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The Value Relevance of Comprehensive Income in the European Banking Sector

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The impact of comprehensive income (CI) in banks and financial institutions, in terms of value relevance compared to net income (NI), has been inadequately investigated. Most studies omit the banking sector, therefore this study is focused on value relevance of accounting data and uses a sample of financial entities in major European countries for the comparison between CI and NI, with particular attention to the company size. The company size is studied by splitting the sample in three size groups. The results highlighted some increase in value relevance of other comprehensive income (OCI) compared to NI but they are not clear about results with regards to CI and OCI components. The most original contribution came from the size analysis, which shows the original aspect compared to literature and to the results, while they are not clear with regards to individual groups, though they do provide some useful information for future research. In fact, they have to consider not only the industry sector but also the different entity dimension in that sector.

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1. Introduction

In recent years, the banking sector has been strongly affected by difficulties of past crisis, and in this situation, the International Accounting Standards Board's effort to improve the financial statement as an investor information tool has been constant. The IASB, by the revised IAS 1, introduced comprehensive income as the sum between net income and other comprehensive income. Since its introduction, many scholars have studied the value relevance of the "new income statement" obtaining contrasting results. In addition to these results, there are very few studies that consider banks, because their specific features are omitted from most analysis.

Our study, therefore, wants to analyze the value relevance of the bank's income statement and in particular the comprehensive income compared to net income. Finally, we will introduce the size of the company as in important aspect that could explain the difference of value relevance of OCI components discovered in the previous studies. In fact, many scholars have highlighted different results within the same industry sector and country, but no one has considered the size of the company as an issue, as a relevant aspect in order to interpret the results obtained.

This paper is structured as follows: Section 1 deals with the Introduction while Section 2 focuses on a Literature Review and Section 3 contains Methodology. Results are provided in Section 4 and the Conclusion is in Section 5.

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2. Literature Review

The studies on value relevance are extensive, and they have taken into consideration all of the accounting components of the Financial Statement, but the common aspect is the method used, based on Ohlson's method (Ohlson 1995). This method is also used in this analysis and the main aspect is that stock market variations can be explained by equity book value, net income and other information. This latter component has been taken into consideration for testing the value relevance of specific accounting components. Often, studies use two different approaches for reducing scale effects: deflating all variables (dependent and independent) by the same value (Barth & Clinch 2009) or by measuring the residual income effects by first-difference regression.

In particular, the comprehensive income value relevance has been studied by numerous scholars with mixed results, and in some cases are also counterintuitive. Many studies failed to find a higher CI value relevance compared to traditional NI (Devalle 2012; Zulch & Pronobis 2010; Mechelli & Cimini 2014; Kanagaretnam, Mathieu & Shehata 2009; Kubota, Suda & Takehara 2011; Jahmani, Choi & Wu 2017), if only marginally and with little or no statistical significance (Devalle & Magarini 2012) but useful information for OCI and its components is present in many researches, an extremely interesting aspect considering that CI is the sum of NI and other comprehensive income (Ramond, Batsch & Casta 2007; Mechelli & Cimini 2014; Jahmani, Choi & Wu 2017). OCI significantly affects earnings management (Lin & Rong 2012), and provides additional useful information (Ramond, Batsch & Casta 2007; Giner Inchausti & Pardo Perez 2011) and some OCI components are value relevant. The AFS (available for sale) and foreign firm dependency are linked to stock market reactions (Kubota, Suda & Takehara 2011), the AFS and gain/loss generating from assets revised estimates provide incremental information (Goncharov & Hodgson 2011), and AFS turns out to be the best component in relation to the market price in separate study (Khan. Bradbury & Courtenay 2017).

In the banking sector we have few specific studies, while in particular there is a close relationship between the announced accounting data and the market value in the banking sector, that is statistically significant (Bolibok 2014), whereas the OCI and its individual components can predict future bank earnings but with varying implications for different components, therefore some components can have more relevance than other ones (Bratten, Causholli & Khan 2016). Finally, a recent study highlights the fact that CI is more value relevant compared to NI and, moreover, the most relevant OCI component is the AFS (Mechelli & Cimini 2013). This study is also coherent with another past study that only finds a higher value relevance for financial firms (Dhaliwala, Subramanyam, & Trezevant 1999). So considering previous studies and taking suggestions from the different roles played by banks rather than other entities (Mechelli & Cimini 2013), we want to consider the size of the firm as a relevant aspect that could affect the value relevance of the financial institutions accounting data. Generally speaking, the size of the bank also changes the business; in fact, larger banks are universal banks while smaller banks are more specialized in retail, investment, private equity and so on. Considering that the main OCI component is represented by the gains and losses on the remeasuring of AFS financial assets. With regards to financial entities, this mode of income is not transitory in nature but more persistent compared to entities belonging to other kind of industries (Mechelli & Cimini 2013), so gains and losses for AFS assume an important role for investors and can vary according to the size of the firm. Moreover, we can consider that hedge accounting is another OCI component that characterizes banks, and strictly linked to financial risk management as well as the size of the firm, where greater financial

institutions take more risks than smaller ones (Bhagat & Bolton 2015) and increasing costs for risk management (Bertay, Demirgüç-Kunt & Huizinga 2013).

On the other hand, the variations of fair value assets have a reduced relevance in the banking sector or we can consider it has having marginal relevance, assuming that most of the values of each bank are intangible. For the gains and losses from converting the foreign financial statements we consider that this aspect is more common in larger banks and it has less importance for the smaller banks, so it is therefore particularly related to size while not being a specific banking aspect.

There are few studies related to the banking sector and none of these (Dhaliwala, Subramanyam, & Trezevant 1999; Mechelli & Cimini 2013; Bolibok 2014), to our knowledge, considers the firm size as an element to be analyzed in relation to the value relevance of the comprehensive income. We therefore believe that this aspect has to be analysed and can help to increase our knowledge on value relevance in the banking sector.

The first research question is:
1) *Is the comprehensive income in banks more value relevant compared to net income?*
Our hypothesis is that the comprehensive income has a higher value relevance compared to the net income as also highlighted by Mechelli and Cimini (2013). In fact, unlike the industrial sector, the additional elements belonging to the CI are more relevant in the banking sector. For example, the financial instruments available for sale (AFS) are characteristic investments of banks whereas for non-banking companies these investments are at most carried out to invest surplus liquidity. Moreover, we can consider the changes in cash flow hedge particularly relevant in the financial sector with the aim of immunizing their own financial portfolio, but less important for non-banking companies.

So from this assumption, we present the second research question:
2) *Which components of the OCI (other comprehensive income) are value relevant?*
Our hypothesis is that both changes in AFS and cash flow hedges are value relevant for banks, while the other accounting components have a marginal impact. On the other hand, for the changes of accumulated foreign currency translation (FCT) adjustment, we expected that they would be present and relevant in larger banks rather than in the smaller ones, but this aspect is strictly linked to the size of the firm and not to the banking sector's characteristics, while Mechelli and Cimini (2013) found that only the AFS component has any relevance. while Bolibok (2014) finds out that in general the OCI is value relevant while not specifying any OCI component.

Finally, by taking into consideration that different firm sizes have different relevance with regards to accounting data, we believe that the value relevance of the comprehensive income and the OCI, in its single components, is affected by the firm's size, so we would like to investigate whether the value relevance of comprehensive income, net income and other comprehensive income vary according to the size of the firm. The last research question is:

3) *Does the bank size affect the value relevance of the comprehensive income and OCI?*
Our hypothesis is that the larger firms show more value relevance than smaller firms and, in particular to OCI's components, we expect that the FCT and hedge accounting are more value relevant in the larger companies. The reason for this assumption is that the largest banks are universal banks, namely full-service financial firms, which are most likely influenced by different businesses. In particular, the FCT is linked to the relationships with

foreign companies, that is more present in the larger ones and, finally, the hedge accounting is linked to risk management that is presumably more relevant in larger companies, as confirmed by Bhagat and Bolton (2015).

The last research question is not considered by other studies, so we are the first to investigate this theory.

3. Methodology

In order to test our hypotheses, we initially collected data from 129 European companies from the United Kingdom, France, Italy, Germany and Spain, through the data provider Orbis Bank Focus. The entities are all listed firms and cover the bank population of the five countries in the year 2016. We decided to extract data for only one year for reducing the likely bias created by the financial crisis that hit the banks in the recent past. So the strategies used for collecting financial statements data are reported in table 1.

Table 1: Data provider strategy

Status: Active Banks	34,289	34,289
World Region/Country: France (FR), Germany (DE), Italy (IT), Spain (ES), United Kingdom (GB)	3,758	3,530
Accounting standards: International Accounting Standards, International Financial Reporting Standards (IFRS)	6,939	1,169
Listed banks	2,703	129

The sample has been cleared of some entities that have missing relevant data, reducing it to 122 firms.

The study aims to establish the value relevance of CI compared to NI and the components of the OCI to explain the market value of the company. For this analysis we used the Ohlson model because it is used extensively in the literature of value relevance. In particular, we tested accounting data dividing all factors by the number of outstanding shares (in this way, reducing the scale effect, improve the explanatory model):

1. $Price = b_0 + b_1 BVe + b_2 NI + ε$
Price = price per share 3 months after the end of fiscal year;
BVe= book value equity at the end of the year divided by the number of outstanding shares;
NI = annual net income divided by the number of outstanding shares;
ε = error term.

2. $Price = b_0 + b_1 BVe + b_2 CI + ε$
CI = comprehensive income at the end of the year divided by the number of outstanding shares.

3. $Price = b_0 + b_1 BVe + b_2 NI + b_3 OCI + ε$
OCI = other comprehensive income at the end of the year divided by the number of outstanding shares.
4. $Price = b_0 + b_1 BVe + b_2 NI + b_3 CF\ Hedge + b_4 AFS + b_5 FCT + b_6 oOCI + ε$
CF Hedge = the change of the fair value of cash flow hedges for a year divided by the

number of outstanding shares;
AFS = the change in fair value of available-for-sale financial instruments for a year divided by the number of outstanding shares;

FCT= the change of accumulated foreign currency translation adjustment for a year divided by the number of outstanding shares;
oOCI = other OCI, the change of accumulated other residual elements (for example, revaluations of fixed assets or property revaluation changes and so on) for a year divided by the number of outstanding shares.

The first equation is useful for testing accounting data in this particular sector and it is the 'first term of comparison; the second one is comparing NI and CI while the third one tests other comprehensive income as the sum of various components and, finally, the fourth one considers all components as specific explanatory variables.

In particular, for the comparison between CI, NI and OCI in terms of value relevance we assume the variation of R^2 as being important, while for the four equations we consider the p-value of OCI's components.

The data analysis has shown that in the fourth equation there are some problems with the most important independent variables, in particular the VIF (variance inflation factors) value of BVe > 10 and not statistical significance of the NI, so we proceed to reduce the sample from outliers that maybe are influencing the model. In this case, by deleting some of the financial statements that are characterized by abnormal and missing values, the variance of the model was also reduced. So we are now able to properly test the fourth equation and proceed to the second analysis for size classes (big class, mid-class, small class) testing all previous equations for each one.

4. The Results

By the analysis of the extensive sample (122 entities/observations) we have highlighted the following descriptive statistics (table 2).

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Price	122	.082	4790.000	63.33493	433.190468
NI	122	-110.208	157.705	7.70057	26.250590
Bve	122	.041	6057.177	211.85776	727.092212
OCI	122	-1084.721	3.413	-8.79998	98.218395
FCT	122	-3.745	.524	-.03369	.400223
AFS	122	-1.642	9.819	.33773	1.521255
CF Hedge	122	-750,010	3.758	-6.11896	67.906165
oOCI	122	-334.711	1.058	-2.98507	30.296849
CI	122	-1062.317	159.430	-1.09942	100.471915
Valid (listwise)	122				

We can observe a lot of variances that are caused by numerous abnormal values, an aspect that could introduce bias in the regression model so, after a punctual analysis of

the data distribution, we clear the dataset from outliers which improves the descriptive statistics, thus reducing the variance (table 3).

Table 3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Price	89	.08	60.40	10.4471	12.39997
NI	89	-2.98	17.88	1.0532	2.59228
Bve	89	.04	207.79	11.9829	25.25284
OCI	89	-1.49	.65	-.0436	.24763
FCT	89	-1.11	.52	.0135	.15078
AFS	89	-.86	1.57	-.0217	.24132
CF Hedge	89	-.18	.14	.0015	.03364
oOci	89	-1.45	.88	-.0369	.22102
CI	89	-2.87	17.70	1.0096	2.60292
Valid (listwise)	89				

The removal of the outliers has a negative effect on the sampling number with the decrease of observations to 89.

However, we proceeded to test the first three models that make the comparison between NI, OCI and CI (table 4).

Tabel 4: Summary of models

Model	R	R Square	Adjusted R square	Std. Error of the Estimate
1	.552	.305	.286	10.45630
2	.557	.311	.289	10.47500
3	.547	.300	.283	10.49746

As we can see, the adjusted R square is not particularly high and it increases slightly when we introduce the OCI (second model) but it decreases when we change OCI with CI, so the differences are rather negligible and we can conclude that CI is not more relevant than NI, while OCI is.

All regression models show us that they have a good explanatory ability considering stock market value variations relating to NI, CI, OCI and BVe (table 5)

Tabel 5: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4128.069	2	2064.034	18.878	.000
	Residual	9402.740	86	109.334		
	Total	13530.809	88			
2	Regression	4204.122	3	1401.374	12.772	.000
	Residual	9326.687	85	109.726		
	Total	13530.809	88			
3	Regression	4053.896	2	2026.948	18.394	.000
	Residual	9476.913	86	110.197		
	Total	13530.809	88			

Finally, considering the results of regression, in every model the coefficients are statistically significant at a 5% level, except OCI in the second model. However, the models are not affected by multicollinearity problems because the collinearity test identifies a VIF and tolerance below the alert level (table 6).

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity test	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Costant)	6.981	1.247		5.600	.000		
	NI	1.576	.498	.330	3.162	.002	.744	1.344
	Bve	.151	.051	.307	2.945	.004	.744	1.344
2	(Costant)	6.745	1.281		5.266	.000		
	NI	1.524	.503	.319	3.027	.003	.732	1.365
	BVe	.161	.053	.328	3.053	.003	.703	1.422
	OCI	-3.862	4.639	-.077	-.833	.407	.945	1.058
3	(Costant)	7.103	1.247		5.698	.000		
	BVe	.150	.052	.305	2.883	.005	.727	1.376
	CI	1.534	.504	.322	3.041	.003	.727	1.376

The OCI is not statistically significant, therefore we should not draw any conclusions from it. Generally speaking, and considering all results, we can assert there is no relevant value relevance compared to NI explanatory power. At this point we have to reject our hypothesis and assume that the CI and OCI are not value relevant.

Taking into account our second research question, we tested the fourth regression model that introduces all the individual components of the OCI.

Table 7a: Summary of models

Model	R	R Square	Adjusted R square	Std. Error of the Estimate
4	.613[a]	.376	.330	10.15011

In table 7a, adjusted R square is higher than in the first regression model, so we can assume that this model explains in better way the variance of the share price (dependent variable), while the F test is also statistically significant (table 7b).

Table 7b: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
4	Regression	5082.776	6	847.129	8.223	.000
	Residual	8448.033	82	103.025		
	Total	13530.809	88			

In table 7c, we can observe which variables are statistically significant and, in particular, both AFS and OCI are significant at 5% and 10% respectively, while, as expected, both FCT and FC Hedge are not significant, though for the latter we did expect it to be significant. So our hypothesis is confirmed for AFS but not for CF Hedge. The collinearity test does not identify particular multicollinearity concerns.

Table 7c: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity test	
	B	Std. Error	Beta			Tolerance	VIF
4 (Costant)	5.835	1.301		4.485	.000		
BVe	.176	.052	.358	3.358	.001	.669	1.496
NI	1.578	.491	.330	3.213	.002	.723	1.384
FCT	9.388	7.504	.114	1.251	.214	.915	1.093
AFS	-17.468	6.765	-.340	-2.582	.012	.439	2.277
CF Hedge	-58.455	38.294	-.159	-1.526	.131	.705	1.418
oOCI	-11.430	6.592	-.204	-1.734	.087	.551	1.813

The last analysis refers to the size of the firm, so we divide the sample per total assets into three sub-samples as shown in table below (table 8).

Table 8: Size class for total assets

	Total assets (in millions of euros)
Greater banks	more than 100,000
Medium banks	between 10,000 and 100,000
Small banks	less than 10,000

Before testing the regression models we tested the share price along with the nominal size variables, and no correlation and statistical significance was discovered (adjuster R

square to -.003 and F-test and coefficients are significant), so we can consider the specific effect of CI and OCI components to banks values in the relative size class.

After inserting the entities in every class we tested the four regression models in order to identify any relevant difference that could be related to the size effect.

Table 9: Summary of models of larger banks and F-test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.994	.989	.987	1.53829	518.193	.000
2	.997	.994	.993	1.14349	628.756	.000
3	.993	.986	.984	1.69346	426.527	.000
4	1.000	.999	.999	.50898	1594.705	.000

In the table 9, values of adjusted R square are shown. The highest values observed concern the second and third models, namely the one in which the OCI is introduced and the one where all the individual components of the OCI are introduced. While the CI model shows a lower value than the NI model.

In the following table 10, we can observe the significance of the independent variables in the four regression models. In particular, the first three models show statistically significant values, even if the CI is significant only at the 10% level (third model).

In particular, the models do not suffer from any serious multi-collinearity problems, with the exclusion of the second model whose values of the VIF show a higher level but still below the value of 10. The fourth regression model is, on the other hand, influenced by high multicollinearity that does not allow us to make any appropriate interpretations.

Table 10: Coefficients of larger class banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity test	
		B	Std. Error	Beta			Tolerance	VIF
1	(Costant)	.765	.553		1.384	.192		
	NI	1.373	.499	.162	2.751	.018	.276	3.626
	BV	.535	.037	.853	14.504	.000	.276	3.626
2	(Costant)	1.062	.421		2.522	.028		
	NI	2.486	.503	.293	4.940	.000	.150	6.669
	BV	.443	.039	.707	11.345	.000	.136	7.376
	OCI	-5.199	1.588	-.107	-3.274	.007	.489	2.044
3	(Costant)	.570	.595		.958	.357		
	BV	.568	.034	.906	16.845	.000	.400	2.501
	CI	.905	.444	.109	2.036	.064	.400	2.501
4	(Costant)	.745	.246		3.024	.016		
	BVe	.495	.039	.791	12.610	.000	.027	37.646
	NI	1.333	.445	.157	2.998	.017	.038	26.285
	FCT	3.742	2.439	.039	1.534	.164	.158	6.311
	AFS	1.564	2.209	.023	.708	.499	.096	10.418
	CF	-9.423	7.668	-.019	-1.229	.254	.422	2.370
	Hedge oOCI	-8.349	1.187	-.117	-7.035	.000	.378	2.648

As for medium-sized banks, the models have shown an adjusted R square with high values, and in particular the second and fourth models show the most relevant correlation index (table 11).

Table 11: Summary of models of medium sized banks and F-test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.760	.578	.531	6.24164	12.314	.000
2	.862	.743	.697	5.01302	16.361	.000
3	.794	.630	.589	5.84237	15.326	.000
4	.962	.926	.894	2.96926	29.060	.000

By analysing the coefficients (table 12) we can see how the first model detects an insignificant NI, which contrasts with the same model adopted (Ohlson's model) and which, therefore, cannot be interpreted, while the second model shows a high statistical significance of the OCI, and the third one a statistical significance of the CI at the 10% level. In the fourth model, the significant OCI components are FCT and AFS at 10%, although there is an increase in collinearity, which is still below 10.

Table 12: Coefficients of medium class banks

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity test	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Costant)	2.101	1.965		1.069	.299		
	NI	1.576	1.055	.236	1.493	.153	.942	1.061
	BV	.714	.169	.668	4.235	.000	.942	1.061
2	(Costant)	1.614	1.585		1.018	.323		
	NI	3.196	.979	.478	3.263	.005	.706	1.417
	BV	.803	.138	.751	5.813	.000	.907	1.103
	OCI	12.405	3.757	.490	3.302	.004	.687	1.455
3	(Costant)	1.890	1.843		1.025	.319		
	BV	.710	.156	.664	4.551	.000	.966	1.036
	CI	2.481	1.100	.329	2.256	.037	.966	1.036
4	(Costant)	-.682	1.127		-.605	.555		
	BVe	1.099	.112	1.028	9.770	.000	.480	2.084
	NI	4.341	.649	.649	6.690	.000	.564	1.772
	FCT	13.754	3.773	.423	3.646	.003	.395	2.533
	AFS	16.051	8.856	.399	1.812	.091	.109	9.148
	CF	-15.098	18.678	-.084	-.808	.432	.490	2.042
	Hedge oOCI	-7.179	7.635	-.167	-.940	.363	.169	5.929

Finally, we proceed to the last analysis, which concerns the small bank class. In the first three models the adjusted R square is higher in the second model while the smallest is the third, namely the one referable to the CI. The fourth model has the highest value of all (table 13).

Table 13: Summary of models of small banks and F-test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
1	.735	.540	.520	7.53342	26.980	.000
2	.783	.614	.588	6.97892	23.825	.000
3	.731	.534	.514	7.58098	26.355	.000
4	.812	.659	.610	6.78926	13.512	.000

The analysis of the coefficients reveals a lack of statistical significance of the NI in the second model, even if the OCI is highly significant, while the CI in the third model is also significant at a level of 10%. With reference to the fourth model, the NI is insignificant, while two single components of the OCI are, however, significant, AFS and oOCI, are both significant at 5% (table 14).

Table 14: Coefficients of small banks class

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity test	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Costant)	4.496	1.272		3.535	.001		
	NI	.835	.424	.233	1.968	.055	.712	1.405
	BV	.508	.103	.583	4.915	.000	.712	1.405
2	(Costant)	3.708	1.209		3.068	.004		
	NI	.539	.406	.151	1.329	.190	.668	1.497
	BV	.596	.100	.684	5.942	.000	.648	1.544
	OCI	-20.988	7.157	-.286	-2.933	.005	.901	1.110
3	(Costant)	4.545	1.279		3.555	.001		
	BV	.513	.105	.589	4.892	.000	.699	1.430
	CI	.779	.432	.217	1.803	.078	.699	1.430
4	(Costant)	3.368	1.294		2.604	.013		
	BVe	.645	.104	.740	6.194	.000	.569	1.758
	NI	-.069	.516	-.019	-.134	.894	.391	2.558
	FCT	-30.156	28.036	-.141	-1.076	.288	.474	2.111
	AFS	-63.213	24.571	-.321	-2.573	.014	.521	1.919
	CF	951.763	909.910	.136	1.046	.302	.484	2.066
	Hedge oOCI	-17.173	7.998	-.203	-2.147	.038	.905	1.106

We interpret the results obtained by taking into consideration all the applied models and the issue regarding the size of the firm. The first analysis shows that the CI and the OCI are not significantly superior to the NI, the adjusted R square values are reduced and many of them close to each other. On the contrary, the analysis of the single components of the OCI reveals a statistically significant explanatory capacity equal to 5% for the AFS component and 10% for the oOCI component. Finally, the adjusted R square is higher than the previous models, although this is inherent to the increase in independent variables in this model.

Our results are in line with the literature on the CI's value relevance, namely that the CI is no more value relevant than NI, while the results also confirm that the most relevant element of the OCI's is the AFS and, specifically, our results are consistent with those of Goncharov and Hodgson (2011). With particular attention to the banking sector, our study contrasts with that of Mechelli and Cimini (2013) with reference to CI, though it is consistent with their AFS results. In general, the results do not seem to confirm the first hypothesis of our research while the second hypothesis is partially confirmed, as we expected, that the AFS component is particularly value relevant within the OCI aggregate.

The results of the larger banks show that the OCI along with the NI are particularly value relevant compared to the CI or NI alone, so the information provided by the OIC is certainly of interest to the investor. For the individual components of the OCI's, interpretation is difficult because the model shows multicollinearity problems, so we have a significant oOCI component and this effect can be considered as result of higher property investments of larger financial institutions while, once again, the model is not very clear. On the other hand, the results of medium-sized banks show a particularly high adjusted R

square in the second model among the first three, so even in this case the OCI information increases the explanatory power of the regression model rather than both NI and CI. In the fourth model, the FCT and AFS variables are particularly significant, respectively at 1% and 10%, but the significance of FCT is not expected because we presume that foreign operations play a greater role in larger banks.

Finally, the results of the smaller banks class still show a higher adjusted R square in the second regression model, although it should be noted that the NI is not significant as in the fourth regression model. In the latter, we find that significant components are the AFS and oOCI, both entering at the level of 5%. The interpretation of this last case is much more complicated because we consider that smaller banks just have fewer properties, plants and so on. However, these results may be due to the reduced sample size which also identifies the main limit to this study and therefore may explain the significance of both the FCT in the medium-class of the banks and oOCI in the smaller ones.

However, in the overall analysis we can consider that the CI does not have a relevant role in terms of value relevance, while the components of the OCI provide better information for the investor and, in particular, the AFS is relevant, as we expected. The third hypothesis is only partially confirmed while the AFS is relevant but the other components provide contrasting results (in particular we have not found any significance for the component referable to hedge accounting). The results of the first and second research question are coherent with a large number of past studies (Devalle 2012; Zulch & Pronobis 2010; Mechelli & Cimini 2014; Kanagaretnam, Mathieu & Shehata 2009; Kubota, Suda & Takehara 2011; Jahmani, Choi & Wu 2017), with the CI appears not to be an explanatory variable anymore than NI; while some OCI components have an important statistical significance.

Finally, our first hypothesis is rejected because the CI is no more value relevant than NI, and this result contrasts with that of Mechelli and Cimini (2013). So we can theorize that the different reference sample in these studies determines also conflicting results. The second hypothesis is partially accepted because we find that changes in AFS components are value relevant but the changes of hedge cash flows are not. The third hypothesis is accepted and the results are very interesting. The bank size affects the value relevance of OCI. In fact, three series of analysis were performed: in the first one (larger bank class), the OCI is an explanatory power variable rather than CI and the latter is less relevant compared to NI. In the second analysis (medium-sized bank class), both CI and OCI are more powerful explanatory variables compared to NI. Finally, in the third class (small banks), we have the same results as that of the greater bank class.

The most important contribution of this study is that it also considers the size of the firm, compared to other CI components. This aspect is important for improving the analysis of the regression model results in the particular banking context, because a part of these accounting components could have more relevance than the role they play in the non-financial firms. Considering the components of the OCI, besides the AFS as expected, the changes of the FCTs in the medium class and oOCI in both small and large classes are value relevant.

5. Conclusion

The analysis carried out does not show a higher value relevance of the CI compared to the NI, in contrast to some previous studies in the banking sector, and moreover, it does not highlight expected value relevance in "changes in fair value of hedging instruments".

In particular, the results of our study show that the OCI in the banking sector is value relevant, but only the AFS is significant among its components. This means that there are no differences with the non-financial sector. However, different results (i.e. value relevance) could depend on the size of the bank. The components of the OCI have different value relevance depending on the size class, so oOCI is relevant both to large and small classes.

This aspect is interesting because the information provided in the income statement of a bank could be of greater or lesser detail depending on its size and, that is, the standard setter could require more or less information of the OIC's components according to the bank size. So differentiated accounting information can improve the value relevance of data accounting for investors.

The size aspect in previous researches has not been considered and therefore we believe that further research should be carried out considering the size of the company as a variable that affects the value relevance of the OIC and its components, and perhaps this issue can also be extended to non-banking companies with the aim of increasing knowledge on the value relevance of Financial statements.

The most evident limit of our research is the small sample taken into consideration and the use of only one parameter for building up the sample into dimensional classes.

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