A critical analysis of "fair value" as a valuation method in the Italian financial statement

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ABSTRACT

In this paper study, we delve into the intricate landscape of Italian financial reporting, focusing our lens on the inclusion of derivative financial instruments for fiscal years commencing on or after 1 January 2016. Specifically, the study aims to understand the extent to which these instruments are integrated into company financials and evaluate the impact of recognizing derivatives at fair value on the Return on Investment (ROI) Index. Focusing on the analysis, it is used a substantial dataset that comprises more than 750 firms over three years. It examines whether the possession of derivative financial instruments is a distinguishing factor in Italian financial reporting and if the shift to fair value recognition has a statistically significant influence on the ROI Index. Additionally, the study explores potential variations when the dataset is segmented by geography and company size, as well as by employee count. Moreover, the findings challenge conventional expectations, revealing that the presence of derivative financial instruments fails to wield significant influence on financial statements or induce some shifts in ROI values. Even when the dataset is stratified based on geographic regions or company workforce size, no statistically significant effects were observed. Finally, this research contributes original insights into the treatment of derivative financial instruments in Italian financial reporting following the implementation of fair value recognition rules. The study's useof a large dataset and its exploration of various segmentation factors provide valuable perspectives on the impact of these accounting changes on financial performance metrics.

In questo studio, approfondiamo il complesso panorama della rendicontazione finanziaria italiana, focalizzando la nostra attenzione sull'inclusione degli strumenti finanziari derivati per gli esercizi fiscali che iniziano il 1° gennaio 2016 o successivamente. In particolare, lo studio mira a comprendere fino a che punto questi strumenti sono integrati nei bilanci aziendali ed a valutare l'impatto del riconoscimento dei derivati al fair value sull'Indice di Ritorno sugli Investimenti (ROI). Per quanto riguarda l'analisi, viene utilizzato un ampio dataset che comprende più di 750 aziende nel corso di tre anni e si esamina se il possesso di strumenti finanziari derivati sia un fattore distintivo nella rendicontazione finanziaria italiana e se il passaggio al riconoscimento al fair value abbia

un'influenza statisticamente significativa sull'Indice di ROI. Inoltre, lo studio esplora diversi aspetti come la zona geografica, la dimensione aziendale ed il numero di dipendenti. Inoltre, i risultati sfidano le aspettative convenzionali, rivelando che la presenza degli strumenti finanziari derivati non esercita un'influenza significativa sui bilanci o induce cambiamenti sostanziali nei valori del ROI. Anche quando il dataset è stratificato in base alle regioni geografiche o alle dimensioni del personale aziendale, non sono stati osservati effetti statisticamente significativi. Infine, questa ricerca offre contributi originali alla trattazione degli strumenti finanziari derivati nella rendicontazione finanziaria italiana a seguito dell'implementazione delle regole di riconoscimento al fair value. L'uso di un ampio dataset e l'esplorazione di vari fattori di segmentazione da parte dello studio forniscono prospettive preziose sull'impatto di questi cambiamenti contabili sulle metriche delle performance finanziarie.

1 – Introduction

The transposition of Directive 2013/34/EU into Italian law implemented through Legislative Decree 139 of 2015 led to a strong alignment of the financial statements drawn up according to the rules of the Italian Civil Code (and the national accounting standards OIC) with those drawn up according to the international accounting standards IAS/IFRS (Di Pietra, 2017).

One of the main changes introduced by the reform is "fair value" as a valuation method. Fair value is a valuation method that is based on the assumption that the values shown in the financial statements reflect their exchange value. Therefore, the values shown are current values, which could correspond to a sale consideration on that date (Amelio, Gavana & Gazzola, 2014).

Derivatives accounting is a major innovation that the transposition of Directive 2013/34/EU has introduced into Italian legislation. Prior to the entry into force of Legislative Decree 139 of 2015, derivatives were only included in the notes to the financial statements. For financial years beginning on or after 1 January 2016, the Italian legislator has provided that derivatives will be included in the determination of the company's profit or loss for the year and in the company's balance sheet by being recognised at their fair value (Manchiraju *et al.*, 2016; Gope & Mitra, 2018).

Derivative financial instruments have become increasingly important over the years and the attention of the literature proves it. According to Fabbri and Giribone (2018), whereas in the past, stakeholders and shareholders were open to the risk that volatile interest rates and security prices might affect (negatively or even positively) the company's results, this is no longer the case. There has in fact been a change in philosophy: stakeholders and shareholders expect risk to be managed by management (through the use of financial instruments) and transferred outside the company itself. There are many different financial instruments that can be used to manage risk, and research has been carried out on the Italian situation (Bodnar *et al.*, 2008; Sarens & D'Onza, 2017) but also on other contexts (Leote *et al.*, 2020).

The literature on derivatives is very extensive; in an attempt to systematise the vast production, Campbell, Mauler and Spencer (2019) reviewed the accounting research on derivatives. In particular, the authors show that there are two main themes in derivatives research: motivations for companies to use derivatives and their effects (Smith & Stulz, 1985), derivatives accounting and disclosure (Marshall & Weetman, 2002; Lopes & Rodrigues, 2007).

The aim of the analysis is first of all to understand the degree to which the possession of derivative financial instruments is included in the Italian financial statements. In addition, to analyse the impact of accounting on the company's financial situation. The entry into force of a sophisticated accounting novelty such as the one concerning derivative financial instruments, increases the administrative burden and requires in-depth knowledge on the part of those in charge of drawing up the financial statements. The analysis will therefore be useful to critically understand whether the possession of such instruments can have a significant influence on the financial statements at an economic and equity level and whether the benefit to third party disclosure outweighs the increased administrative burden on the company.

This paper is organised as follows: the first paragraph analyses the fair value criterion, with particular reference to derivatives. This is followed by a presentation of the analysis methodology. Then the results of the research are presented and finally the conclusions.

2 – Fair value and derivative financial instruments

The introduction of fair value to determine the fair value of assets in financial reporting is called 'fair value accounting' (Lee, 2023). The accounting of derivative instruments at fair value represents a major innovation, not only in the Italian context but also in other countries (Khumawala, Ranasinghe & Yan, 2020), thus eliminating one of the historical divergences between national and international accounting prerogatives.

In the past, the Italian Legislator had already intervened on the subject of derivative financial instruments (Legislative Decree No. 394 of 30 December 2003), although the innovations introduced were limited only to the information aspect. These instruments were considered as 'off-balance sheet transactions', as both the valuation criteria (Article 2426 of the Civil Code, historical cost criterion) and the drafting principles (Article 2423-bis of the Civil Code, prohibition to record unrealised profits) did not allow their valuation to influence the result for the year (Toselli, 2015). Legislative Decree No. 394 had inserted in the Civil Code two articles related to derivatives:

– Article 2427-bis: it provided for the disclosure in the notes to the financial statements of a series of information concerning the possession of derivative financial instruments.

– Article 2428, third paragraph, no. 6-bis: concerning the disclosure in the report on operations of the company's objectives and policies on financial risk management, the company's exposure to price risk, credit risk, liquidity risk and the risk of changes in cash flows.

The income effects were only manifested at the end of the useful life of the financial instrument at the time of performance. The limitation to the disclosure aspect was overcome with the transposition of the Directive (Amelio & Salis, 2020).

In relation to Directive 2013/34/EU, Italy has provided for the use of fair value only for accounting for derivative financial instruments in the annual and consolidated financial statements for all companies (except micro-enterprises) as of 1 January 2016. In particular, number 11-bis has been introduced in Article 2426 of the Civil Code. It provides that "*derivative financial instruments, even if embedded in other financial instruments, are recognised at fair value*".

According to the new regulation, companies must show:

– derivative financial instruments receivable in financial fixed assets under item B.III.4, or in current assets, under assets not constituting fixed assets, under item C.III.5.

– financial instruments liabilities under provisions for risks and charges in item B.3.

The respective income counterparts of the recognition of derivatives are to be included in macro-class D of the income statement, i.e:

– Item D.18.d. if it is a revaluation of the derivative,

– item D.19.d. if it is a write-down of the derivative.

In addition, Article 2426 of the Italian Civil Code states that "changes in fair value are recognised in profit or loss or, if the instrument hedges the risk of changes in the expected cash flows of another financial instrument or a forecast transaction, directly to a positive or negative equity reserve" or in the item A.VII. of shareholders' equity entitled "reserve for hedging transactions of expected cash flows expected cash flows". This reserve temporarily holds the changes in the derivative and reverses to the income statement the changes in fair value to the extent and at the time that the cash flows of the hedged instrument change or the hedged transaction takes place. Finally, the new rule provides that profits arising from fair value measurements are not distributable and that reserves recorded under item A.VII. of shareholders' equity, if positive, are not available and cannot be used to cover losses (Art. 2426 c.c., paragraph 1, no. 11-bis).

Equally relevant is the provision of paragraph 2 of Article 2426 of the Civil Code. In fact, it represents the link between the national regulations and the international accounting standards. The Italian Civil Code refers to the IAS/IFRS (IFRS 9, IFRS 13) rules for definitions. In addition, the legislator has given the Italian Accounting Board (OIC) the task of creating an ad hoc accounting standard for all matters concerning derivative financial instruments. The OIC has therefore introduced a new accounting standard "OIC 32 Derivatives", which provides for a regulation similar to the corresponding international standard IAS 39, replaced by IFRS 9 as of 1/1/2018.

In particular, there are two types of derivatives:

– *hedging derivatives*: they have the function of transferring externally some risks that the company considers significant.

– *speculative derivatives*: they involve the assumption of a risk, related to the investment transaction (Sottoriva, 2017).

If the fair value does not move in the same direction as the underlying, it is to be considered a speculative derivative. On the contrary, if the fair value follows the direction of the underlying, we are in the case of a hedging derivative and it will be accounted for according to the so-called cash flow hedge methodology.

For the following reasons the aim of the study is to understand if there are any differences between the two applied methodologies, to comprehend the role of the active derivatives within the ROI calculation. Consequently, we will investigate (RQ1) if there is a statistically significant difference between the overall ROI calculated with the two methods. Subsequently (RQ2) we will analyze if this difference emerges by geographical regions and finally (RQ3) if the number of employees is a factor that can have an impact (dividing the enterprises into Micro-Small-

Medium-Large) on the use of derivatives and a consequent impact on the calculation of the ROI in the two methodologies.

3 – Data Selection

The data used for this work derive from AIDA. It is a database that contains the reclassified financial statements of over 700,000 Italian companies (van Dijk, 2021), we selected the firms using a manual process and then downloaded all of their available data. It contains complete data on all Italian-owned companies required to file their accounts rendering to the Government Decree 179/20124. A firm, in this Database is described by more than 400 variables concerning the following macro categories: (1) ID codes and basic statistics; (2) activities and commodity sector; (3) legal and commercial information; (4) index, share, accounting, and financial data; (5) shareholders, managers and company participation.

The selection process of companies, for the empirical analysis was made by considering the joint-stock companies that drafted the financial statements according to the provisions of the civil code, with the supplements concerning the national OIC accounting standards, with available turnover for the year 2017. The analysis of the pre-covid period was voluntarily opted for in order not to invalidate the results.

We considered the following variables:

- Name of the firm
- Province
- Revenues from sales
- Number of Employees (2019)
- Tax code Chamber of Commerce number
- Total assets (2017,2018 and 2019)
- Operating income (2017,2018 and 2019)
- Profit (loss) for the year (2017,2018 and 2019)
- Total Active derivative financial instruments (2017,2018 and 2019)

The initial sample was made up of 37420 companies with higher turnover, adopting the national accounting standards OIC; as a first step the companies without active derivatives in their balance, for the three considered years, were eliminated and the final sample was formed by 759 firms. Secondly, one firm was eliminated because the total assets were not available.

In the following paragraph, after having illustrated the methodology, we will focus on the description of the sample.

4 – Methodology

In the subsequent analysis, the initial crucial step entails providing a comprehensive description of our sample. To accomplish this, we employed descriptive statistics as our primary tool. Descriptive statistics encompass a range of techniques designed to meticulously depict the fundamental characteristics of the data we have collected (Fisher & Marshall, 2009). This analytical approach proves invaluable due to its capacity to furnish summary statistics, serving as the cornerstone for commencing any quantitative data analysis when coupled with graphical analyses (Cox, 1978). Additionally, in addressing our three research questions, we opted for the

hypothesis testing technique, widely recognized as one of the most dependable statistical tools at our disposal (Paruolo, 1999).

This versatile technique can be applied to analyze and draw inferences about various economic phenomena or datasets (Derrick *et al.*, 2017). In this specific context, following a rigorous assessment of data normality, we chose to employ the Two-Sample z-test for Comparing Two Means as our preferred statistical method for hypothesis testing.

5 – Descriptive statistics

To have a precise picture of the sample, using the first-level NUTS of the European Union (see, for further information Magrini, 1999) the sample is geographically subdivided using the associated four macro-regions. Due to the sample numerosity the Island/insular firms were added to the South Region.

The sample is represented on Figure 1.
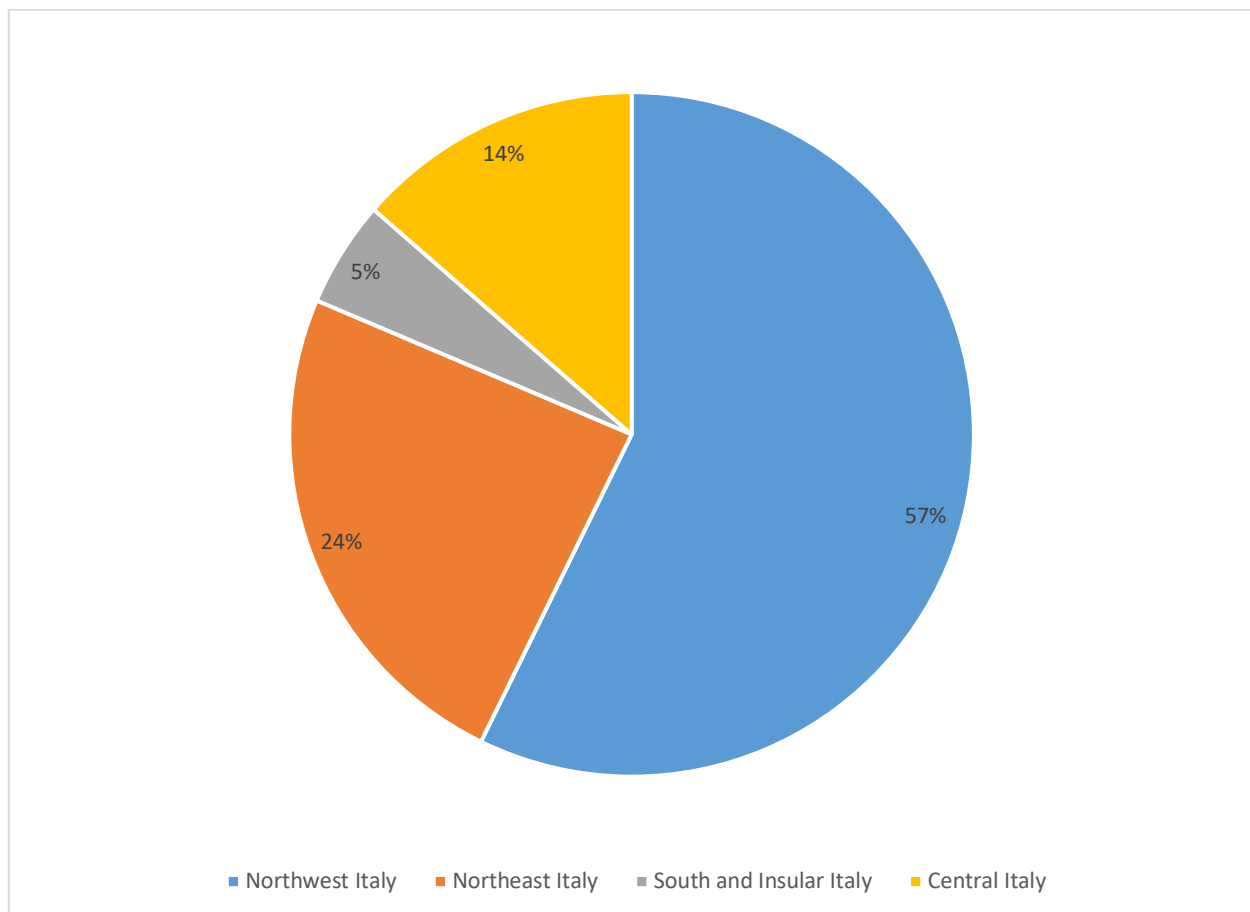
Fig. 1 – Sample per Macro Geographical region (Nuts-1)

Furthermore, to describe the sample, the number of workers is used. In Figure 2, following the EU classification (Smes) the involved companies are represented.

Figure 1 shows a clear dominance of companies in Northern Italy and only 5% is representative of the South and the Islands.

On Figure 2 it is possible to verify that the sample is composed, mostly, by medium and large enterprises (77.3% of the sample). This is consistent with the use of derivatives by Italian firms. In fact, as the size of the company increases, the use of these tools is increasing.

Fig. 2 – Sample size per number of workers (Following the Eu Classification)

6 – Results

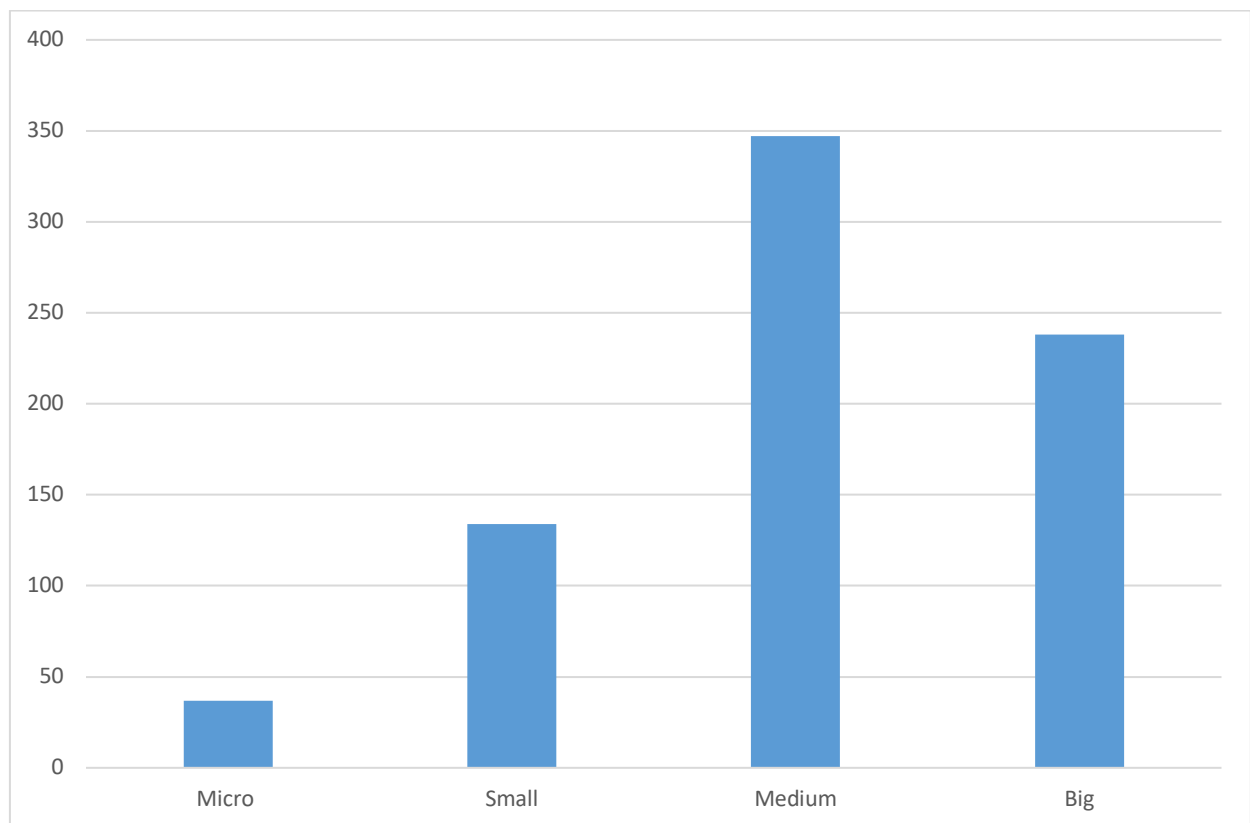As previously elucidated in the methodological section, our chosen approach for statistical analysis hinges on the utilization of Test statistics to compare means between two distinct samples. This method provides us with a robust framework for drawing meaningful conclusions from our data.

The variables under scrutiny in our statistical analysis encompass ROI (Return on Investment), calculated as the ratio of Operating Result to Net Invested Capital, and a modified version of ROI which excludes the contribution of derivatives by subtracting their value from the Net Invested Capital.

To gain a deeper insight into the behavior of ROI over time and its sensitivity to the presence or absence of active derivatives in the denominator, we have further stratified our data into three distinct periods, namely 2017, 2018, and 2019. This temporal breakdown allows us to discern whether the calculation of ROI was affected by changes in the inclusion of active derivatives.

In pursuit of a comprehensive analysis, at each stage of this investigation and for each of the specified periods, we meticulously computed the average ROIs, both with and without the influence of active derivatives, in addition to determining the associated variances. This meticulous approach ensures a thorough exploration of the dataset and facilitates the extraction of meaningful insights.

The Table 1 shows the values relating to the overall analysis.

Table 1 – Descriptive Statistics and Overall Tests

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.044	0.046	0.047	0.047	0.051	0.051
Variance	0.01	0.015	0.005	0.005	0.005	0.005
Sample Size	758	758	758	758	758	758
Test Results	**Test 2019**		**Test 2018**		**Test 2017**	
	-0.453		-0.027		-0.073	

It is possible to note that the tests carried out have no statistical evidence, it is possible to affirm that for the complete sample there is no statistical significance concerning the result of the ROI calculated with or without active derivatives. For this motivation RQ1 is rejected, the ROI it is not influenced by the presence or absence of active derivatives.

Considering the geographical differences within the sample, the second phase of the analysis is based on the geographical comparison of the involved companies for the 4 macro-regions described previously (re-elaboration of the first-level NUTS of the European Union).

The results are presented in Tables 2 to 5.

Table 2 – Descriptive Statistics and Tests for the Northwest Region

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.039	0.038	0.045	0.045	0.049	0.05
Variance	0.007	0.007	0.005	0.006	0.005	0.005
Sample Size	433	433	433	433	433	433
Value	**Test 2019**		**Test 2018**		**Test 2017**	
	0.034		-0.063		-0.079	

Table 3 – Descriptive Statistics and Tests for the Northeast Region

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.044	0.044	0.049	0.05	0.052	0.052
Variance	0.005	0.005	0.006	0.006	0.003	0.003
Sample Size	183	183	183	183	183	183
Value	**Test 2019**		**Test 2018**		**Test 2017**	
	-0.071		-0.048		0	

Table 4 – Descriptive Statistics and Tests for the Central Region

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.07	0.082	0.047	0.046	0.053	0.053
Variance	0.028	0.061	0.004	0.004	0.008	0.008
Sample Size	103	103	103	103	103	103
Value	**Test 2019**		**Test 2018**		**Test 2017**	
	-0.697		0.18		0.003	

Table 5 – Descriptive Statistics and Tests for the South-Insular Region

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.041	0.042	0.06	0.06	0.054	0.055
Variance	0.024	0.025	0.004	0.004	0.004	0.004
Sample Size	38	38	38	38	38	38
Value	**Test 2019**		**Test 2018**		**Test 2017**	
	-0.023		-0.043		-0.061	

In the previous tables (Table from 2 to 5), it is possible to observe the test values performed considering the four different geographical areas. Regarding the results, it can be observed that the entire set of tests is not significant. Consequently, it is possible to affirm that there is not a statistical significance between the difference of the ROI calculated by including derivatives or not and, for this motivation, RQ2 is rejected. Subsequently, the sample was divided by number of workers following the Ministerial Decree of 18 April 2005. (for further information concerning this classification see Assolombarda, 2005 and EU, 2003). Obviously, due to the available companies, there is a lack of homogeneity between the four classified categories.

Tables from 6 to 9 show the test results and descriptive statistics of the subsamples.

Table 6 – Descriptive Statistics and Tests for the Micro-Enterprises Subsample (Workers<10)

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.037	0.038	0.033	0.035	0.039	0.041
Variance	0.002	0.002	0.001	0.001	0.001	0.002
Sample Size	37	37	37	37	37	37
Value	**Test 2019**		**Test 2018**		**Test 2017**	
	-0.061		-0.302		-0.408	

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Table 7 – Descriptive Statistics and Tests for the Small-Enterprises Subsample (Workers<50)

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.042	0.043	0.041	0.041	0.039	0.039
Variance	0.003	0.004	0.003	0.003	0.004	0.004
Sample Size	134	134	134	134	134	134
Value	**Test 2019**		**Test 2018**		**Test 2017**	
	-0.072		-0.088		-0.003	

Table 8 – Descriptive Statistics and Tests for the Medium-Enterprises Subsample (Workers<250)

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.048	0.048	0.05	0.05	0.054	0.054
Variance	0.006	0.006	0.007	0.007	0.005	0.005
Sample Size	348	348	348	348	348	348
Value	Test		Test		Test	
	-0.017		-0.007		-0.017	

Table 9 – Descriptive Statistics and Tests for the Large-Enterprises Subsample (Workers>250)

Variable	ROI 2019	Without Derivatives ROI 2019	ROI 2018	Without Derivatives ROI 2018	ROI 2017	Without Derivatives ROI 2017
Mean	0.04	0.045	0.048	0.048	0.055	0.055
Variance	0.021	0.035	0.005	0.005	0.006	0.006
Sample Size	237	237	237	237	237	237
Value	Test		Test		Test	
	-0.517		0.073		-0.02	

As for the other 2 RQs identified above, also in this case, the research question (RQ3) is rejected. For the four tests, regarding RQ3 for a three-year time horizon, there are not statistically significant difference deriving from the calculation of the ROI with or without the active derivatives within its components.

In conclusion, based on the analyzed sample, the three research questions are rejected, no relevance from a statistical point of view were found in the calculation of the ROI for the considered period (2017-2019) at a general level or for the two sub-classifications carried out.

The impact of positive derivatives does not seem to have any effect on the return on investment.

7 – Conclusions

The reform contest, due to the transposition of Directive 2013/34 / EU with Legislative Decree 139 of 2015 has changed the scenarios concerning the better accessibility and readability of certain financial statements elements. As happened for the IV and VII Directive, the European Legislator has decided to issue Directive 2013/34 / EU to respond to the recent challenges and needs of the markets to the changes that have occurred in the economic and social context of Europe.

Therefore, it is important to understand if the introduced innovations can be considered consistent with the objectives that the European Legislator had set with the decision to issue the Directive. The European Commission had set the goal to encourage the internalization of companies and improving the comparability and comprehensibility of financial statements in order to pursue a process of accounting harmonization at European level.

The analysis carried out sought to understand if these measures, implemented in the last decade, have had a significant and have a statistically significant impact on the ROI Index.

The opportunity to have greater clarity and transparency on financial statements is certainly a relevant factor for all the involved stakeholders' categories. In fact, it is important to remember that the main objective of proper accounting is to make a financial statement understandable and meaningful, so that it provides a clear picture of the economic situation of a company and, finally to make an example, accounting principles help to prevent fraud. However, the findings of our analysis, mainly, does not show any improvement with regard to all the aforementioned aspects.

In fact, starting from a however large sample, it was shown that the presence of derivatives is not a discriminant factor or a factor capable of significantly modifying the ROI values.

The decision to split the sample following a geographical horizon or following the classification of the company by the number of workers tried to verify whether statistically significant results emerged even for only a part of the companies.

In these two cases no significances were found, consequently it can be affirmed that impact of active derivatives does not play a decisive role in the ROI calculation and their inclusion in these procedures (or their exclusions) does not give any significant changes in the final values of ROI.

The insignificant impact of the introduction of the fair value method on the ROI index shows that in Italy the presence of speculative derivative instruments in industrial companies is very low. In fact, the presence of derivatives is mostly due to a hedging function, rather than a speculative function consisting of risk-taking rather than risk transfer to the outside world.

The choice between fair value and historical cost lies in the duality of optimism and conservatism. While conservatism tends to favour a cautious and prudent attitude, typical of historical cost, optimism induces the use of fair value (Petrović, Radosavac & Mashovic, 2023). The difference between the two types of accounting also influences the perception of the primary stakeholders: equity investors in the case of fair value, banks and insurance companies in the other case (Pantelić, 2019).

In times characterised by crises (the global financial crisis of 2007, but also the one caused by the war in Ukraine), numerous problems arise in connection with accounting, information

transparency and, above all, the valuation of elements. It has been pointed out in the literature that fair value accounting could be a solution to these problems (Marra, 2016). Fair value accounting would thus be able to solve the accounting problems related to the crisis. However, this is unrealistic as fair value accounting only has the effect of incorporating the effects of the crisis more readily than historical cost. Some authors have pointed out that fair-value accounting contributed to the crisis, although Laux and Leuz (2010) have later shown that fair value has only marginal ocnsects on the crisis.

The analysis performed in this research would be a practical demonstration of this concept: the irrelevance of fair value measurement (in this case only focusing on derivatives).

8 – Future Development and Limitations:

Future research in this area could explore the long-term implications of recognizing derivatives at fair value in Italian financial statements, particularly as market conditions and economic circumstances evolve. Further investigation might delve into the specific industries or sectors where derivative instruments play a more substantial role and assess whether their impact on financial performance differs across these sectors. Additionally, examining the qualitative aspects of how fair value measurements are applied to derivatives and the associated disclosure practices could shed light on the transparency and reliability of financial reporting.

Moreover, it is important to underline the possible limitations of this study. Firstly, the analysis is based on data up to a certain point, and regulatory or market changes beyond that period may have influenced the dynamics of derivative inclusion and their impact on financial statements. Secondly, while the study provides insights into the ROI Index, it doesn't explore other potential financial performance metrics that could be affected by fair value recognition. Lastly, the segmentation of the dataset by geography and company size, while informative, may not capture all relevant factors influencing the treatment of derivatives in financial reporting. Future research should consider these limitations and continue to refine our understanding of this complex area.

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