation accounting, *Journal of Accountancy* 175: 67-70.

Searfoss, D. e D. NcNamee, 1993, Employers' accounting for employee stock ownership plans, *Journal of Accountancy* 175: 53-60.

Skinner, D.. 1996. "Are Disclosures about Bank Derivatives and Employee Stock Options 'Value Relevant'?" *Journal of Accounting and Economics*. 22 (Aug.-Dec.), pp. 393-405.

Smith, C. e J. Zimmerman, 1976, Valuing employee stock option plans using option pricing models, *Journal of Accounting Research* 14, pp. 357-364.

Stewart, T., 1990, The trouble with the stock options, *Fortune* (1 Jan.), pp. 93-95.

Sweeney, D., 1992, *Accounting for stock options*, Michigan Business Studies, USA.

Thomas, P. e L. Farmer, 1984, Accounting for stock options and SARs: the equality question, *Journal of Accountancy*, pp. 92-98.

Thompson, J., J. Wortghingston e M. Smith, 1987, An inconsistency in the method of accounting for changes in estimate variable stock plans, *Accounting Horizons* 1, pp. 29-33.