Does IFRS 13 Improve the Disclosure of the Fair Value Measurement?

An empirical analysis of the real estate sector in Europe

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Abstract— **The paper presents the results of an empirical analysis on the disclosure of the fair value measurement in the real estate sector following the introduction of IFRS 13. Fair value is an important criterion for IFRSs with many uses stated by different standards and over the years an intense debate has arisen about both the usefulness of fair value and its definition. In 2011 the IASB issued a new standard about fair value, its definition, its measurement and the related disclosure. The effective date of IFRS 13 was 1st January 2013. The introduction of IFRS 13 is an opportunity to verify the state of art of the application of fair value as a subsequent measurement. Furthermore, the paper aims at verifying whether the introduction of IFRS 13 leads to an improvement in the disclosure reported in the notes. Focusing on investment properties, the paper aims at verifying the effects of the first application of IFRS 13 in the real estate sector, by means of an empirical research of Italian, French and German groups listed on the Stock Exchange. A total of 1,343 items were hand collected. The results show that the fair value model is used in 75% of cases of real estate companies which held investment properties. Disclosures about fair value measurement required by IFRS 13 are reported by many entities, but there are still companies not compliant with the new requirements.**

Keywords-component: fair value, fair value hierarchy, investment properties, real estate, IFRS.

I. INTRODUCTION

Fair value is an important criterion for IFRSs with many uses stated by different standards: for initial recognition (in nearly every standard), for allocation of the initial amount among its constituent parts (e.g. IFRS 3 [1], IAS 32 [2]), for subsequent measurement (e.g. IAS 39 [3], IAS 40 [4]) and for determination of the recoverable amount (e.g. IAS 36 [5]). These standards were developed over many years: as a result, there were inconsistencies in the requirements for measuring fair value and for disclosing information about fair value measurement. In 2005, the IASB added this topic to its agenda and, after many years of debate, in 2011 the IASB issued a new standard IFRS 13 – Fair value measurement [6]. IFRS 13 defines fair value and replaces the requirement contained in individual standards, both for measuring fair value and for disclosing the measurement. Entities applied IFRS 13 for the first time for annual periods beginning on or after 1st January 2013. IFRS 13 introduces a new definition of fair value that eliminates inconsistencies among different standards: according to IFRS 13, par. 9, fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Therefore, fair value is an *exit price*

regardless of whether that price is directly observable or estimated using a valuation technique. The objective of using a valuation technique is to estimate the price at which an orderly transaction to sell the asset or to transfer the liability would take place between market participants at the measurement date under current market conditions. IFRS 13 identifies three widely used valuation techniques: the market approach, the cost approach and the income approach. Each valuation technique requires the use of inputs that could be observable or not observable in active markets. IFRS 13 establishes a fair value hierarchy that categorizes the inputs to valuation techniques used to measure fair value into three levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs for the asset or liability. The fair value hierarchy gives the highest priority to Level 1 inputs and the lowest priority to Level 3 inputs. Entities must categorize the fair value measurement within the three categories, according to the lowest level input that is significant to the entire measurement. The new standard enhances disclosures about fair value measurement in order to help users of financial statements to assess the valuation techniques and inputs used to develop fair value measurement. IFRS 13 par. 93 states disclosure to be provided when fair value is used on a recurring basis or on a non-recurring basis.

IFRS 13 must be applied when other standards require or permit the measurement or disclosure of the fair value of assets, liabilities and own equity instruments. This standard does not specify when an entity should determine the fair value, but only how to measure it and how to disclose the measurement. In particular, the disclosure requirements are more extensive when fair value is used on a recurring basis, i.e. for the subsequent measurement. The standards that require or permit the use of fair value for the subsequent measurement of assets and liabilities are reported in Table 1.

TABLE 1.   USE OF FAIR VALUE AS SUBSEQUENT MEASUREMENT IN IFRSs

IFRS	Use of fair value	Mandatory/Non mandatory
IFRS 10, par. 31	Investment in subsidiaries held by venture capital organizations or mutual funds, unit trusts and similar entities	Non mandatory
IAS 16, par. 31	Measurement of items of property, plant and equipment	Non mandatory

IFRS	Use of fair value	Mandatory/Non mandatory
IAS 19, par. 113	Measurement of plan assets of post-employment benefit plan	Mandatory
IAS 26, par. 32	Measurement of retirement benefit plan investments in the financial statement of the retirement benefit plan	Mandatory
IAS 27, par. 10	Measurement of investment in subsidiaries, joint ventures and associates in separate financial statements	Non mandatory
IAS 28, par. 18	Investment in associates or joint ventures held by venture capital organizations or mutual funds, unit trusts and similar entities	Non mandatory
IAS 38, par. 75	Measurement of intangible assets	Non mandatory But only if fair value can be determined by reference to an active market
IAS 39, par. 46	Measurement of held for trading financial assets and financial liabilities, including all derivatives	Mandatory
IAS 39, par. 9 and par. 46	Measurement of available for sale financial assets	Mandatory Fair value is not used for investments in equity instruments (and derivatives that are linked to them) that do not have a quoted market price in an active market and whose fair value cannot be reliably measured
IAS 39, par. 9	Measurement of other financial assets and financial liabilities, subject to specific requirements (so-called "fair value option")	Non mandatory
IAS 40, par. 33	Measurement of investment property	Non mandatory
IAS 41, par. 12	Measurement of biological assets	Mandatory Fair value is not used if the fair value cannot be measured reliably
IAS 41, par. 13	Measurement of agricultural produce harvested for entity's biological assets	Mandatory

Except for financial instruments, plan assets of a post-employment defined benefit plan and biological assets, fair value as a criterion for the subsequent measurement is always an option. Some options are eligible only in the separate financial statements, but many countries do not allow or do permit separate financial statements to be presented in accordance with IFRSs. In the consolidated financial statements, the use of fair value as an option for subsequent measurement is possible only for tangible assets (IAS 16 [7]), intangible assets (IAS 38 [8]) and investment properties (IAS 40 [4]). However, many studies have demonstrated that entities have not switched from cost accounting to fair value accounting for tangible and intangible assets (see Busso and Devalle, 2008 [9]). With reference to investment properties, fair value is generally not used when the reporting entity is not an investment property entity, i.e. when investment properties are not relevant (Devalle and Rizzato, 2011 [10]). On the contrary, the use of fair value model for investment properties (land/building/part of land or building held to earn rentals or for capital appreciation or both) can lead to more useful information for users of financial statements. This was

considered to be not only for properties held for capital appreciation, but also for properties held for rental. In fact, the performance of an investment property can be regarded as being made up of both rental income earned during the period and the changes in fair value of future net income. As IASB pointed out in 2000 (IAS 40 (2000) par. BC 36) the fair value of an investment property can be regarded as a market-based representation of the value of the future net rental income, regardless of whether the entity is likely to sell the property in the near future. The IASB's preference for the fair value model is clear since IAS 40 par. 31 states that it is highly unlikely that a change from the fair value model to the cost model will result in a more relevant presentation. For these reasons, IAS 40 par. 32 requires all entities to measure the fair value of investment property, for the purpose of either measurement (if the entity uses the fair value model) or disclosure (if it uses the cost model). Consequently, the introduction of IFRS 13 is very important for entities that operate in the real estate sector, where investment properties could be relevant compared to the other assets and even if fair value is not mandatory for the subsequent measurement, its measurement is always necessary at least for disclosure purposes. Moreover, this sector has been significantly influenced by the crisis, with obvious effects on market prices and transactions. Focusing on investment properties, the paper aims at verifying the effects of the first application of IFRS 13 in the real estate sector, by means of an empirical research of Italian, French and German groups listed on the Stock Exchange. The introduction of the IFRS 13 is an opportunity to verify the state of art of the application of fair value as a subsequent measurement. Furthermore, the paper aims at verifying whether the introduction of IFRS 13 leads to an improvement of the disclosure reported in the notes. This research contributes to previous literature by providing results after the first application of the "new" IFRS 13. A wide sample of European groups was analyzed in order to contribute to the debate on the application of fair value as a subsequent measurement. Furthermore, an analysis of the disclosure requested by IFRS 13 is provided.

The remainder of the paper is the following. Section II analyzes the background and defines the research questions. Section III presents the data and methodology of the research, Section IV shows the results of the analysis and finally some conclusions are reported.

II. BACKGROUND AND RESEARCH QUESTION

As stated in Section I, fair value is an important criterion for IFRSs with many uses stated by different standards: for initial recognition, for allocation of the initial amount among its constituent parts, for subsequent measurement and for determination of the recoverable amount. The application of fair value measurement fuelled a huge debate both in academic and practitioner contexts, in particular in the European continental accounting model. The debate on fair value criterion is focused on different issues. Landsman (2007) [11] showed that the disclosure and the recognition of fair values are informative to investors, but that the level of informativeness is affected by the amount of measurement error and source of the estimates - management or external appraisers. An author underlined the ambiguity of the fair value notion (Schmidt, 2009 [12]) as fair value is defined as a

transaction price but in imperfect markets buyer's and seller's marginal prices differ. Thus, the author states that in some cases the IFRS definition of fair value is not readily applicable. Besides, fair values cannot be regarded as a suitable candidate for financial reporting or measuring taxable capacity in the real world (Rayman, 2007 [13]). Furthermore, it is possible to identify two main criticisms of fair value accounting (Veron, 2008 [14]): illiquidity and procyclality. Moreover, fair value accounting is able to change management philosophy and strategy (Barlev and Haddad, 2003 [15]) and can increase management discretion and subjectivity of fair valuation (Hilton and O'Brien, 2009 [16]). Hitz (2007) [17] analyzed the notion of decision usefulness of a fair-value-based reporting system from a theoretical perspective. Findings indicate that the decision relevance of fair value measurement can be justified from a regulator and information perspective, even if the conceptual case is not strong. Quagli and Avallone (2010) [18] showed that information asymmetry, contractual efficiency and managerial opportunism could account for the fair value choice, with reference to IAS 40. In particular the paper analyzed the determinants of the choice of the fair value as a subsequent measurement. Size reduces the likelihood of using fair value while market-to-book ratio is negatively associated with the fair value choice. With reference to IAS 40 the aim of the paper is to verify the application of the fair value as subsequent measurement in the real estate sector. So and Smith (2009) [19] showed that there is a higher market price reaction and return associations when changes of fair value of investment properties are reported in the income statement. Furthermore, the goal of the paper is to analyze the impact of the new IFRS 13 on the disclosure of how fair value is determined when used as a criterion of subsequent measurement. As previously stated, 2013 is the first year of the application of IFRS 13 and a more detailed disclosure has to be reported in the notes. In particular IFRS 13 requires the following information: (i) the level of the fair value hierarchy within the fair value measurements are categorized in their entirety (Level 1, Level 2 or Level 3), (ii) for fair value measurements categorized within Level 2 and Level 3 of the fair value hierarchy, a description of the valuation technique(s) and the inputs used in the fair value measurement, (iii) for fair value measurements categorized within Level 3 of the fair value hierarchy, quantitative information about the significant unobservable inputs used (iv) and a narrative description of the sensitivity of the fair value measurement to changes in unobservable inputs if a change in those inputs to a different amount might result in a significantly higher or lower fair value measurement.

To reach the objectives described the research questions are the following:

- (Q1) to evaluate the application of the cost model or the fair value model of the groups listed on the Italian, German and French Stock Exchanges and belonging to the real estate sector;

- (Q2) to analyze the disclosure of the fair value measurement reported in the notes as stated by IFRS 13.

III. DATA AND METHODOLOGY

The examined sample is made up of the groups listed on three European Continental Union Stock Exchanges (Milan, Frankfurt and Paris) belonging to the Real Estate Sector. In order to answer the above mentioned research questions, the sample is reported in Table 2.

TABLE 2.   COMPOSITION OF THE SAMPLE EXAMINED

Stock Exchange	Companies belonging to real estate sector	Consolidated Financial Statements analyzed	% sample analyzed
Milan	9	9	100%
Frankfurt	45	36	80%
Paris	55	45	82%
Total	**109**	**90**	**83%**

In this paper 90 cases out of 109 were analyzed. 19 groups were excluded from the sample due to a lack of data. In particular, some groups did not draw up the consolidated financial statements (and the separate financial statements were not in compliance with IFRSs) or consolidated financial statements were not available. The investigation was based on the consolidated financial statements of the entities belonging to the above mentioned Stock Exchanges and sector (Table 2). In particular, the data of consolidated financial statements regarding 2013 were analyzed. With reference to disclosure the information required by IFRS 13 was hand collected from the notes of consolidated financial statements. In more detail, the main disclosures required by IFRS 13 when fair value is used on a recurring basis, such as for investment properties, are the following: (i) the level of the fair value hierarchy within the fair value measurements are categorized in their entirety (Level 1, Level 2 or Level 3), (ii) for fair value measurements categorized within Level 2 and Level 3 of the fair value hierarchy, a description of the valuation technique(s) and the inputs used in the fair value measurement, (iii) for fair value measurements categorized within Level 3 of the fair value hierarchy, quantitative information about the significant unobservable inputs used (iv) and a narrative description of the sensitivity of the fair value measurement to changes in unobservable inputs if a change in those inputs to a different amount might result in a significantly higher or lower fair value measurement. A total of 1,343 items were hand collected and a descriptive statistics approach was used in order to analyze the results.

IV. RESULTS

A. Q1: the application of fair value model

The first analysis is primarily a verification of the accounting model used (Table 3) and of the impact of investment properties on total assets (Table 4 and Table 5).

TABLE 3.   ACCOUNTING MODEL USED IN THE SAMPLE ANALYZED

Stock Exchange	Presence of investment properties	% on groups analyzed	Fair value		Cost	
			N.	% on companies with I.P.	N.	% on companies with I.P.
Milan	6	67%	3	50%	3	50%
Frankfurt	31	86%	27	87%	4	13%
Paris	42	93%	29	69%	13	31%
Total	**79**	**88%**	**59**	**75%**	**20**	**25%**

As stated in Table 3, 88% of the analyzed groups have investment properties in their financial statements, with the lowest presence in Italy and the highest presence in France. Among the groups that have investment properties in their financial statements, 75% use the fair value model and 25% the cost model. German companies have shown a strong tendency towards the fair value model, chosen in 87% of cases whereas 69% of French companies have chosen the fair value model. The relevance of investment properties for the real estate sector is confirmed by the weight of investment properties on total assets as reported in Table 4.

TABLE 4.   MEAN OF THE WEIGHT OF INVESTMENT PROPERTIES ON TOTAL ASSETS

Stock Exchange	Mean	Mean of companies that use the fair value model	Mean of companies that use the cost model
Milan	58%	72%	45%
Frankfurt	70%	73%	47%
Paris	77%	78%	75%
Total mean	**73%**	**76%**	**65%**

Table 4 shows that the mean of the weight of investment properties on total assets is equal to 73%. The results are consistent with the sector analyzed as the main assets of the real sector companies should be the investment properties. Table 4 shows also that the mean of the weight of the investment properties on the total assets is 76% when fair value is used and this mean decreases to 65% when cost is used. The country with the highest weight of investment properties is France. Thus, we can state that the companies where the weight of investment properties is higher uses the fair value as a subsequent measurement. Table 5 reports the percentiles of the weight of investment properties on total assets.

TABLE 5.   PERCENTILES OF THE WEIGHT OF INVESTMENT PROPERTIES ON TOTAL ASSETS

Percentiles	Total	Milan			Frankfurt			Paris		
		Fair value	Cost	Total	Fair value	Cost	Total	Fair value	Cost	Total
0,25	60,3%	49,9%	36,3%	44,9%	59,3%	2,0%	55,2%	63,8%	76,0%	69,2%
0,5	82,8%	77,9%	47,7%	49,8%	84,5%	46,7%	84,5%	85,4%	81,2%	83,4%
0,75	90,5%	87,0%	49,6%	80,2%	93,2%	92,4%	93,2%	90,5%	88,1%	90,1%

25% of the sample has a weight of investment properties on total assets of less than 60% and the median of the sample is 82%. Table 5 confirms that in all the countries, companies that use the fair value model have a higher weight of investment properties on total assets. The fair value measurement of investment properties affects the net income, since gains and losses arising from changes in fair value are recognized in profit and loss. The weight of the changes in fair value has been analyzed compared with investment properties and with net income (Table 6 and Table 7).

TABLE 6.   MEAN OF THE WEIGHT OF THE CHANGES IN FAIR VALUE ON INVESTMENT PROPERTIES AND ON NET INCOME

Stock Exchange	Mean of the weight of the changes in fair value on investment properties	Mean of the weight of the changes in fair value on net income
Milan	-5%	-938%
Frankfurt	4%	21%
Paris	0,3%	-114%
Total mean	**2%**	**49%**

TABLE 7.   PERCENTILES OF THE WEIGHT OF THE CHANGES IN FAIR VALUE ON INVESTMENT PROPERTIES AND ON NET INCOME

Percentile	Percentiles of the weight of changes in fair value on investment property			Percentiles of the weight of changes in fair value on net income		
	Milan	Frankfurt	Paris	Milan	Frankfurt	Paris
0,25	-9,89%	0,00%	-1,31%	-1961,46%	0,00%	-19,72%
0,5	-2,27%	1,16%	0,94%	-828,58%	34,28%	17,80%
0,75	-2,00%	8,06%	1,84%	-22,48%	93,12%	57,58%

This analysis has been conducted only in regard to groups that use the fair value model. The average effect of the changes in fair value on investment properties is 2%, even though the situation is quite different in the countries analyzed. In fact, Italian companies show a negative impact, whereas French companies have a nearly nil effect. Companies listed at Frankfurt Stock Exchange show a mean of 4% of the changes in fair value on investment properties. The analysis of percentiles confirms the worst situation is that of Italian and French companies. In particular, 75% of Italian companies have a negative impact of more than 2%, whereas 25% of French companies have a negative impact of more than 1%. 25% of German companies show a nil effect, while 50% of the German sample has a positive effect of more than 1%. Regarding the weight of changes in fair value on net income, Table 6 shows that for Italian and French companies the average impact is negative, i.e. the losses arising from the fair value measurement have either increased the net loss for the year or decreased the net income for the year. On the contrary, companies listed at Frankfurt Stock Exchange have taken advantage of positive changes in fair value. In analyzing the percentiles shown in Table 7, it is possible to note that 25% of German companies have a negative impact on net income, while 50% have a positive effect of more than 34%. 50% of French companies have a positive impact from changes in fair value of more than 17%.

B. Q2 – Disclosure

Table 8 shows the level of the fair value hierarchy within the fair value measurements are categorized in their entirety.

TABLE 8.   CATEGORIZATION OF FAIR VALUE MEASUREMENT WITHIN FAIR VALUE HIERARCHY

Stock Exchange	Level 3	Both level 2 and level 3	Level 2	Not disclosed	Total
Milan	1	1	0	1	3
Frankfurt	22	1	1	3	27
Paris	20	2	0	7	29
Total	43	4	1	11	59

73% of companies analyzed categorize the fair value measurement within Level 3 (unobservable inputs) and 7% within both Level 2 and Level 3. Only one German company categorizes the fair value measurement of all investment properties within Level 2. 19% of the sample (11 companies) do not provide any disclosure about the fair value hierarchy. Two of these companies were not obliged to apply IFRS 13 since their annual periods started before 1st January 2013. In this sense, the importance of IFRS 13 is confirmed. The fact that the other 9 companies do not disclose the fair value hierarchy is a surprising result because the information is mandatory. In their situation the information is also relevant considering that the company with the lowest level of investment properties has 50% of its total assets composed of investment properties.

Table 9 shows if the valuation techniques are described when the fair value measurement is categorized within either Level 2 or Level 3 and Table 10 shows how many techniques are used.

TABLE 9.   DESCRIPTION OF VALUATION TECHNIQUES

Stock Exchange	Detailed information about techniques	Comparable transactions		Revenue capitalisation method		DCF	
		N.	%	N.	%	N.	%
Milan (out of 3)	3	2	67%	2	67%	3	100%
Frankfurt (out of 27)	26	2	7%	7	26%	21	78%
Paris (out of 29)	27	22	76%	28	97%	21	72%
Total (out of 59)	56	26	44%	37	63%	45	76%

TABLE 10.   NUMBER OF VALUTATION TECHNIQUES USED

Stock Exchange	Three	Two	One	Total
Milan (out of 3)	1	2	0	3
Frankfurt (out of 27)	0	4	22	26
Paris (out of 29)	19	9	1	29
Total (out of 59)	20	15	23	58

3 companies out of 59 do not provide detailed information about the evaluation technique used. 2 of them are companies not obliged to apply IFRS 13 because of the commencement of their annual period, once more confirming the relevance of the new standard. Only one company does not provide detailed disclosure about the valuation techniques. Table 9 shows a clear tendency towards the Discounted Cash Flow Model, a technique belonging to the income approach techniques. Besides, the most used technique by French companies is the revenue capitalization model, another income approach techniques. Table 10 shows the different approaches among French and German companies: 19 French companies out of 29 state they use three techniques, sometimes in combination, at other times as a control method. Only one French company uses only one technique. We find the opposite situation in Germany, where none of the companies use three techniques at the same time and 22 companies out of 27 state they use only one technique.

Table 11 shows companies' behavior about disclosure of quantitative information of the significant unobservable inputs used when the fair value measurement is categorized within Level 3 of fair value hierarchy.

TABLE 11.   QUANTITATIVE DISCLOSURE ABOUT INPUTS USED WHEN FAIR VALUE MEASUREMENT IS CATEGORIZED WHITIN LEVEL 3

Stock Exchange	Many inputs differentiated for categories of I.P.	Average of many inputs	Only average rate of return	No quantitative disclosure	Total
Milan (out of 3)	2	0	0	1	3
Frankfurt (out of 26)	15	9	1	1	26
Paris (out of 29)	9	8	6	6	29
Total	26	17	7	8	58

The number of companies considered is 58 because one German company states it uses only Level 2 fair value measurement. In 7 cases, companies provide quantitative information only for one input (the rate of return) and the quantitative information consists of an average rate. In 17 cases (29% of the sample), companies disclose also the average of other inputs, such as discount rate, increase in market rent, vacancy rate and so on. 45% of companies give quantitative information of many inputs, disclosed separately according to different categories of investment properties (type, location, quality). German companies seems to have a greater tendency to disclose more detailed information about the inputs used, since 92% of the companies provide quantitative disclosure either of many average inputs or many inputs separately for categories of investment properties. IFRS 13 requires to disclose quantitative information of significant inputs used. If the inputs are significant, it is also very important to disclose a sensitivity of the fair value measurement to changes in those significant inputs. IFRS 13 requires only a narrative description of the sensitivity analysis. The presence of quantitative information of the sensitivity analysis was investigated and is shown in Table 12.

TABLE 12.   QUANTITATIVE INFORMATION ABOUT SENSITIVITY ANALYSIS WHEN FAIR VALUE MEASUREMENT IS CATEGORIZED WHITIN LEVEL 3

Stock Exchange	Effects of variations in many inputs	Only effects of variations in one input	No quantitative disclosure	Total
Milan (out of 3)	0	0	3	3
Frankfurt (out of 26)	8	10	8	26
Paris (out of 29)	3	12	14	29
Total	11	22	25	58

56% of the sample analyzed appreciates the change in fair value due to a variation in one or more inputs. German companies seem to pay more attention also to this type of information, considering that 69% of them give quantitative information and 31% of the sample provides a quantitative sensitivity analysis for more than one input. When companies disclose the quantitative effect of the variation in only one input (38% of the cases) this input is the average rate of return.

IAS 40 (par. 31) encourages entities to measure the fair value on the basis of a valuation by an independent valuer. The importance of this requirement is clear considering that 80% of the companies categorize the fair value measurement within Level 3 or both Level 3 and Level 2 (Table 8), i.e. unobservable inputs are used. Table 13 shows the disclosure about this topic in the notes.

TABLE 13.   DISCLOSURE ABOUT THE USE OF INDEPENDENT VALUER IN MEASURING THE FAIR VALUE

Stock Exchange	Independent valuation, with indication of the name(s)	Independent valuation, without indication of the name(s)	Internal valuation	Total
Milan	2	1	0	3
Frankfurt	11	13	3	27
Paris	19	10	0	29
Total	32	24	2	59

All the companies are compliant with IAS 40 because they disclose if the valuation is conducted internally or based on an independent party's appraisal. When the entities state that to use an independent valuer is used, they also disclose whether the valuer's results are taken into account without any adjustments or whether the management considers appropriate to make some adjustments. By now, it has become a common practice to disclose the name(s) of the independent valuer in order to allow users of financial statements to assess the professional qualification and experience of the appraiser(s).

When cost model is used (20 cases out of 79) disclosure about fair value is mandatory. Table 14 shows how many companies disclose fair value of investment properties at the end of the period.

TABLE 14.   DISCLOSURE OF FAIR VALUE WHEN THE COST MODEL IS USED

Stock Exchange	Disclosure of the fair value	Mean of the weight of the fair value amount on the carrying amount
Milan (out of 3)	3	137%
Frankfurt (out of 4)	2	108%
Paris (out of 13)	13	129%
Total (out of 20)	18	128%

Only 2 German companies do not provide any information about the fair value of investment properties. However, for these 2 companies the investment properties are not so relevant: the weight of investment properties on total assets is 1% in one case and 6% in the other case. Italian and French companies disclose a fair value respectively of 37% and 29% higher than the carrying amount of investment properties. For the 2 German companies the gap between fair value and carrying amount is smaller (8%).

Disclosure about fair value hierarchy, quantitative information about significant inputs whether fair value measurement is within Level 3 and sensitivity of fair value to changes in significant inputs are mandatory also when the cost model is used. Table 15, Table 16 and Table 17 show the results of the analysis conducted on companies that use the cost model.

TABLE 15.   CATEGORIZATION OF FAIR VALUE MEASUREMENT WITHIN FAIR VALUE HIERARCHY WHEN COST MODEL IS USED

Stock Exchange	Level 3	Both level 2 and level 3	Level 2	Not disclosed	Total
Milan	1	1	0	1	3
Frankfurt	3	0	0	1	4
Paris	8	0	0	5	13
Total	12	1	0	7	20

TABLE 16.   DISCLOSURE OF QUANTITATIVE INFORMATION ABOUT INPUTS WHEN THE COST MODEL IS USED AND FAIR VALUE MEASUREMENT IS CATEGORIZED WHITIN LEVEL 3

Stock Exchange	Many inputs differentiated for categories of I.P.	Average of many inputs	Only average rate of return	No quantitative disclosure	Total
Milan (out of 3)	1	0	1	1	3
Frankfurt (out of 4)	0	2	0	2	4
Paris (out of 13)	8	3	1	1	13
Total	9	5	2	4	20

TABLE 17.   QUANTITATIVE INFORMATION ABOUT SENSITIVITY ANALYSIS WHEN THE COST MODEL IS USED AND FAIR VALUE MEASUREMENT IS CATEGORIZED WHITIN LEVEL 3

Stock Exchange	Effects of variations in many inputs	Only effects of variations in one input	No quantitative disclosure	Total
Milan (out of 3)	0	0	3	3
Frankfurt (out of 4)	1	0	3	4
Paris (out of 13)	3	1	9	13
Total	**4**	**1**	**15**	**20**

Table 15 shows a distribution within fair value hierarchy consistent with the one provided by companies using the fair value model. With reference to companies that do not disclose fair value hierarchy only 2 have an insignificant amount of investment properties whereas the others have a weight of investment properties on total assets higher than 48%. Also the disclosure of quantitative information about significant inputs is consistent with companies that use fair value model (Table 16): 45% of the companies disclose quantitative information about many inputs separated for different categories of investment properties. As expected, only 25% of the companies provide quantitative information about sensitivity analysis (Table 17) against 56% of companies that use the fair value model. IAS 40 requires the disclosure about the use of an independent valuer also for companies that use the cost model. Table 18 shows that only one company does not provide this disclosure, but it is necessary to take into account that for this company the investment properties are not significant (1% of total assets).

Stock Exchange	External, with indication of the name(s)	External, without indication of the name(s)	Internal	No disclosure	Total
Milan	2	1	0	0	3
Frankfurt	1	3	0	0	4
Paris	7	5	0	1	13
Total	**10**	**9**	**0**	**1**	**20**

V.   CONCLUSION

This research has shown that the fair value model for investment properties is widespread among the real estate sector since it is used by 75% of the sample. IFRS 13 has contributed to increasing disclosure about fair value measurement even though not all the companies are compliant with the requirements of the standard. In particular, 18% of companies that use the fair value model and 35% of companies that use the cost model do not provide any disclosure about the categorization within the fair value hierarchy, which is mandatory disclosure according to IFRS 13. The results also show differences between the different countries: in fact, companies listed at Frankfurt Stock Exchange are those more inclined to use the fair value model and show a clear preference for Discounted Cash Flow Model as the sole valuation technique. French companies prefer to use more than one valuation technique even if the most used one is the revenue capitalization method. When companies use the cost model, quantitative information about sensitivity analysis is not provided in 75% of the cases. The next step will be to analyze what the determinants of the choice of the fair value in the real estate sector are.

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