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THE VALUE RELEVANCE OF

INVESTMENT PROPERTY FAIR VALUE

Portuguese Case

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ABSTRACT

This paper examines if the use of the fair value model is value relevant in companies where the investment properties are not their core business. An analysis is also made into whether the disclosed fair value of investment property is perceived by investors. The sample includes Portuguese listed companies subject to the mandatory adoption of IAS/IFRS since 2005. The results achieved indicate that investors price shares differently when companies choose either the cost model or the fair value model. However, results do not show evidence that investors significantly valuate differences between the historical cost and disclosed fair value in the notes for companies adopting the cost model.

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1. INTRODUCTION

On 1st January 2005, International Accounting Standards (IAS)/International Financial Reporting Standards (IFRS) issued by International Accounting Standards Board (IASB) was adopted in Portugal, as in the European Union (EU), to promote higher quality financial reporting information and a consequent reduction of information asymmetry and to improve comparability and transparency.

After initial recognition there is still no consensus in how to measure investment property. *International Accounting Standard (IAS) 40 – Investment Property* allows companies to choose between the cost model and fair value model. According to the standard, the cost model requires to an entity to disclose the fair value of its investment property in the notes. Under the fair value model, any investment property should be measured at fair value, with changes being recognised as profits or losses.

The significant question behind this issue is whether fair value provides more relevant information without losing reliability. In fact, the choice between fair value and historical cost is a key issue in the current debate on accounting.

This study investigates the value relevance of applying the fair value model in Portuguese companies where investment properties do not represent their core business. Hence, three main issues should be analysed: if investors valuate the historical cost and the recognised fair value differently when pricing shares; whether they consider differences between the historical cost and disclosed fair value in the notes for

companies adopting the cost model; finally, if recognising the fair value in the balance sheet or disclosing it in the notes is equally interpreted by investors.

With the purpose of knowing whether investors price shares differently when companies apply either the cost model or the fair value model to measure investment property, it was conducted an analysis based on the Lourenço and Curto (2008) research. This model is based on similar studies on the value relevance of accounting data for share pricing, namely Ohlson (1995) and Landsman *et al.* (2006).

Using a sample of Portuguese listed companies in the period after the mandatory IFRS adoption, the results obtained indicate that adopting the cost model or the fair value model affect share pricing but they do not show evidence that investors significantly valuate differences between the historical cost and disclosed fair value in the notes for companies adopting the cost model.

Thus, as in the real estate industry also in companies where investment properties are not the core business, fair value seems to be relevant. However the exclusive focus in the Portuguese market gives rise to an analysis where a restricted number of firms is considered which may comprise a limitation of this work.

This paper adds relevant contribution to the existing literature in several ways. Actually, the current literature strictly focuses on the choice between the cost model and the fair value model in real estate industry. Therefore, this work intends to generalise those results to other industries where investment properties are not the core business (in this particular case Portuguese listed companies). Thus, it aims at filling in the existing gap on this matter, trying to achieve relevant results to all industries which were once limited to the real estate business. Moreover, it complements the existing

literature that investigates the relevance and reliability of disclosed and recognised fair value amounts (Landsman, 2006) by documenting the relevance value for Portugal.

The paper proceeds as follows. Section 2 concerns the literature related with this study. Section 3 provides a regulatory background. Section 4 discusses the methodology applied that is used as the basis for empirical tests. Section 5 describes the sample selection and descriptive statistics. Section 6 presents the empirical results and section 7 concludes the study.

2. LITERATURE REVIEW

The value relevance of investment property fair value has been tested in several studies, especially in real estate industry. This paper contributes to the literature by addressing this issue in industries, in particular for the Portuguese market.

Several papers study the recognition versus disclosure of the fair value with many of them concluding that they are not substitutes. Muller *et al.* (2008) find that lower information asymmetry and greater liquidity are consequences for firms that choose the fair value model comparing to those choosing the cost model, suggesting that market participants do not view disclosure of fair value as equivalent to the recognition in the balance sheet of these amounts. Landsman (2006) provides evidence that both the disclosed and recognised fair values are useful to investors, although this depends on such factors as the amount of measurement error and source of the estimates.

Two recent studies examine the relation between fair value and investment property. Avallone (2008) conducted a value relevance study for some European real estate companies. He concludes that the greater the weight of property investment the larger the need for future prospects of the property to be disclosed, which leads the

company to choose the fair value to decrease information asymmetry. Similarly, Nikolaev and Christensen (2009) investigated which companies implemented the fair value accounting for non-financial assets after IFRS adoption. Their conclusions indicate that real estate companies were more prone to adopt this model in the measurement of their investment properties since fair value estimations are more likely to facilitate the measurement of the underlying economic performance. They underline the fact that the historical cost provides fewer information than the fair value approach.

Nevertheless, what companies may gain in relevant information by adopting the fair value model may eventually loose in reliability (Dietrich et al., 2000).

Watts (2006) considers that the fair value approach may compromise the reliability of financial statements because managements' estimations could never incorporate the information of the whole financial market and are vulnerable to their own manoeuvring. With a different perspective, Schipper (2005) provides evidence that is not necessary an extant market to fair value measurement be realistic and consequently reliable.

Lourenço and Curto (2008), suggest that investors make difference between the recognised cost, the recognised fair value and the disclosed fair value of investment property in listed real estate in four European countries with dissimilar characteristics.

In fact, building on the existing literature the goal of this work is to generalise the results in real estate industry to Portuguese companies where investment properties do not represent their core business. This study aims to contribute to the current debate over fair value versus historical cost evaluating if it is worth to apply those standards in companies where the investment property does not represent a very significant share of the company's assets and where the effects may be limited or even inexistent.

3. REGULATORY BACKGROUND

In July 2002, the European Parliament and the Council of Ministers of EU approved regulation requiring all publicly traded European companies to apply IAS/IFRS instead of national Generally Accounting Accepted Principles (GAAP) as the basis for presenting their consolidated financial statements for fiscal years beginning on or after 1 January 2005.[1] Comparability, relevance and understandability were the main objectives of this regulation.

This meant some changes to the domestic standards in Portugal to date. Before the IASB, investment property in Portugal was as well considered a financial investment.[2] The domestic standard of Portugal required that investment property was accounted for under the cost model, not allowing the use of fair value model.

IAS 40 defines investment property as property (land or a building or part of a building or both) held to earn rentals or for capital appreciation or both (IAS 40.5). An investment property, whether purchased or constructed, is initially measured at cost including transaction costs and subsequent IAS 40 allows firms to choose between cost and fair value model (IAS 40.30). Moreover, the method chosen must be adopted for all investment properties of the company.[3] Actually it is possible for companies to switch from the cost model to fair value model, although the opposite is not allowed.

If a firm chooses the cost model, firms must proceed according IAS 16. Investment property is carried at its cost less any accumulated depreciation and any

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[1] Regulation (EC) No 1606/2002 of the European Parliament and of the Council of July 19, 2002 on the application of international accounting standards (Official Journal L 243, 9/11/2002), pp. 1-4.
[2] Included in "*Investimentos em Imóveis*", of *Plano Oficial de Contas* (POC).
[3] Change is permitted only if this results in a more appropriate presentation.

accumulated impairment losses on the balance sheet (IAS 16.30). Nevertheless, firms are required to disclose the respective fair value in the footnotes.

Under the fair value model, after initial recognition investment property is remeasured at fair value, amount that shall reflect market conditions at the reporting date (IAS 40.38). The best evidence of fair value is given by current prices for a similar property in the same location and conditions. Quoting IASB "fair value is the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction". In this model any depreciation is required. All changes in fair value must be reported in the respective period income statement.

In 2003, IASB considered in the revision of IAS 40 the elimination of the cost model making the fair value the unique alternative. They left this option mainly because two reasons: "to give preparers and users time to acquire experience before using a fair value model and time for countries with less-developed property markets and valuation professions to mature". In future they plan to reconsider again the use of cost model.

In short, choosing either the cost model or the fair value model companies are required to disclose the fair value, either in the notes or recognize directly on the balance sheet.

4. METHODOLOGY

In order to infer if investors valuate shares differently when companies use either the cost model or the fair value model to measure investment property, it was conducted an analysis based on the Lourenço and Curto (2008) research. Their analysis

follows similar studies on the value relevance of accounting data for share pricing, namely Ohlson (1995) and Landsman *et al.* (2006). Thus, throughout this paper it is conducted a comparison between coefficients of several balance sheet components, based upon the following model:

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP_{it} + \beta_3 LIABILITIES_{it} + \beta_4 NI_{it} + \varepsilon_{it} \tag{1}$$

where P represents the share price[4], as of three months after the fiscal year-end; ASSETS is the total assets of the company minus the total investment property figure; IP corresponds to the recognised amount of investment property; LIABILITIES is the total liabilities of the company; and NI represents the net operating income. All of these variables divided by the total number of shares outstanding. As the value of assets, investment property and net income represent the firm's wealth, they are expected to have a positive effect in the share price (i.e. positive coefficients). In contrast, it is predicted that the liabilities' coefficient assume a negative value.

Historical cost versus recognised fair value

With the purpose of distinguishing between companies recognising the historical cost and the fair value of the investment property, the variable IP must be divided into two different terms, each one multiplied by a dummy variable. The dummy COST equals one when the company recognises the cost of investment property and zero otherwise. On the other hand, the dummy FAIR VALUE corresponds to one when the

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[4] Given this is the period when annual financial statements are generally released, it is considered that only the share price at that time accurately reflects the impact of those results.

company recognises the fair value of the investment property and zero otherwise. The described procedure results in the following econometric model:

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP \times COST_{it} + \beta_3 IP \times FAIR\ VALUE_{it}$$
$$+ \beta_4 LIABILITIES_{it} + \beta_5 NI_{it} + \varepsilon_{it}$$

(2)

Hence, in order to analyse the impact in share prices of recognising the historical cost or the fair value, it must be tested the equality between β_2 and β_3 in equation (2). If the equality does not hold, one may conclude that investors price shares differently as a result of firms adopting one model or the other.

Historical cost versus disclosed fair value

In order to verify whether investors consider differences between the historical cost and the fair value disclosed in the notes for firms accounting their investment property under the cost model, a new variable was added in equation (2). This variable reflects the difference between the disclosed fair value and the historical cost (IP_DFV_COST), resulting in the subsequent equation:

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP \times COST_{it} + \beta_3 IP \times FAIR\ VALUE_{it}$$
$$+ \beta_4 IP\_DFV\_COST_{it} + \beta_5 LIABILITIES_{it} + \beta_6 NI_{it} + \varepsilon_{it}$$

(3)

Thus, the aim at this point is to test whether the parameter β_4 is statistically significant. If that turns out to be the case, it means that, when pricing shares, investors take into consideration the difference between the information provided in the balance sheet and disclosed in the notes.

Recognised fair value versus disclosed fair value

Given that investors always have access to the fair value of the investment property (i.e. either disclosed in the balance sheet or in the notes), the third issue under analysis in this paper is whether investors valuate where this information is provided. In order to perform this, econometric regression similar to (2) needs to be constructed where IP x COST is replaced by the fair value disclosed in the notes by those firms adopting the cost model (IP_DISCLOSED FV), originating the regression below:

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP\_DISCLOSED\ FV_{it} + \beta_3 IP \times FAIR\ VALUE_{it} \\ + \beta_4 LIABILITIES_{it} + \beta_5 NI_{IT} + \varepsilon_{it}$$

(4)

Similarly to what has been done in regression (2), one must test if β_2 and β_3 are equal. If this hypothesis is rejected, it can be concluded that investors price differently shares of companies disclosing the fair value of their investment property in the balance sheet or in the notes (i.e. different valuation of shares of companies using the cost model and the fair value model).

5. SAMPLE SELECTION AND DATA

The Study focuses on a sample of Portuguese listed companies belonging to the index *PSI Geral*, the general stock market of the Lisbon stock exchange, during the period 2005 to 2008. The selection of the time period reflects the date after which IAS 40 became effective, and therefore the date after which the fair values need to be disclosed by companies. Since 2005, listed companies should use the IASB standards instead the Portuguese standards. Throughout this period some companies have left the

index others new become listed.[5] Hence, a total of 60 firms were initially considered in this paper, which represent 209 firm year observations. Table 1 shows sample components.

From this initial sample were excluded football clubs because of their different accounting period. Then were also excluded all other firms for which there were not data available. Then, in order to detect outliers, all observations where the absolute value of the Rstudent was larger than two were removed.[6] This results in a final sample of 75 firm year observations representing 21 firms. From the total number of observations, 39 correspond to firms applying the cost model and 36 to those using the fair value model.

Subsequently, all variables were divided by the number of shares outstanding at year-end in order to mitigate against heteroscedasticity (Barth, 1994).

All accounting data were hand-collected from the website of *Comissão de Mercado de Valores Mobiliários (CMVM)*. The share prices were obtained from Yahoo! Finance database.

The descriptive statistics of all data collected that later will be used in the regression models is presented in Table 2. As stated before, it can be observed that investment property corresponds to a very small fraction of the total assets of the companies under analysis.[7] In fact, the mean value of the assets (excluding the investment property) is 28,49 euros per share, while the mean value of the investment property under the cost model and the fair value model is 0,20 and 0,50, respectively.

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[5] Efacec Capital – SGPS, SA; Modelo Continente – SGPS, SA; CIN – Corporação Industrial do Norte, SA; Gescartão – SGPS, SA e Tertir – Terminais de Portugal, SA were initially listed in 2005.

[6] Studentised residuals play a fundamental role in the definitions and properties of the classical detectors of observations having a particularly strong influence on the model predictions.

[7] The investment property represents less than 5% of the total assets of the company in 51 observations, whereas it corresponds to 5% to 10% in 8 cases. For the remaining 14 observations, the investment property corresponds to more than 10%.

Moreover, it can be observed that the mean value of the disclosed fair value of the investment property is higher than the respective historical cost, i.e. 0,27 and 0,20, respectively.

Hence, the challenge shall be to analyse whether these differences in the way investment property is measured significantly impact share prices of companies where investment property is not their core business.

6. EMPIRICAL RESULTS

Historical cost versus recognised fair value

In table 3, it is shown the estimated econometric model (2) and it can be observed that all coefficients are statistically significant. However, the IP x COST coefficient is only statistically relevant at a significance level of 5%, while all the other coefficients are relevant at a significance level of 1%. It has been obtained an adjusted R-squared of 0,7321, which means that around 73% of the variability of share prices is explained by the independent variables of the model.

As expected, all coefficients are positive apart from the liabilities' coefficient which naturally has a negative sign. Regarding IP x COST and IP x FAIRVALUE coefficients (β_2 and β_3, respectively), it can be concluded that they are both positive and relevant. In addition, the Wald test was carried out to analyse the equality between those coefficients. As it can be observed in Table 3, the associated p-value led us to reject the null hypothesis, i.e. the equality between β_2 and β_3 does not hold. This means that investors price shares differently when companies choose one model or the other.

Historical cost versus disclosed fair value

Table 4 illustrates the values obtained through the econometric regression (3) which has an adjusted R-squared of 0,7148. The new variable added from equation (2) to (3), IP_DFV_COST, is not statistically relevant at a significance level of 10%. As the null hypothesis cannot be rejected, one cannot discard the fact that information regarding the fair value of investment property disclosed in the notes may have a negligible impact in share prices for companies using the cost model. The remaining coefficients are statistically significant and present the predicted sign.

Recognised fair value versus disclosed fair value

Finally, table 5 represents the econometric regression (4) and the respective estimated coefficients. It can be observed that the adjusted R-squared is 0,7475 and that all coefficients are significant and have the expected sign. Concretely, the IP_DISCLOSED_FV and IP x FAIRVALUE coefficients (β_2 and β_3, respectively) are positive and significant. Actually, the fact that β_2 is statistically significant does not contradict the previous conclusion obtained from regression (3). While in the previous paragraph it has been tested whether differences between the historical cost and the disclosed fair value significantly affect share prices, at this point we are analysing if the disclosed fair value by itself may explain share prices. Since in this regression it is not included the historical cost, and given the proximity between historical cost and disclosed fair value, it may be expected that if the first is significantly relevant, the second will also be relevant (given it is now considered alone in the regression).

Additionally, the Wald test was conducted in order to check whether investors valuate differently whether the fair value is recognised in the balance sheet or disclosed in the notes. The test shows that the hypothesis that β_2 equals β_3 can be rejected and

therefore the place in the financial statements where the fair value is disclosed is relevant to investors.

7. Conclusion

Under IAS 40, firms are allowed to choose between fair value model and cost model. Hence, this paper examines if there is any value relevance to applying the fair value model in companies where investment properties are not the core business.

This question is addressed by estimating valuation regressions to determine whether investors price shares differently when companies use one particular model over the other.

Results reveal that investors account for those differences in the measurement of investment properties when they valuate shares. In fact, it was found evidence that recognising the historical cost or the fair value in the balance sheet has different impacts in the share price. This fact implies that fair value has value relevance even in companies where investment properties are not considered the core business. Moreover, results show evidence that, when pricing shares, investors do not equally interpret when firms recognise the fair value in the balance sheet (fair value model) and disclose that information in the notes (cost model).

However, results failed to prove that, for companies using the cost model, differences between the historical cost recognised in the balance sheet and the fair value disclosed in the notes are considered significant by investors when pricing shares.

Finally, one should notice that the analysis and results in this study are based upon observations of companies in one single country. As a consequence, results may

not be totally generalised to other countries and therefore it would be interesting

extending this analysis to other countries in future researches.

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Table 1 – Sample Components

NAME	YEAR				MODEL	
	2005	2006	2007	2008	Cost	Fair Value
Banco Popular Español, SA	x	x	x	x	x	
Banco Santander Central Hispano, SA	x	x	x	x	x	
Banif - SGPS, SA	x	x	x	x		x
Corticeira Amorim - SGPS, SA	x	x	x	x		x
Espírito Santo Financial Group, SA	x	x	x	x		x
Estoril Sol - SGPS, SA	x	x	x	x	x	
F. Ramada Investimentos, SGPS, S.A.				x	x	
Grupo Soares da Costa, SGPS, SA	x	x	x	x	x	
Impresa - SGPS, SA	x	x	x	x	x	
Jerónimo Martins - SGPS, SA	x	x	x	x		x
Martifer - SGPS, SA				x		x
Mota-Engil, SGPS, SA	x	x	x	x		x
Portugal Telecom, SGPS, SA	x	x	x	x	x	
REN - Redes Energéticas Nacionais, SGPS, SA			x	x	x	
Semapa - Sociedade Investimento e Gestão, SGPS, SA	x	x	x	x	x	
Sociedade Comercial Orey Antunes, SA	x	x	x	x		x
Sonae - SGPS, SA	x	x	x	x		x
Sonae Indústria, SGPS, SA	x	x	x	x	x	
Teixeira Duarte - Engenharia e Construções, SA	x	x	x	x		x
Toyota Caetano Portugal, SA	x	x	x	x	x	
VAA - Vista Alegre Atlantis, SGPS, SA		x	x	x		x

Source: *Comissão de Mercado de Valores Mobiliários*

Table 2 – Descriptive Statistics for 75 Firm Observations

All amounts are per share and expressed in euros

VARIABLE	MEAN	MEDIAN	STD DEV	MAX.	MIN.	N
PRICE	5,10	3,52	4,90	25,80	0,08	75
ASSETS	28,49	12,47	38,02	144,22	0,63	75
LIABILITIES	25,25	9,10	36,32	136,10	0,89	75
NI	0,51	0,26	0,86	5,29	-0,83	75
INVESTMENT PROPERTY						
COST	0,19	0,05	0,51	3,07	0,00	39
FAIR VALUE	0,50	0,26	0,62	3,18	0,02	36
DISCLOSED_FV	0,27	0,06	0,25	3,07	0,00	39
DFV_COST	0,07	0,01	0,25	1,22	0,00	39

Notes:

PRICE – Defined as 3 months after the year end

ASSETS – Total assets minus the recognised amount of investment property

LIABILITIES – Total liabilities

NI – Net Income

IP – Recognised amount of Investment Property

COST – Dummy variable that assumes 1 when company chooses cost model and 0 if not

FAIR_VALUE – Dummy variable that assumes 1 when company chooses fair value model and 0 if not

DISCLOSED_FV – Disclosed fair value of investment property under cost model

DFV_COST – Disclosed Fair Value minus recognised cost of investment property under cost model

Table 3 - Historical cost versus recognised fair value (N=75)

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP \times COST_{it} + \beta_3 IP \times FAIR\ VALUE_{it}$$
$$+ \beta_4 LIABILITIES_{it} + \beta_5 NI_{it} + \varepsilon_{it}$$

Variable	Predicted Sign	Coefficient	Std Dev	t-statistic	p-value
C		1.42	0.50	2.84	0.00
ASSETS	+	0.61	0.15	4.18	0.00
IPxCOST	+	0.73	0.24	3.23	0.03
IPxFAIR VALUE	+	0.98	0.27	3.59	0.00
LIABILITIES	-	-0.57	0.15	-3.76	0.00
NI	+	0.56	0.12	4.70	0.00

Adjusted R^2= 0,73

Hypothesis	Wald Test	p-value
$\beta_2 = \beta_3$	4.37	0.03

Notes:

ASSETS – Total assets minus the recognised amount of investment property

LIABILITIES – Total liabilities

NI – Net Income

IP – Recognised amount of Investment Property

COST – Dummy variable that assumes 1 when company chooses cost model and 0 if not

FAIR_VALUE – Dummy variable that assumes 1 when company chooses fair value model and 0 if not

All variables are on per share basis

Table 4 - Historical cost versus disclosed fair value (N=75)

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP \times COST_{it} + \beta_3 IP \times FAIR\ VALUE_{it}$$
$$+\beta_4 IP\_DFV\_COST_{it} + \beta_5 LIABILITIES_{it} + \beta_6 NI_{it} + \varepsilon_{it}$$

Variable	Predicted Sign	Coefficient	Std Dev	t-statistic	p-value
C		1,34	0,49	2,74	0,01
ASSETS	+	0,58	0,14	4,05	0,00
IPxCOST	+	0,62	0,16	3,09	0,04
IPxFAIR VALUE	+	0,99	0,27	3,69	0,00
IP_DFV_COST	+	0,77	2,58	0,68	0,45
LIABILITIES	-	-0,55	0,15	-3,61	0,00
NI	+	0,56	0,12	4,84	0,00

Adjusted R^2= 0,71

Notes:

ASSETS – Total assets minus the recognised amount of investment property

LIABILITIES – Total liabilities

NI – Net Income

IP – Recognised amount of Investment Property

COST – Dummy variable that assumes 1 when company chooses cost model and 0 if not

FAIR_VALUE – Dummy variable that assumes 1 when company chooses fair value model and 0 if not

IP_DFV_COST – Disclosed Fair Value minus recognised cost of investment property under cost model

All variables are on per share basis

Table 5 – Recognised fair value versus disclosed fair value (N=75)

$$P_{it} = \beta_0 + \beta_1 ASSETS_{it} + \beta_2 IP\_DISCLOSED\ FV_{it} + \beta_3 IP \times FAIR\ VALUE_{it}$$
$$+ \beta_4 LIABILITIES_{it} + \beta_5 NI_{IT} + \varepsilon_{it}$$

Variable	Predicted Sign	Coefficient	Std Dev	t-statistic	p-value
C		1.38	0.49	2.79	0.01
ASSETS	+	0.62	0.14	4.25	0.00
IP_DISCLOSEDFV	+	0.61	0.14	4.01	0.02
IPxFAIR VALUE	+	0.99	0.16	3.62	0.00
LIABILITIES	-	-0.58	0.15	-3.82	0.00
NI	+	0.56	0.11	4.71	0.00

Adjusted R^2 = 0,74

Hypothesis	Wald Test	p-value
$\beta_2 = \beta_3$	4.73	0.03

Notes:

ASSETS – Total assets minus the recognised amount of investment property

LIABILITIES – Total liabilities

NI – Net Income

IP – Recognised amount of Investment Property

FAIR_VALUE – Dummy variable that assumes 1 when company chooses fair value model and 0 if not

IP_DISCLOSED_FV – Disclosed fair value of investment property under cost model

All variables are on per share basis