Detecting Earnings Management Practices in European Insurance Sector: Purpose and Application of Accrual Modelling and Distribution of Earnings

S. De Nichilo

Purpose: The purpose of the present paper was to gauge the extent of the impact on earnings management derived from the adoption of International Financial Reporting Standards (IFRS) 17 as well as detecting whether the impact will be similar in different European “Insurance” and “Reinsurance” industries.

Design/Method/Approach: To provide empirical evidence that earnings management is more frequent in some countries and less frequent in others by means of a statistical analysis, a sample of European listed “Insurance” and “Reinsurance” companies in the period of 2018-2020 was observed. The Jones Model was applied.

Findings: This study concerns the implementation of a new principle, written to discipline the accountancy of insurances contracts, and its consequences must be carefully analyzed and monitored by regulators, as well as correctly adopted by managers, as the determined revenues could have an impact on the pre-existing earning management practices.

Theoretical Implications: The paper of the present research also concerns the predictions about the behavior of managers that can be foreseen considering the agency theory; therefore, knowing ex-ante in which industries earnings management has a high impact, provides the option to foresee the hypothetical moves of the managers in the implementation of IFRS 17.

Practical Implications: The analysis demonstrated that the “Insurance” industry is impacted by earnings management practices to a greater extent than the “Reinsurance” industry. These results should be analyzed simultaneously with the results from by the “Big Four” analysis concerning the impact of the introduction of IFRS 17.

Originality/Value: Specifically, companies belonging to two sectors were selected: “Insurance” and “Reinsurance”. The statistical analysis brought to light that earnings management practices are “commonly adopted” in the “Insurance” and “Reinsurance” industry, which is consequently highly impacted by the introduction of IFRS 17.

Research Limitations/Future Research: The total number of observations is high, all companies analyzed belong to only two industries. The analysis could be extended to a greater number of industries and companies in order to provide a more complete overview of the presence and the persistence of earnings management policies in different typologies of European financial listed companies.

Paper type: Empirical

Keywords: Accrual Modelling, Distribution of Earnings, Earnings Management Practices, Fair Value Relevance, Insurance and Reinsurance Industry.
Виявлення практики управління доходами в європейському страховому секторі: мета та застосування моделювання нарахування та розподілу доходів

Стефано ДЕ НІЧІЛО‡

‡ Університет Кальярі, Італія

Мета роботи: Метою цієї роботи було оцінити ступінь впливу на управління прибутком від прийняття Міжнародних стандартів фінансової звітності (МСФЗ) 17, а також визначити, чи буде цей вплив однаковим у різних європейських галузях «Страхування» та «Перестрахування».

Дизайн / Метод / Підхід дослідження: Для надання емпіричних доказів того, що управління прибутком є більш поширенним в одних країнах і менш поширенним в інших, за допомогою статистичного аналізу було проведено спостереження за вибіркою європейських компаній, акції яких котируються на біржі, за період 2018-2020 роки. Застосовано модель Джонса.

Результати дослідження: Це дослідження стосується впровадження нового принципу, написаного для дисциплінування обліку договорів страхування, і його наслідки повинні бути ретельно проаналізовані та відстежені регуляторами, а також правильно прийняти менеджерами, оскільки визначені доходи можуть мати вплив на попередні практики управління доходами.

Теоретична цінність дослідження: Дане дослідження також стосується прогнозів щодо поведінки менеджерів, які можна передбачити з урахуванням агентської теорії, тому, знаючи ex-ante, в яких галузях управління доходами має високий вплив, можна передбачити гіпотетичні кроки менеджерів при впровадженні МСФЗ 17.

Практична цінність дослідження: Аналіз показав, що на галузь "Страхування" практика управління доходами впливає більшою мірою, ніж на галузь "Перестрахування". Ці результати слід аналізувати однаково з результатами аналізу "Великої четвірки" щодо впливу впровадження МСФЗ 17.


Обмеження дослідження / Майбутні дослідження: Загальна кількість спостережень є великою, всі проаналізовані компанії належать лише до двох галузей. Аналіз може бути поширений на більшу кількість галузей та компаній з метою надання більш повного огляду присутності та стійкості політик управління прибутком у різних типологіях європейських фінансових компаній, акції яких котируються на біржі.

Тип статті: Емпіричний

Ключові слова: моделювання нарахування, розподіл прибутку, практика управління прибутком, відповідність справедливій вартості, страхування та перестрахування.
1. Introduction

Since 1973, there has been a worldwide trend to standardize accounting principles. Over the last few years, the need to harmonize accounting rules has risen in Europe too. As a result, the European Commission started issuing directives to the member states. The objective of the European Union (EU) is to facilitate the development and efficiency of European financial markets. The adoption of different accounting standards in each Member State, in fact, in the past determined a low degree of comparability of financial reporting among the companies located in different European States, serving a deterrent to the development of these markets. The European accounting legislation (that is Directives n. IV and VII, respectively on the subject of annual financial statements and consolidated financial statements), which is applied differently in each member State, was no longer adequate to ensure this objective.

In this regard, the European Union Parliament decided to promote, and progressively to make mandatory, for the fiscal years starting after 1 January 2005, the adoption of International Accounting Standards (IAS/IFRS), elaborated by the International Accounting Standards Committee (IASC) – initially by a group of professional accountants, and subsequently by a board called the international Accounting Standards Board (IASB), which is an internal committee of the global organization for accountancy (International Federation of Accountants – IFAC).

The European Union decided to focus its attention on IAS/IFRS as an answer to its previously set ideas, such as (Preface to IFRS, 2018):

1. “develop [...] high quality, understandable and enforceable global accounting standards [...] that require high quality, transparent and comparable information [...] to help participants in the world’s capital markets and other users [...]”;
2. “promote the use and rigorous application of those standards”;
3. “bring about convergence [...]”.

These are also the reasons why IAS/IFRS achieved such an extraordinary success persuading almost 100 Countries to adopt them. Moreover, many studies show that adopting IFRS, firms act optimally and promote financial reporting quality and investor interests. Other researches, some with empirical evidence, show that the adoption of IFRS reduces the level of earnings management since this set of standards limits management’s opportunistic discretion and, consequently, the adoption of IFRS decreases the use of discretionary accruals. In this scenario, the current, major change in the IAS/IFRS panorama is represented by the adoption of two new standards such as IFRS 9 “Financial Instruments” and IFRS 17 titled “Insurance contracts”. The present paper focuses on IFRS 17 because it can be considered one of the crucial issues for insurance companies, considering that revenues are both easily examined and one of the primary earnings subject to discretion. The aim of the present paper is to evaluate the impact of IFRS 17 on earnings management and question whether the level of impact will be different according to a European country.

Therefore, it seems useful to provide empirical evidence in specific industries where earnings management is more frequent, followed by an attempt to evaluate the benefits obtained from the correct and adequate introduction of IFRS 17. The paper is structured as follows. The next section reviews the first institutional settings and academic literature on the impact of IAS/IFRS adoption on earnings management and its possible future effects within different European insurance industries. The following section is dedicated to explaining the empirical research; in detail, the background research is presented, such as the literature and information necessary to create the basis for the research, the methodology used for the analysis is described, the variables, the sample and the regression used as well as the findings and an initial discussion about the results. The paper ends by reporting the main conclusions and explaining some limitations.

2. Institutional Settings of IFRS 17

FRAG has submitted its final opinion on the use in the EU of the International Accounting Standard for “Insurance Contracts” IFRS 17 to the European Commission, including the amendments in June 2020. IFRS 17 establishes the principles for recognition, evaluation, presentation, and disclosure of “insurance contracts”. The goal of the Accounting Standard is to ensure that an enterprise provides relevant information that faithfully represents such contracts. IFRS 17 must be applied for annual financial years starting from January 1, 2023, or later. If a company applies IFRS 17 before that date, it must give specific notice. Early adoption is allowed for entities that use IFRS 9 Financial Instruments on the date of initial application of IFRS 17 or before that date.

In May 2017, the board of the International Financial Reporting Standard, known as IFRS, published a new accounting requirement for insurance companies, effective from January 2023, after an amendment that moved its effective date from January 2021. The new standard revolutionizes the insurance world by introducing an approach oriented towards the present value application of contracts.

This occurs through the calculation of the Contractual Service Margin, or CSM which represents the profit not yet calculated, from a group of contracts and calculated at initial recognition, when a group of contracts is recognized, and insurance coverage begins (Fig. 1). A first important development, from the point of view of the regulatory approach, concerns precisely the need not to have to evaluate contracts on an individual basis, but to have to aggregate them based on three different drivers:

a. Types of risks emanating from the insured to the insurer.
b. Contract length.
c. Degree of profitability, for example, if a group is onerous and the recognition of a Loss Component is expected, or if it is inexpensive and you have CSM (Contractual Service Margin).

The IASB has outlined three possible approaches to measure the liabilities of a group of contracts (Fig. 2):

a. The Building Block Approach, or BBA, the all-encompassing method that requires the calculation of LRC (Liability for Remaining Coverage), liabilities for future services, such as the present value of all cash flows, net of adjustment for non-insurance, plus expected future profits, and LiCs (Liability for Incurred Claims), the liabilities for those claims that have occurred but not yet settled;
b. The Premium Allocation Approach, or PAA, is the simplified method that only requires the calculation of premiums not yet set aside as profits, net of expenses incurred (administrative, management and provisioning costs, etc.), whose application is only permitted if the final result in terms of recognized profits is equal to that of BBA, if the group is not onerous and if the contracts belonging to the group have a coverage of less than or equal to one year;
c. The Variable Fee Approach, or VFA, is applicable only to those contracts in which the insurer shares the performance results of an underlying with the policyholder, typically these are life-death contracts.

As previously stated, this paper proposes a comparative analysis aimed at highlighting the number of discretionary accruals presented in two different industries with a different degree of sensitivity to IFRS 17 application: “Insurance” and “Reinsurance”. The objective of the analysis is to understand whether the application of IAS/IFRS could increase the quality of accounting information and decrease earnings management policies through the “Big Four” audit quality procedures (Fig. 3).
**Figure 1:** CSM (Contractual Service Margin) in IFRS 17

*Source:* developed by author

**Figure 2:** Evaluation Modelling in IFRS 17

*Source:* developed by author

**Figure 3:** “Big Four” approach to evaluate earnings management practices

*Source:* developed by author
In this regard the Agency Theory approach must be considered (Jensen & Meckling, 1976) in accordance with shareholders’ needs to delegate management considering specific skills and knowledge (Zanobio, 2012), showing that Agency Theory makes several predictions regarding managers’ behavior (Iatridis, 2010). The need for this analysis arose observing the numerous changes made over the last few years by international standard setters aimed at improving the set of accounting standards whose continuous process of updating has led to the introduction of IFRS 17 (Barth & Clinch, 1998). The new accounting principle provides rules for insurance contracts recognition that are profoundly different from the ones provided by IFRS 4, regarding the definition of insurance contracts amount, contract costs and the timing of their recognition. The application of the new standard will have significant effects on the financial statement of entities adopting IFRS (Barth, 2010). The following analysis will be explained, being based on the earnings management model proposed by Jones (1991), it aims at identifying the status of European listed insurance companies until 2018. The analysis, concurrently with the analysis of the “Big-Four”, compares the “Insurance” and “Reinsurance” industries, respectively identified as highly sensitive and medium/low sensitive industries to the introduction of new IFRS 17 (Fig. 2).

The statistical activity focuses on the context analysis of new IFRS 17 adoption, albeit not considered as subject to manipulation, and is subordinate to the new principle and plays a fundamental role with regard to earnings management practices, as a proxy for the measurement of companies’ conditions (Barth & Taylor, 2010). Establishing the introduction of IFRS 17 and the potential impact on earnings management opportunities can provide indications to a large number of stakeholders (such as shareholders, policy makers, auditors, etc.) providing them with manipulation indications in the financial statements of specific industries (Tab. 1-3).

3. Literature Review

The adoption of accrual-based accounting is considered necessary because it is able to provide a complete picture of the financial transactions of businesses, recording all period transactions (Baker & Griffith, 2007). The system, being based on a complete record of the financial matter, discloses correct profits or losses for a specific period; above all when compared to a cash-based system, in which transactions are recorded only when cash is received or paid, accrual accounting could be considered less vulnerable in a real management practices perspective since systems of monetary flows are easier to manage (Barth, 1994). This is one of the reasons why IFRS are based on accrual accounting.

The latter point is widely agreed upon in the main literature. Goldman and Brashares (1991) believe that a full-accrual accounting system emphasizes the transparency of financial statements and allows a faithful representation of corporate performance; similarly, Vinnari and Näsä (2008), argue that the adoption of an accrued-based system, such as the IAS/IFRS system, is able to limit the use of creative accounting.

The term “creative accounting” refers to the use of flexibility in accounting principles in order to manipulate the presentation and/or valuation of financial statement items. Consequently, budget editors can show stakeholders whatever they find more convenient, hiding the company’s actual performance. Given that such practices rely on the interpretation of accounting principles, it remains very difficult to establish when they are bound to illegality (Fig. 4).

Considering that IFRS are standards elaborated on an accrual basis, the adoption of these principles is widely supported by mainstream literature, even though each author provides a different reason. Corsi and Mancini (2010) highlight its superiority over, for example, the Generally Accepted Accounting Principles (GAAP), which are not “rigorous” enough, leaving high degrees of freedom in implementing earnings management policies. Jeannjean and Stolowy (2008) assert that implementing IFRS simplifies the comparison of companies’ financial performance across different countries (Fig. 4). Focusing on earnings management has brought to light the ongoing debate in literature started in 1980, when many authors started developing models to highlight the persistence of the phenomenon (Healy, 1985; De Angelo, 1986; Jones, 1991; Dechow et al., 1995; Dechow & Dichev, 2002; Teti & Pompili, 2017). Two main earnings management categories can be identified:

1) Accrual management, related to the possibilities offered by accounting standards (professional judgments), aiming at “obscuring” or “masking” true economic performance (Dechow & Skinner, 2000).
2) Real activities manipulation that occurs when managers undertake actions that change the timing or structuring of an operation, investment, and/or financing transactions in an effort to influence the output of an accounting system (Gründl, Post, & Schulze, 2006).

**Classification of Earnings Quality Studies**

- Studies on accrual accounts to measure the quality of earnings
- Studies focused on earnings continuity and predictability as one of the characteristics of earnings quality
- Studies concerned with measuring earnings quality using financial reporting information
- Studies on the relationship of earnings quality and corporate governance

**Source:** developed by author

By relating IAS/IFRS and earnings management, some authors have realized that the quality that would place IAS/IFRS above local GAAP is cost reduction for investors to assess the quality of the information reported in IFRS compliant financial statements. In fact, the greater comparability of financial statements would make it possible to identify any earnings management actions in a timely manner, reducing the possibility of opportunistic behavior by managers (Ballotta, Esposito & Haberman, 2006).

Mechelli and Cimini (2012) highlight the ability of IAS/IFRS to fill in local legislative gaps relating to particular events that must be reported in financial statements. For example, the presence of “gaps” in enforcement mechanisms could weaken, or even nullify, the positive effects of new standards (Beaver, McNichols, & Nelson, 2003).

Other authors such as Leuz and Verrecchia (1999), Ashbaugh and Pincus (2001), Leuz (2003) point out that greater disclosure required while applying IFRS for the preparation of financial statements would result in reduction in opportunistic behavior (Browne, Yuen Ma, & Ping Wang, 2006). Nevertheless, different and conflicting conclusions are made in many investigations carried out in this specific field. Barth et al. (2008), observing the quality of “budget numbers” before and after the adoption of IFRS on a sample of 327 companies that opted for voluntary implementation between 1994 and 2003, points out lower earnings management along with greater value relevance and timely recognition of losses following the introduction of international accounting standards, translating into higher quality financial statements than those prepared in accordance with local GAAP.

Daske et al. (2008) examining the economic consequences of adopting IFRS on a sample of 3,800 first-time adopters in 26 different countries, find out a positive correlation between the introduction of IFRS, market liquidity and market valuation. Differently, Armstrong et al. (2010) analyze the potential impact on stock market price with the adoption of IFRS. The results show a positive correlation underlying a positive (negative) market reaction with the increase (decrease) in the probability of IFRS adoption. The combination of these results shows that, at least for early adopters, companies could benefit from the adoption of IFRS.

Iatridis (2010) draws similar conclusions observing a sample of listed companies in the UK: the adoption of IFRS is able to reduce the possibilities of earnings manipulation as it leads to timely and value relevant recognition of losses. While with the exact opposite idea, Capkun et al. (2016) show that early adopters of IFRS had incentives to increase the transparency of their reporting in order to attract outside capital, and, therefore, earnings management (smoothing) went down after voluntary IFRS adoption, while those firms that waited until IFRS reporting became mandatory in EU countries lacked in incentives for transparent reporting, leading to increases in earnings management (smoothing) after mandatory IFRS adoption.

Meaning that IAS/IFRS standards, which went into effect in 2005, permit greater flexibility in application and thus contribute to greater earnings management. A similar conclusion can also be found in Ugrin et al. (2017) where the authors demonstrate that a uniform association between IFRS adoption and earnings management across countries does not exist, in fact, sometimes, IFRS create an environment that allows for financial manipulation. Similarly, another contribution elaborated by Ewert and Wagnerhofer (2005) deals with a significant increase in income-increasing earnings management after IFRS adoption amongst firms based in countries that are more power distant, uncertainty avoidant, individualistic, short-term oriented, and indulgent (Grace, 1990).

Therefore, from a theoretical point of view, there are no doubts about the benefits of IAS/IFRS adoption. Following the same path of the literature, an attempt is made to find any evidence of the potential different impact of IAS/IFRS observing different industries. The rationale for the investigation emerges following the voluntary early adoption, starting from 1 January 2018, of a specific accounting standard related to the valuation of insurance contracts: IFRS 17.

After 20 years of work, the new IFRS for the accounting of insurance contracts was officially published on May 18, 2017, and the date of entry into force was set first on January 1st, 2021, and after moved on January 1st, 2023. In the transitional period, insurance companies have the option to continue applying accounting principles envisaged by IFRS 4 or to adopt IFRS 17 in advance with the application context of IFRS 9 (Financial instruments) and of IFRS 15 (Revenue from contracts).

### 4. Research Design

#### 4.1. Previous Studies

A number of studies deal with some issues related to the expected impact of applying IFRS 17 on several variables, and many studies focus on the quality of financial reports as a dependent variable for the application of financial reporting standards in general, but there is a scarcity of studies - according to the researchers’ knowledge - that link the expected impact to apply the standard to the quality of financial reporting (Grace & Levity, 2005).

The study by Clark et al. (2020) examines the expected impact of applying IFRS 17 on expected profits to be distributed by insurance companies in a number of European countries. It is unlikely that the requirements will change due to the adoption of Financial Reporting Standard 17 regarding the flow of distributable profits for new businesses with low profitability and/or high capital
requirements. However, the standard may constitute a constraint on the timing of dividend distribution in the case of products that have high profitability and / or low capital requirements (Hoyt, Robert & McCullough, 2005).

The study by Al-Mashhadani (2020) deals with the challenges of applying the standard in the Iraqi environment. This study that uses the questionnaire as a measuring tool finds that there are fundamental differences between accounting requirements for insurance contracts according to the unified accounting system used in banks and insurance companies and the requirements of IFRS 17, and that the most prominent challenges facing Iraqi insurance companies are summarized in choosing the method used for initial and subsequent measurement of insurance contracts, estimating future cash flows of contracts and choosing appropriate discount rates, in addition to determining the contractual service margin for insurance contracts (Petroni, 1992).

As for the study by Longoni (2019), that links IFRS 17 applications to the value of the company, the researcher conducted a survey of the impact of 50 potential events that could result from applying the standard to investors, and then the researcher analyzed adjusted market returns for the most of 16 events affected by standard application. In general, the study found that the application of the standard leads to reducing the value of the company, and that the negative impact on the value of the company was greater for large insurance companies with low growth opportunities (Petroni, Kathy & Beasley, 1996).

Sotona (2018) focuses on assessing risks, especially mortality risks, in relation to IFRS 17, and concludes that risk assessment in general and mortality risks in particular will be more transparent within disclosures in financial statements according to Standard 17, but this requires doing a change in accounting and actuarial policies with respect to risk, and modification of existing actuarial models for pricing, development, control and accounting for risks (Petroni, Kathy & Shuckfelford, 1999).

Yanik and Bas (2017) provide a general evaluation of IFRS 17 and conclude, following a set of methods, including case studies and interviews with investors and employees of insurance companies, that the standard will be beneficial to investors and insurance companies alike by providing disclosure requirements (Petroni, Ryan & Wahlen, 2000).

Many international organizations, especially those related to auditing, have presented some studies on IFRS 17, where AON PClc (2020) studied the effect of applying the standard to performance indicators through the use of experts. It is concluded that the adoption will increase transparency and understanding of financial statements. It also concludes that credit rating agencies do not expect that moving to implement IFRS 17 will have a direct impact on insurance companies' rating. Also, the study indicates that it is important at the beginning of the application to pay attention to the disclosures related to the regulatory capital and adjusted returns on equity at a discount rate. Furthermore, financial leverage will be affected as a result of application, so analysts must rely on other indicators. It also points out the importance of including disclosures in tables that include how to generate operating profits from ongoing, new, and discontinued businesses.

In the study by Price Waterhouse Coopers (PwC, 2019), which deals with the impact of applying IFRS 17 on the performance of European insurance companies by analyzing the expected performance indicators of the 20 largest European insurance companies, it is found that the transition to IFRS 17 will work on abolishing the profit in the beginning by reducing initial returns for some types of new insurance, and the recognition of profits will be postponed for some insurance products other than life insurance, which in turn will lead to early recognition of losses.

As for Swiss Re (2018), in cooperation with Deloitte, KPMG and IFB, it indicates that IFRS 17 application will bring benefits related to providing detailed information about the performance of investment and underwriting, in addition to that, the revenues and expenses of underwriting are recognized over time in a way that allows comparison.

The study by Peña and Franco (2016) adds that the size of the company plays a positive role in the relationship between the adoption of compulsory financial reporting standards and the quality of financial reports in Britain. But in France, there was no effect between the adoption of financial reporting standards and the quality of financial reports, as the study followed the quantitative approach to arrive at results by identifying discriminatory risks of share returns and using profit management models to measure the quality of financial reports.

4.2. Data Sampling

The study relies as a first step on the exploratory approach, and this approach is useful in case of planning to explain the nature of the problem or phenomenon and helps in how to deal with it, especially in case of uncertainty (the expected effect of a standard that has not yet been applied). The second step is to rely on the descriptive (analytical) approach to explain the researched phenomenon, relying on all facts and data, classifying them, and then processing the data and analyzing it to extract its significance and arrive at conclusions or generalizations about the phenomenon or problem (Sekaran & Bougie, 2016: 103).

The initial sample, which has been taken from EIOPA site (Tab. 4), consists of 120 European listed companies, operating in 2 different sectors “Insurance” and “Reinsurance”, being observed during the period of 2018-2020 (Fig. 5). The sectors chosen for the analysis were selected from the studies carried out by the “Big Four” on voluntary early adoption of IFRS 17. A specific analysis focused on industries mostly affected by the new IFRS in terms of measurement, recognition and disclosure of insurance contracts rules (Tab. 5).

<table>
<thead>
<tr>
<th>European Areas</th>
<th>Companies</th>
<th>Insurance</th>
<th>Reinsurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK and Islands</td>
<td>44</td>
<td>32</td>
<td>12</td>
</tr>
<tr>
<td>Northern Europe</td>
<td>38</td>
<td>28</td>
<td>10</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>21</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>South Europe</td>
<td>17</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>85</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Taken from EIOPA site and tested by Big Four IFRS 17 first adoption Reports

Figure 5: Distribution of sample in European Areas

Source: developed by author
4.3. Accrual Modelling in Modified Jones Model

The discretionary share of total accruals was used in order to identify a proxy to take earnings management into account. In fact, the “accruals management” analysis perspective was adopted in this chapter.

The Jones Model (Jones, 1991) was adopted to identify the number of total accruals, distinguishing between discretionary and non-discretionary accruals, using the discretionary part as a proxy for measuring the presence and extent of earnings management practices. The manipulation of the balance data sheet can be carried out through different methods, including the use of discretionary accruals, changes in accounting treatments and changes to the capital structure: the present analysis focuses exclusively on the use of accruals. In agreement with Jones (1991), the number of total accruals was calculated as the variation in Non-Cash Working Capital before the Income Tax Payable minus the Total Depreciation and Amortization Expense.

The Change in Non-Cash Working Capital Before the Income Tax Payable was calculated as the Change in Current Assets, Net of Cash and Short-Term Investments minus the Change in Current Liabilities, Net of the Current Share of Long-Term Loans and the change in Income Taxes Payable (1). The total accrual formula is reported below:

\[ \Delta TA = (\Delta \text{Current Assets - } \Delta \text{Cash}) - (\Delta \text{Current Liabilities} - \Delta \text{Current Maturity Long Term Debt} - \Delta \text{Income Tax Payable}) - \text{Depreciation and Amortization Expense} \]  

According to Jones (1991) and De Angelo (1986), total accruals (2) and relative year by year variations can be broken down as below:

\[ \Delta TA = (TA - TA_{t-1}) = (DA - DA_{t-1}) - (NDA - NDA_{t-1}) \]  

Where

\( TA \) – Total Accrual at the time “t”;

\( DA \) – Discretionary Accrual at the time “t”;

\( NDA \) – Non-Discretionary Accrual at the time “t”;

\( DA_{t-1} \) – Discretionary Accrual at the time “t-1”;

\( NDA_{t-1} \) – Non-Discretionary Accrual at the time “t-1”.

The previous subdivision of total accruals, in agreement with De Angelo (1986), is based on the assumption that change of non-discretionary accrual is almost non-existent; therefore, the difference in total accruals is exclusively due to changes in discretionary accrual levels.

The Jones model, therefore, is based on the assumption that, at the period “t”, there is no earnings management and, therefore, the difference in total accruals between the period “t” and the period “t-1” is necessarily due to the existence of non-discretionary accruals, showing a potential presence of earnings manipulation.

In order to verify the relationship between the economic conditions of companies and the level of accruals, Jones (1991) introduces the following equation (3):

\[ TA_{it} = \alpha_{it} \frac{TA_{it}}{A_{it}} + \beta_{it} (\Delta REV_{it}/A_{it}) + \beta_{it} (PPE_{it}/A_{it}) + \epsilon_{it} \]  

Where

\( TA_{it} \) – Total Accrual at the time “t” for company “i”;

\( A_{it} \) – Total Asset at the time “t” for company “i”;

\( REV_{it} \) – Revenues at the time “t” minus revenues at the time “t-1” for company “i”;

\( PPE_{it} \) – Gross Property, Plan and Equipment at the time “t” per for company “i”;

\( \epsilon_{it} \) – Error term in year “t” for firm “i”;  
\( \alpha, \beta \) – Statistical coefficient for independent variables;  
\( I = 1, ..., N \) firm index and \( t = 1, ..., T \) year index for the years included in the estimation period for firm i.

The inserted dependent variables have the following meanings:

a. PPE are included in order to monitor the non-accrual quota derived from the recognition of discretionary write-downs; furthermore, depreciation is included in the calculation of total accruals;

b. Revenues are mainly included as an indicator of the economic conditions of companies. Furthermore, as for PPE, the manipulation of revenues is linked to the change in non-cash working capital used to calculate total accruals.

The error term obtained by the regression of Equation (3) can be explained as follows:

\[ \epsilon_{it} = TA_{it}/A_{it} - [\alpha_{it} (\frac{TA_{it}}{A_{it}}) + \beta_{it} (\Delta REV_{it}/A_{it}) + \beta_{it} (PPE_{it}/A_{it})] \]  

The Equation (4) expresses the level of discretionary accruals for each year “it” and is used to determine their amount in the companies in the observed insurance and reinsurance industries.

4.4. Hypothesis and Distributions of Earnings

Depending on literature reviews and previous studies, researchers formulated the main hypotheses of the study, which is this:

\[ H_0: There is no expected statistically significant impact at the level of p value ≥ .05 for applying IFRS 17 on the relevance of financial reports of European “Insurance” and “Reinsurance” companies. \]

It is divided into the sub-hypotheses (Tab.6).

The following Fig. 6 shows all the variables observed for each company and used in order to define the discretionary level of accruals using Equation 4. \( \epsilon_{it} \) is a proxy or earnings quality measurement; in Modified Johns Model \( \epsilon_{it} \sim i.i.d. \)

Hypothesis testing (Tab. 6) uses the following research model:

\[ \epsilon_{it} = \beta_1 + \beta_2 (FVR) + \beta_3 \text{ (Comp)} + \beta_4 \text{ (Under)} + \beta_5 \text{ (Audit)} + \text{ (Time) } + \xi \]  

Fig. 6: Composition of sample

Table 5: Sample test of detail in European countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Companies</th>
<th>Insurance</th>
<th>Reinsurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britain</td>
<td>30</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>France</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Germany</td>
<td>13</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Ireland</td>
<td>14</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Italy</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Netherlands</td>
<td>7</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>18</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Spain</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Poland</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Romania</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Hungary</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120</strong></td>
<td><strong>85</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

Source: developed by author
Table 6: Audit Assertions Criteria for applying IFRS 17

<table>
<thead>
<tr>
<th>Sub-hypotheses</th>
<th>Audit Assertions Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_{0.1}$</td>
<td>Fair value relevance (FVR)</td>
<td>There is a positive association between fair value relevance and earnings quality.</td>
</tr>
<tr>
<td>$H_{0.2}$</td>
<td>Faithful Representation (FR)</td>
<td>There is a positive association between faithful representation and earnings quality.</td>
</tr>
<tr>
<td>$H_{0.3}$</td>
<td>Comparability (Comp)</td>
<td>There is a positive association between comparability and earnings quality.</td>
</tr>
<tr>
<td>$H_{0.4}$</td>
<td>Understandability (Under)</td>
<td>There is a negative association between understandability and earnings quality.</td>
</tr>
<tr>
<td>$H_{0.5}$</td>
<td>Auditability (Audit)</td>
<td>There is a negative association between auditability and earnings quality.</td>
</tr>
<tr>
<td>$H_{0.6}$</td>
<td>Timeliness (Time)</td>
<td>There is a negative association between timeliness and earnings quality.</td>
</tr>
</tbody>
</table>

Source: developed by author

Table 7: Framework of Independent Variable

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Proxy of Audit Assertion Criteria</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>FVR</td>
<td>Market Value</td>
<td>1.88</td>
<td>2.22</td>
<td>.22</td>
<td>4.22</td>
</tr>
<tr>
<td></td>
<td>Book Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FR</td>
<td>Fair Value Best Estimate</td>
<td>1.66</td>
<td>3.56</td>
<td>.17</td>
<td>5.77</td>
</tr>
<tr>
<td></td>
<td>Cost model</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp</td>
<td>Insurance Asset</td>
<td>1.22</td>
<td>2.88</td>
<td>.11</td>
<td>3.24</td>
</tr>
<tr>
<td></td>
<td>Reinsurance Asset</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under</td>
<td>Number of Audit Issues</td>
<td>.64</td>
<td>.22</td>
<td>.31</td>
<td>1.88</td>
</tr>
<tr>
<td></td>
<td>Auditing Meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit</td>
<td>Audit Fees</td>
<td>.23</td>
<td>.66</td>
<td>.17</td>
<td>1.78</td>
</tr>
<tr>
<td></td>
<td>Performance Materiality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Audit Fees X Time of Engagement</td>
<td>2.22</td>
<td>.98</td>
<td>1.22</td>
<td>2.58</td>
</tr>
<tr>
<td></td>
<td>Performance Materiality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: developed by author

Table 8: Multivariate Analysis

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coefficient</th>
<th>T Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>.88</td>
<td>-1.56***</td>
</tr>
<tr>
<td>FVR</td>
<td>2.88</td>
<td>-2.88**</td>
</tr>
<tr>
<td>FR</td>
<td>3.77</td>
<td>4.26**</td>
</tr>
<tr>
<td>Comp</td>
<td>2.22</td>
<td>-3.77***</td>
</tr>
<tr>
<td>Under</td>
<td>-1.64</td>
<td>-1.22</td>
</tr>
<tr>
<td>Audit</td>
<td>-1.23</td>
<td>1.66</td>
</tr>
<tr>
<td>Time</td>
<td>-2.55</td>
<td>1.98</td>
</tr>
<tr>
<td>F Value</td>
<td>.66</td>
<td>4.56</td>
</tr>
</tbody>
</table>

Source: developed by author

Table 9: Summary of results

<table>
<thead>
<tr>
<th>Test</th>
<th>Insurance</th>
<th>Reinsurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>.13</td>
<td>.03</td>
</tr>
<tr>
<td>T:</td>
<td>3.55</td>
<td></td>
</tr>
<tr>
<td>DF:</td>
<td>350.22</td>
<td></td>
</tr>
<tr>
<td>P Value:</td>
<td>.01</td>
<td></td>
</tr>
</tbody>
</table>

Source: developed by author

5. Result of Multivariate Analysis

Statistical tests were conducted with the support of “GRETEL” software to investigate the existence of a significant difference between the extent of discretionary accruals for the companies in the “Insurance” industry compared with those operating in the “Reinsurance” industry.

First of all, Equation 4 was regressed (OLS) introducing an intercept for a statistical purpose, and the results were utilized to estimate the discretionary portion of accruals.

Tab. 7 deals with the framework of an independent variable made to represent the extent and distribution of the total and discretionary accruals in the two industries within the considered period.

Tab. 8 synthesizes the results of the analysis.

The research model is significant (p value .01 level), $R^2$ is .68 and F Value 4.56.

The independent variable that has a significant result (level .01) is understandability. The independent variable that has a significant result (level .05) is fair value relevance and faithful representation.

6. Conclusion and Discussion

As can be seen from the reported results in Tab. 9, the difference between the averages of the two industries is very significant (p value < .05) meaning that the discretionary accruals show a higher average impact in the “Insurance” industry compared with the value reported for the “Reinsurance” sector. Given these results, it is possible to affirm that the “Insurance” industry is more affected by earnings management behavior than the “Reinsurance” industry. This must be taken into account together with the analysis made by the Big four in order to better analyze and understand the possible impact related to IFRS 17 application.
revenues and expenses will provide the possibility of comparison between “Insurance” and “Reinsurance” activities. Researchers recommend working on creating appropriate conditions for implementation of the standard by training and qualifying workers, in addition to preparing the systems and software necessary to implement the standard. Moreover, they suggest that insurance companies conduct a simulation related to applying the standard by classifying existing insurance contracts according to the classifications of the new standard and studying the impact of the application presumed on accounts as well as by various entries, and the need to follow objective assumptions from the company’s management to estimate cash flows when applying the standard (Tab. 10).

Table 10: Distribution of earnings quality error in selected sample

<table>
<thead>
<tr>
<th>County</th>
<th>Insurance earnings Quality Error</th>
<th>Reinsurance earnings Quality Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Britain</td>
<td>22%</td>
<td>15%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>21%</td>
<td>17%</td>
</tr>
<tr>
<td>Ireland</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>Germany</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>France</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Spain</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Italy</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Poland</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Romania</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Hungary</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: developed by author

The results show that within the industries influenced by the introduction of IFRS 17, the “Insurance” one is more impacted by earnings management practices than the “Reinsurance”. The different levels of earnings management within the diverse industries are confirmed by the papers found in the literature.

These results must also be analyzed simultaneously with the results carried out by the “Big Four” reports on the impact of IFRS 17 in order to draw appropriate conclusions for stakeholders, and the policy makers’ perspective must be taken into consideration. As stated above, the “Big Four” analysis shows that the “Insurance” industry presents some areas that are highly impacted by the advent of IFRS 17 and given the results obtained from the analysis it is possible to affirm that these aspects could be responsible for the level of earnings management.

High quality accounting standards have been introduced by IASB and FASB in order to improve worldwide quality of financial reporting. Existing evidence allows assertion that these accounting standards are able to reduce the level of earnings management (Cai et al., 2008; Budia & Bhattacharjee, 2011; Mechelli & Cimini, 2012) and, consequently, decrease the use of discretionary accruals (Guinther et al., 2009). Given this scenario, the present study, starting from the introduction of IFRS 17 “Insurance Contracts”, looked for evidence of earnings management in a sample of European public firms and, specifically, knowing that the possible effects of IFRS 17 introduction could be different in each “Insurance” and “Reinsurance” industry. The present study considers the “Insurance” industry as highly influenced by IFRS 17, and “Reinsurance” industry is considered an industry with low impact.

The analysis demonstrates that the “Insurance” industry is impacted by earnings management practices to a greater extent than the “Reinsurance” industry. These results should be analyzed simultaneously with the results of the “Big Four” analysis concerning the impact of IFRS 17 introduction.

As previously mentioned, the scientific contribution of the present research concerns the possibility to predict managers’ behavior by considering Agency Theory (Iatriris, 2012); therefore, knowing ex-ante, which industries have highly influenced earnings management, makes it possible to predict the hypothetical moves by managers in the implementation of IFRS 17.

The total number of observations is high, all companies analyzed belong to only two industries. The analysis could be extended to a greater number of industries and companies in order to provide a more complete overview of the presence and the persistence of earnings management policies in different European financial companies’ typologies.

7. Funding

This study received no specific financial support.

8. Competing interests

The author declares that he has no competing interests.

References


