

The Effect of International Financial Reporting Standards (IFRS) Adoption on Conditional Conservatism: A Study on BIST 100



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Abstract: International Financial Reporting Standards (IFRS) have been prepared in order to prepare the financial statements of transactions operating in different countries using a common financial language, and also to enable investors from all over the world to evaluate the financial statements in question with a standard perspective. In Türkiye, Turkish Accounting-Financial Reporting Standards (TMS-TFRS) have been published in line with the International Financial Reporting Standards, which aim to present current values instead of the historical cost approach and are based on fair value. After this change, the differences in the accounting practices, presented financial information and presentation styles of the enterprises have been a natural result of this process. As a result of the change that comes with TFRS, it is known that there is a change in the degree of conservatism of enterprises, especially in the degree of conditional conservatism. In this study, the effects of the adoption to TFRS on the financial reporting system of enterprises in Türkiye were evaluated in terms of the degree of conditional conservatism. The data of a total of 41 enterprises, 34 of which belong to the Manufacturing Sector and 7 of which belong to the Service Sector, were selected as a sample between the years 2000-2018. The period between 2000-2004, the financial reporting system based on historical costs; the period between 2005-2018 represents the financial reporting system in line with TFRS. The method applied in the study to determine the effect statistically is the method of Panel Data Analysis. According to the extended Basu (1997) model used to determine the degree of conditional conservatism, after the adoption of TFRS, it is seen that there is a decrease in the degree of conditional conservatism of the enterprises in each of the Manufacturing Sector, Service Sector and All Businesses. In other words, as a result of the study, it has been determined that the transition to TFRS has a negative effect on the level of conservatism.

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1. Introduction

Today, financial reports presented by both local businesses and multinational enterprises are used by financial information users in a wide range and in different geographies. It is possible that the same information can be interpreted in different ways by different users due to geographical and cultural differences and the different accounting systems of financial information users. In this context, it is concluded that accounting information should be universally understandable through financial reports presented to both internal and external users of financial information [1, 2]. Therefore, it is aimed to use a common financial language in the world in order to prevent different interpretations of the same financial information by different users, and it has become a necessity

to establish International Financial Reporting Standards (IFRS) to ensure this. Globalization requires the preparation of accurate, reliable and comparable financial statements as a result of the development of financial markets and capital markets and the emergence of multinational companies [3-7]. In addition, irregularities in accounting practices and independent audit processes lead to major bankruptcies and serious grievances, such as WorldCom, Enron, Parmalat, and Xerox. In line with these requirements and negative examples, the international financial reporting standards that mentioned above have been developed and started to be implemented worldwide [8, 9]. One of the purposes of the emergence of IFRS is to increase the compatibility and comparability features between financial reports prepared by businesses and to contribute to the users of financial statements to make the right decisions. Another striking purpose in this regard is to eliminate the problems such as financial reporting and consolidation that multinational enterprises encounter in different country applications. In order to realize these goals, International Financial Reporting Standards aiming at a common accounting language in the world have been developed by the International Accounting Standards Board (IASB), an independent non-profit organization [4, 10, 11].

Businesses that adopt and implement IFRS will undoubtedly have the opportunity to reach potential investors and alternative financing channels in a wide geography, thereby reducing their resource costs and increasing their competitiveness. It is known that International Accounting and Financial Reporting Standards play a key role in enabling businesses operating in Türkiye to be accepted in the world markets, accessing appropriate financing resources more easily, and opening the way for foreign businesses' investments in Türkiye. International Financial Reporting Standards address the basic features of accounting information and emphasize that information should be understandable in order to be useful to its users. This quality required by the standards in accounting information means that all decision makers with a certain level of business knowledge can draw the same conclusion from the same information [12-15]. However, it is also stated that information must have relevance and reliability in order to be useful. Relevance reflects the power of information to influence the decision-making process and is an indicator of how much information is used in the decision-making process. In other words, the relevance of information means that it is guiding the decision-making of the users of that information and that it is presented at a time that can affect the decision. In addition, the information provided must be reliable. The fact that the information is reliable means that the information does not contain errors and material mistakes, is verifiable, and that the information intended to be presented is presented in an accurate and impartial manner so that financial information users can easily use it in their decisions [16].

The phenomenon of globalization of capital markets has brought transparency and timely presentation of financial reporting to the agenda in the use of accounting information. One of the qualitative features that ensure the correct fulfillment of these requirements is conservatism in accounting. Conservatism is one of the oldest concepts in accounting, and conservatism, which affects accounting practices in businesses, is a concept directly related to the reliability of the information presented in financial statements. In the literature, the concept of conservatism is generally examined in two groups as conditional and unconditional conservatism. Conditional conservatism means that negative developments regarding the business are immediately taken into account within the framework of the information coming from the market, but more confirming information is required in the accounting of positive developments [12, 16-19]. Therefore, conditional conservatism, also referred to as earnings conservatism, means accounting for earnings in an asymmetrical manner. In this context, practices such as valuing the inventories of the enterprise at the lower of cost and net realizable value or taking into account the depreciation in tangible and intangible assets can be given as examples of conditional conservatism [18]. In unconditional

conservatism, the value of the asset is derived from accounting practices without being based on market information. In this framework, unconditional conservatism covers accounting practices that require the net worth of assets to be lower than the estimated market value, regardless of information obtained from the market. The historical cost for projects with positive net present value; accelerated depreciation (decreasing balances) for property, plant and equipment; The use of the LIFO method in the valuation of stocks and the direct deduction of R&D and advertising expenses are among the examples of unconditional conservatism [16, 17, 20, 21].

Piot et al. (2010) conducted a survey of over 5,000 IFRS practitioners from 22 EU countries between 2001 and 2008, revealing that the adoption of EU-mandated IFRS is associated with a shift in accounting conservatism, specifically showing that conditional conservatism decreased under IFRS for mandatory enforcers. Their findings also indicated that the magnitude of IFRS impact is positively correlated with the distance between IFRS and pre-existing local GAAP, and that unconditional conservatism was higher under IFRS. This suggests that the adoption of mandatory EU-wide IFRS negatively affects earnings quality [15]. In a similar vein, Hullenaar (2011) explored the relationship between conservatism and the mandatory adoption of IFRS using data from 220 German and British businesses over the 2000-2009 period. He found that the adoption of IFRS produced varying results in countries with different institutional characteristics. Specifically, in England, the level of unconditional and conditional conservatism did not significantly change post-IFRS adoption, whereas in Germany, the level of unconditional conservatism decreased more sharply in businesses that applied accelerated depreciation methods under local GAAP, especially for those with large R&D expenditures [22]. In line with these findings, André et al. (2013) examined the mandatory adoption of IFRS in Europe in 2005 and its impact on conditional conservatism [23]. The study applied three criteria, including the Basu (1997) criterion, to assess conditional conservatism, confirming that IFRS adoption influenced conservatism, albeit in complex ways that differed across countries and industries, particularly with respect to the financial reporting practices and underlying accounting conventions [20]. Collectively, these studies suggest that the transition to IFRS results in nuanced changes in conservatism, influenced by both institutional characteristics and the specific accounting practices in place before IFRS adoption.

The hypothesis that will reveal whether the adoption TMS-TFRS to achieve the study objectives has an effect on conditional conservatism is as follows:

H1: The adoption of Turkish Accounting-Financial Reporting Standards affects the degree of conservatism.

2. Data Set, Hypotheses and Research Models

2.1. Data Contributed to Analysis

In the study, the mandatory and additional financial statements and footnotes of the enterprises were obtained from the official website of BIST 100 and Public Disclosure Platform (KAP) (www.kap.gov.tr). In addition, the closing prices of the stocks of the enterprises were obtained from the FINNET database. The data regarding the observation period were obtained by examining the raw data published in the financial statements of the enterprises and classifying them in accordance with the purpose of the research. The data set, which covers the 12-month financial statements and footnotes for the years 2000-2018, consists of 19 periods and 779 business/year observations belonging to 41 businesses. 34 of the enterprises belong to the Manufacturing sector and 7 of them belong to the Service sector. The distribution of BIST Manufacturing and Service Sector companies included in the scope of the study by sub-sectors is shown in Tables 1 and 2 below.

Table 1. Firm information in The Manufacturing Sector

| Manufacturing Sub-Sectors | Number of Firms |
|--|-----------------|
| Food, Beverage and Tobacco | 4 |
| Textiles, Apparel and Leather | 2 |
| Forest Products and Furniture | 1 |
| Paper and Paper Products, Printing and Publishing | 2 |
| Chemistry Pharmaceutical Petroleum Rubber and Plastic Products | 8 |
| Based on Stone and Soil | 2 |
| Base Metal Industry | 5 |
| Metal Goods Machinery Electrical Devices and Transportation Vehicles | 7 |
| Mining and Quarrying | 1 |
| Other Manufacturing Industry | 2 |
| Total | 34 |

Table 2. Firm information in The Service Sector

| Service Sub-Sectors | Number of Firms |
|--|-----------------|
| Technology | 2 |
| Electricity, Gas and Water | 2 |
| Wholesale and Retail Trade, Restaurants and Hotels | 1 |
| Transportation, Storage and Communication | 2 |
| Total | 7 |

Within the scope of the research, 12 different variables that are accepted as data and evaluated statistically in the enterprises operating in the relevant sectors are as follows:

1) Total Current and Fixed Assets, 2) Cash and Cash Equivalents, 3) Trade Receivables and Other Receivables, 4) Short and Long Term Liabilities, 5) Total Equity, 6) Sales (Revenue), 7) Earnings Before Interest and Taxes and Profit After Interest and Taxes, 8) Total Number of Shares, 9) Cash Flow from Operating Activities, 10) Stock Book Value, 11) Stock Market Value and 12) Earnings Per Share.

In order to reach the data of each business subject to the study, the financial reports of each year were examined one by one. In this context, information on 41 businesses in the Manufacturing and Service sector was collected and included in the analysis within the framework of the criteria given below. The remaining 59 enterprises were not included in the study because they did not meet the specified criteria. The criteria mentioned and based on the collection of data are as follows: 1) Being listed on The Istanbul Stock Exchange (ISE) in 2000 or before. 2) Being active in the stock market between 2000 and 2018 financial periods. 3) Data are not missing between 2000 and 2018 financial period. 4) Banks and financial institutions, investment enterprises, holding and financial leasing enterprises are excluded.

2.2. Model and Variables Used in Relation to TFRS and Conditional Conservatism

In the study, the extended Basu's asymmetric timeliness model was used to test the hypothesis. The basis of the asymmetric timeliness measure developed by Basu (1997: 13) can be expressed as the effect of negative developments is reflected on earnings faster than positive developments. This model measures the asymmetric behavior of losses and gains by linear regression of accounting gains on stock returns. In addition, Basu (1997) used the stock return variable to distinguish between good news and bad news. Since stock prices contain all the information coming to the market from various sources, price changes are a measure of the news flow in the period (Ruch and Taylor, 2015, 23).

The purpose of the asymmetric timeliness relationship in the model is to reflect the bad news, that is, to the book value, by making a provision in the period when the stock market return is negative. However, when an increase in stock market prices occurs, no action is taken until this asset is sold. Therefore, the effect of bad news is reflected in the financial statements of the companies in the current period and the following periods of the good news impulse. However, the effects of bad news and good news are reflected in the market value of the company's stock at the same time and in the same period. Therefore, based on the inverse relationship here, the conditional conservatism level of the enterprises can be measured.

The following panel data regression formula, also known as the Basu model, is used to measure the degree of conservatism, in other words asymmetric timeliness:

$$EPS_{it} / P_{it-1} = b_1 + b_2DR_{it} + b_3RET_{it} + b_4DR_{it} \times RET_{it} + \varepsilon_{it} \quad (1)$$

EPS_{it} : earnings per share, P_{it} : the market value per share, RET_{it} : stock return, DR_{it} : dummy variable. If RET_{it} is negative $DR_{it}=1$ otherwise $DR_{it}=0$.

Basu (1997) wants to show accounting profits (EPS_{it}/P_{it-1}) on stock returns (RET) separately in terms of firm years as "positive economic developments" and "negative economic developments". A firm year is considered to be "positive economic developments" if the stock return is positive or zero, with $RET_{it} > 0$. In a firm year, there are "adverse economic developments" if the stock return is negative and $RET_{it} \leq 0$. The estimated slope coefficients (b_3 and b_4) measure the timing of reflection of the news embodied in stock returns to profits, depending on the nature of economic developments. Besides, the Basu regression model uses a dummy variable (DR) to distinguish between "positive economic developments" and "negative economic developments", and the dummy variable causes the curve coefficients to differ between these two groups. In positive economic developments ($RET_{it} > 0$), $DR=0$ and positive developments timeliness coefficient b_3 . In adverse economic developments ($RET_{it} \leq 0$), $DR = 1$ and the timeliness coefficient of adverse developments ($b_3 + b_4$). b_4 is the asymmetrical temporality coefficient and is the main indicator of conservatism in the Basu model [20]. Therefore, the larger b_4 is than 0, the higher the degree of conservatism will be [24].

Another measure of conditional conservatism is that it has a set of fixed characteristics that previous research has shown to influence conditional conservatism. Three variables (size, market cap-to-book value ratio, and leverage) are used as summary measures of the four Watts (2003) factors (contract, shareholder lawsuits, taxation and accounting regulations) driving the conservatism used by Khan and Watts (2009). In this case, the regression model is as follows [25, 26].

$$\begin{aligned}
\text{EPS}_{it} / \text{P}_{it-1} = & b_1 + b_2 \text{DR}_{it} + b_3 \text{RET}_{it} + b_4 \text{DR}_{it} \times \text{RET}_{it} \\
& + \alpha_5 \text{SIZE}_{it} + \alpha_6 \text{SIZE}_{it} \times \text{DR}_{it} + \alpha_7 \text{SIZE}_{it} \times \text{RET}_{it} + \alpha_8 \text{SIZE}_{it} \times \text{DR}_{it} \times \text{RET}_{it} \\
& + \alpha_9 \text{MTB}_{it} + \alpha_{10} \text{MTB}_{it} \times \text{DR}_{it} + \alpha_{11} \text{MTB}_{it} \times \text{RET}_{it} + \alpha_{12} \text{MTB}_{it} \times \text{DR}_{it} \times \text{RET}_{it} \\
& + \alpha_{13} \text{LEV}_{it} + \alpha_{14} \text{LEV}_{it} \times \text{DR}_{it} + \alpha_{15} \text{LEV}_{it} \times \text{RET}_{it} + \alpha_{16} \text{LEV}_{it} \times \text{DR}_{it} \times \text{RET}_{it} + \zeta_{it}
\end{aligned} \tag{2}$$

SIZE_{it}: logarithm of total assets; MTB_{it}: The market to book ratio market; LEV_{it}: leverage ratio (total liabilities/total assets). All other variables are defined above. In Model (2), the effect of adopting TFRS on conditional conservatism is reflected by the b₄ coefficient.

3. Findings Related to TFRS and Conditional Conservatism

In order to deepen the analysis in the study, the data we collect is divided into different segments and periods, both sectorally and periodically. This data is divided into sections such as All Businesses, Manufacturing Sector and Service Sector, and it is divided into periods before and after TFRS periodically. The above-mentioned table showing the periods in question and the group related to the hypothesis are given in Table 3 below.

Table 3. Periods related to TFRS and conditional conservatism

| Before TFRS | After TFRS |
|-------------|------------|
| 2000-2004 | 2005-2018 |

In this part of the study, the effect of the transition to TMS-TFRS on conditional conservatism, covering the 2000-2004 and 2005-2018 periods, was tested separately on the Manufacturing Sector, Service Sector and All Businesses using the aforementioned extended Basu Model. In order to express the results more concisely, not all of the tables will be included in this title and only the results of the analysis in the relevant title will be explained. All of the tables regarding the results will be presented in the Appendix.

3.1. Findings on The Manufacturing Sector

In this section, the necessary analysis were made by considering the 2000-2004 and 2005-2018 period data of the Manufacturing Sector. Fixed Effects and Random Effects Estimates were created to determine the valid b₄ coefficient in the Basu model for these two periods, and the Hausman Test was performed to determine which of them was valid, and the results are shown in Table 4 and Table 5 below, respectively. Here, tables related to Fixed Effects and Random Effects Estimations are presented in Annex 1 and Annex 2 of the study in order to avoid repetition.

Table 4. Hausman test results for The Manufacturing Sector 2000–2004

| Variable | Fixed Effects Coefficients (b) | Random Effects Coefficients (B) | Difference (b-B) | Std Error $\sqrt{\text{var}(b) - \text{var}(B)}$ |
|--------------------------|--------------------------------|---------------------------------|------------------|--|
| RET | -0,547055 | -0,105099 | 0,0503931 | 0,0575948 |
| DR | -0,007919 | -0,021343 | 0,0134238 | 0,2097918 |
| DR×RET (b ₄) | 0,6615245 | 1,044417 | -0,3828929 | 0,6592328 |

H₀: The appropriate model is the random effects model. In the panel data model, there is no relationship between the error term and the independent variables.

$$\text{Cov}(\alpha_i, x_{it}) = 0 \quad \# \tag{3}$$

H₁: The appropriate model is the fixed effects model. In the panel data model, the relationship between the error term and the independent variables is statistically significant.

$$\text{Cov}(\alpha_i, x_{it}) \neq 0 \quad (4)$$

Which of the Fixed and Random Effects Models will be chosen is a problem determined within the framework of the Hausman test. The Random Effects Model assumes that the correlation between the random variable α_i and the independent variables is zero. In other words, if $\text{Cov}(\alpha_i, x_{it}) = 0$, the Random Effects Model is used. On the other hand, if the correlation between α_i with zero arithmetic mean and independent variables is not equal to zero, then the Fixed Effects Model should be chosen. Therefore, the Fixed Effects Model is valid in the case of $\text{Cov}(\alpha_i, x_{it}) \neq 0$. If the H₀ hypothesis is rejected in the Hausman test, it will be appropriate to use the Fixed Effects Model, and if the H₀ hypothesis is accepted, the Random Effects Model will be used.

According to the Hausman Test Statistics results for the Manufacturing Sector 2000-2004 period; Hausman Test Statistic (χ^2) was calculated as 22.97 and the probability value obtained for this value was found as 0.2902. Since this calculated probability value is greater than the significance level of 0.10, the H₀ hypothesis was accepted. In other words, the Hausman Test shows that the unit effect is random. According to this analysis, the one-way Random Effects Model was adopted. Therefore, as shown in Table 4, the valid b₄ coefficient for the 2000-2004 period is 1.044417.

Table 5. Hausman test results for The Manufacturing Sector 2005–2018

| Variable | Fixed Effects Coefficients (b) | Random Effects Coefficients (B) | Difference (b-B) | Std Error $\sqrt{\text{var}(b) - \text{var}(B)}$ |
|--------------------------|--------------------------------|---------------------------------|------------------|--|
| RET | -0,0063375 | 0,0164133 | -0,0227508 | 0,0048364 |
| DR | 0,1011311 | 0,1091248 | -0,0079937 | 0,0067350 |
| DR×RET (b ₄) | 0,4769366 | 0,4285763 | 0,0483603 | 0,0210425 |

Hausman Test Statistic (χ^2) for the Manufacturing Sector 2005-2018 period was calculated as 23.12 and the probability value obtained for this value was 0.4539. The Null hypothesis could not be rejected because the probability value was greater than the significance level of 0.10. In other words, according to the results of the Manufacturing Sector Hausman Test, the H₀ hypothesis was accepted for the 2005-2018 period. As shown in Table 5, the valid b₄ coefficient according to the Random Effects Model is 0.4285763.

As a result of the analysis, the Panel data regression model results obtained for the Manufacturing Sector 2000-2004 and 2005-2018 periods are shown in Table 6 below. In order to determine whether businesses have a conservative structure, the conservatism coefficient b₄ should be positive and statistically significant.

Table 6. Analysis results for the manufacturing sector 2000-2004 and 2005-2018

| Manufacturing Sector | Before TFRS | After TFRS |
|----------------------------|-------------|------------|
| Periods | 2000-2004 | 2005-2018 |
| P value | 0,015 | 0,011 |
| b ₄ coefficient | 1.044417 | 0.4285763 |

According to the results in Table 6 the P value related to the valid b₄ coefficient in the enterprises in the Manufacturing Sector was statistically significant at the 0.10 significance level in both periods and the valid b₄ coefficient was calculated with a positive sign. The greater b₄ than 0, the higher the degree of conservatism will be. According to this result, when the enterprises in the Manufacturing Sector consider both periods separately, it is

seen that the negative economic developments are reflected in the financial charts before the positive economic developments. However, while the b_4 coefficient was 1.044417 before the adoption of Turkish Accounting-Financial Reporting Standards, this coefficient decreased to 0.4285763 after the adoption of TFRS. Although the b_4 coefficient is positive after the transition to TFRS, it has been observed that its value has decreased. This means that the adoption of Turkish Accounting-Financial Reporting Standards negatively affects the degree of conditional conservatism of enterprises in the Manufacturing Sector. As a result of these findings, the H_1 hypothesis of the first hypothesis of the research was accepted.

3.2. Findings on The Service Sector

In order to determine the b_4 coefficient for the 2000-2004 and 2005-2018 periods in the Service Sector, the Fixed Effects Estimate and the Random Effects Estimate were first created, and then the Hausman Test was performed to determine which of these estimations were valid, and the results were given in Tables 7 and 8, respectively. Fixed Effects and Random Effects Estimation for the 2000-2004 and 2005-2018 periods in the Service Sector are presented in Annex 3 and Annex 4.

Table 7. Service sector 2000–2004 period Hausman test results

| Variable | Fixed Effects Coefficients (b) | Random Effects Coefficients (B) | Difference (b-B) | Std Error $\sqrt{\text{var}(b) - \text{var}(B)}$ |
|------------------|--------------------------------|---------------------------------|------------------|--|
| RET | 0,5484228 | 0,0652848 | 0,4831379 | 0,0000000 |
| DR | 2,0586240 | 0,4541406 | 1,6044840 | 0,3933190 |
| DR×RET (b_4) | 6,0722230 | 1,0615000 | 5,0107230 | 0,0000000 |

According to the Hausman Test Statistics results made within the scope of TFRS and conditional conservatism relationship for the 2000-2004 period for the Service Sector, the Hausman Test Statistics (χ^2) was calculated as 28.23 and the probability value obtained for this value was found to be 0.1042. Since this calculated probability value was greater than the significance level of 0.10, the Null hypothesis could not be rejected and it was decided that the Random Effects Model was the appropriate model. According to this model, the valid b_4 coefficient is 1.0615 (Table 7).

Table 8. Service sector 2005–2018 Hausman test results

| Variable | Fixed Effects Coefficients (b) | Random Effects Coefficients (B) | Difference (b-B) | Std Error $\sqrt{\text{var}(b) - \text{var}(B)}$ |
|------------------|--------------------------------|---------------------------------|------------------|--|
| RET | -0,006204 | -0,016703 | 0,01 | 0,000 |
| DR | -0,235195 | -0,240047 | 0,00 | 0,000 |
| DR×RET (b_4) | -0,141726 | -0,1197390 | -0,01 | 0,000 |

According to the Hausman Test Statistics results for the Service Sector 2005–2018 period, the Hausman Test Statistics (χ^2) was calculated as 21.04 and the probability value obtained for this value was found to be 0.4565. H_0 hypothesis was accepted because the significance level of this value was greater than 0.10. This means that the Random Effects Model is the appropriate model. According to this model, the valid b_4 coefficient is -0.119739 (Table 8).

Table 9. Service sector analysis results for the period 2000-2004 and 2005-2018

| Manufacturing Sector | Before TFRS | After TFRS |
|----------------------|-------------|------------|
| Periods | 2000-2004 | 2005-2018 |
| P value | 0,031 | 0,029 |
| b_4 coefficient | 1.061500 | -0.119739 |

According to the results in Table 9, the P value of the DR×RET (b_4) coefficient was statistically significant in both periods at the 0.10 significance level ($P < 0.10$). After the transition to TFRS, the b_4 coefficient representing the degree of conservatism decreased from 1.061500 to -0.119739. This decrease in the b_4 coefficient shows that the transition to TFRS has decreased the degree of conservatism of the enterprises. For this reason, the H_1 assumption of the first hypothesis of the research has been accepted in the Service Sector. As a result, the adoption of TFRS negatively affected the conditional conservatism degree of businesses in this sector.

1.1. Findings for All Businesses

In this part of the study, analysis were made on the data obtained in the period of 2000-2004 and 2005-2018 within the scope of the first group on All Businesses, and evaluations were made by showing the results in tables. Fixed Effects and Random Effects Estimates were created to determine the b_4 coefficient for the 2000-2004 and 2005-2018 periods, and the Hausman Test was performed to determine which of them was valid, and the results are given in Tables 10 and 11 below. Tables related to Fixed Effects and Random Effects estimations are presented in Annex 5 and Annex 6 of the study.

Table 10. All Businesses 2000–2004 Hausman test results

| Variable | Fixed Effects Coefficients (b) | Random Effects Coefficients (B) | Difference (b-B) | Std Error $\sqrt{\text{var}(b) - \text{var}(B)}$ |
|------------------|--------------------------------|---------------------------------|------------------|--|
| RET | -0,100668 | -0,036515 | -0,06 | 0,052 |
| DR | -0,181915 | -0,081905 | -0,10 | 0,161 |
| DR×RET (b_4) | 0,488792 | 0,713570 | -0,22 | 0,509 |

According to the Hausman Test Statistics results made within the scope of TFRS and conditional conservatism relationship for the 2000-2004 period for all businesses, Hausman Test Statistics (χ^2) was calculated as 30.15 and the probability value obtained for this value was found to be 0.0890. Since this calculated probability value is higher than the significance level of 0.10, it was concluded that the Random Effects Estimation Model is consistent and effective. According to the Random Effects Estimation Model in Table 10, the valid b_4 coefficient is 0.713570.

Table 11. All Businesses 2005–2018 Hausman test results

| Variable | Fixed Effects Coefficients (b) | Random Effects Coefficients (B) | Difference (b-B) | Std Error $\sqrt{\text{var}(b) - \text{var}(B)}$ |
|------------------|--------------------------------|---------------------------------|------------------|--|
| RET | 0,031612 | 0,042376 | -0,01 | 0,002 |
| DR | 0,092753 | 0,086977 | 0,01 | 0,003 |
| DR×RET (b_4) | 0,349839 | 0,305885 | 0,04 | 0,020 |

According to the results of Hausman Test Statistics made for All Enterprises 2005–2018 period, Hausman Test Statistic (χ^2) was calculated as 11.45 and the probability value obtained for this value was found to be 0.9677. The Null hypothesis (H_0) was accepted as the probability value was greater than the significance level of 0.10 ($P > 0.10$). According to this analysis, it was decided that the one-way Random Effect Model is the appropriate model. For this reason, the valid b_4 coefficient is 0.305885, as shown in Table 11.

According to this analysis, it was decided that the one-way Random Effect Model is the appropriate model. For this reason, the valid b_4 coefficient is 0.305885, as shown in Table 11. As a result of the analysis, the test results obtained for the period of All Businesses 2000-2004 and 2005-2018 are shown in Table 12 below.

Table 12. Analysis results for All Businesses 2000-2004 and 2005-2018

| All Businesses | Before TFRS | After TFRS |
|----------------------------|-------------|------------|
| Periods | 2000-2004 | 2005-2018 |
| P value | 0,000 | 0,000 |
| b ₄ coefficient | 0.71357 | 0.305885 |

According to the results in Table 12, the P value related to the valid b₄ coefficient was found to be at a significance level of 0.10, and a statistically significant difference was found in All Businesses in both periods. While the b₄ coefficient was 0.71357 before the adoption of TFRS (2000-2004 period), this coefficient decreased to 0.305885 after the adoption of TFRS (2005-2018 period). Although the b₄ coefficient was positive after the adoption of TFRS, it was observed that the value of this coefficient decreased compared to the period before the adoption of TFRS.

4. Discussion and Conclusion

According to these results, the adoption of TFRS negatively affected the degree of conservatism. For this reason, the H₁ assumption of the first hypothesis of the research was accepted in terms of All Businesses. In other words, the adoption of Turkish Accounting-Financial Reporting Standards negatively affects the degree of conservatism of enterprises. This finding emerged as an expected and expected result in the hypothesis development part of the study. This result was also reported by previous studies [14, 23, 27, 28].

The phenomenon of globalization of capital markets has brought transparency and timely presentation of financial reporting to the agenda in the use of accounting information. One of the qualitative features that ensure the correct fulfillment of these requirements is conservatism in accounting. Conservatism is one of the oldest concepts in accounting, and conservatism, which affects accounting practices in businesses, is a concept directly related to the reliability of the information presented in financial statements. Intensive efforts to harmonize the international financial reporting system with Türkiye, as an effect of globalization and as a part of the efforts for full membership to the European Union, are indicators of the importance given to this issue. As a result of these studies, in Türkiye, a voluntary financial reporting system based on IFRS was adopted in 2003, and a mandatory requirement since 2005. It is an expected result that the change brought by the new financial reporting system to financial reporting in terms of capital markets will reflect on the financial statements and therefore on the conservatism. In the study, firstly, two hypotheses were established to reveal whether the transition to TFRS has an effect on conditional conservatism in order to achieve the desired objectives. In the data set, the period between 2000-2018 was taken as a basis and the period in question was divided into two and analyzed in order to measure the effects of TFRS, which was voluntarily implemented in Türkiye in 2003, and which became obligatory since 2005, on conditional conservatism. Therefore, while the period between 2000-2004 represents the financial reporting period based on historical costs, the period between 2005-2018 represents the financial reporting period in line with TFRS.

In the application, "Panel Regression Analysis" was used to ensure that the data of each enterprise are handled together with each other and with the trend it has shown over time. In addition, one of the Fixed Effects or Random Effects Models was preferred with the Hausman test statistics method and the findings were evaluated accordingly. Basu's asymmetric timeliness model was used and taken as a reference to test the effect of the transition to TFRS in Türkiye on conditional conservatism. Looking at the basis of the asymmetric timeliness criterion developed by Basu

(1997), it is based on the fact that the effect of negative developments is reflected in earnings faster than positive developments. The model in question measures the asymmetric behavior of losses and gains and the effect of accounting gain on stock returns with linear regression, and the effect of transition to TFRS on conditional conservatism is expressed with the b_4 coefficient in the Basu model. The b_4 coefficient is the asymmetric timeliness coefficient and is the main indicator of conservatism in the Basu model, and the larger b_4 is from 0, the higher the degree of conservatism. In order to investigate the effect of transition to TFRS on conditional conservatism in detail and comparatively, the findings were tested separately in 3 aspects, namely Manufacturing Sector, Service Sector and All Businesses, using the expanded Basu Model.

Considering the hypotheses in the study and the results obtained; According to the analysis results obtained within the scope of the 2000-2004 and 2005-2018 periods of the research hypothesis, after the transition to TFRS, there was a decrease in the b_4 coefficient in the Manufacturing Sector, Service Sector and All Businesses. This shows that the transition to TFRS negatively affects the level of conditional conservatism in all three categories. According to these results, there is a significant and negative relationship between TFRS and the degree of conditional conservatism. As a matter of fact, the H_1 assumption of the first hypothesis of the research is thus accepted.

In terms of helping the studies to be carried out on our study and guiding the researches to be done in the future; It is thought that the differentiation of the effect of the said relationship between periods and on sectors at some points will open the door to new researches together with other empirical studies, as well as bring different perspectives to the literature. In addition, the use of other methods to determine the impact of the transition to TFRS on the degree of conditional conservatism, especially the use of the Accruals and Cash Flows Relation Method and the comparison of the analysis results obtained according to this method with the results of the Earnings Per Share and Stock Return Relation Method, which we used in our research, will reveal important results.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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APPENDICES

ANNEX 1. Analysis results of Fixed Effects and Random Effects Estimation (Model) for the Manufacturing Sector 2000-2004 period

Fixed Effects Estimation for the Manufacturing Sector 2000–2004

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-------------|------------|-------|---------|-------------------------|------------|
| RET | -0,054706 | 0,118867 | -0,46 | 0,646 | -0,2901586 | 0,1807477 |
| DR | -0,007919 | 0,395790 | -0,02 | 0,984 | -0,7919027 | 0,7760647 |
| DR×RET (b₄) | 0,661525 | 1,442531 | 0,46 | 0,647 | -2,1958520 | 3,5189010 |
| SIZE | -0,068905 | 0,032694 | -2,11 | 0,037 | -0,1336657 | -0,0041434 |
| SIZE×DR | -0,012255 | 0,057097 | -0,21 | 0,830 | -0,1253528 | 0,1008423 |
| SIZE×RET | -0,000165 | 0,022492 | -0,01 | 0,994 | -0,0447176 | 0,0443885 |
| SIZE×DR×RET | -0,147845 | 0,208594 | -0,71 | 0,480 | -0,5610301 | 0,2653404 |
| MTB | 0,013666 | 0,015442 | 0,88 | 0,378 | -0,0169222 | 0,0442540 |
| MTB×DR | -0,091352 | 0,034291 | -2,66 | 0,009 | -0,1592744 | -0,0234287 |
| MTB×RET | -0,019794 | 0,011975 | -1,65 | 0,101 | -0,0435143 | 0,0039258 |
| MTB×DR×RET | -0,344674 | 0,105077 | -3,28 | 0,001 | -0,5528111 | -0,1365376 |
| LEV | -0,426879 | 0,063647 | -6,71 | 0,000 | -0,5529520 | -0,3008059 |
| LEV×DR | 0,248357 | 0,207244 | 1,20 | 0,233 | -0,1621529 | 0,6588660 |
| LEV×RET | 0,271203 | 0,070495 | 3,85 | 0,000 | 0,1315648 | 0,4108402 |
| LEV×DR×RET | 0,325697 | 0,604509 | 0,54 | 0,591 | -0,8717178 | 1,5231120 |
| Fixed Term | 0,589970 | 0,178894 | 3,30 | 0,001 | 0,2356152 | 0,9443254 |

Random Effects Estimation for the Manufacturing Sector 2000–2004

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|------------|--------|--------------|-------------------------|------------|
| RET | -0,105099 | 0,103982 | -1,01 | 0,312 | -0,3088996 | 0,0987025 |
| DR | -0,021343 | 0,335615 | -0,06 | 0,949 | -0,6791351 | 0,6364495 |
| DR×RET (b₄) | 1,044417 | 0,429801 | 2,43 | 0,015 | -1,4703840 | 3,5592190 |
| SIZE | -0,011966 | 0,014697 | -0,81 | 0,416 | -0,0407720 | 0,0168397 |
| SIZE×DR | -0,011820 | 0,048673 | -0,24 | 0,808 | -0,1072170 | 0,0835771 |
| SIZE×RET | 0,005791 | 0,019564 | 0,30 | 0,767 | -0,0325539 | 0,0441356 |
| SIZE×DR×RET | -0,212105 | 0,187580 | -1,13 | 0,258 | -0,5797553 | 0,1555448 |
| MTB | 0,013833 | 0,010989 | 1,26 | 0,208 | -0,0077053 | 0,0353713 |
| MTB×DR | -0,076428 | 0,031675 | -2,41 | 0,016 | -0,1385099 | -0,0143452 |
| MTB×RET | -0,021246 | 0,010230 | -2,08 | 0,038 | -0,0412971 | -0,0011951 |
| MTB×DR×RET | -0,311041 | 0,096313 | -3,23 | 0,001 | -0,4998109 | -0,1222719 |
| LEV | -0,412419 | 0,038303 | -10,77 | 0,000 | -0,4874922 | -0,3373464 |
| LEV×DR | 0,224886 | 0,180961 | 1,24 | 0,214 | -0,1297909 | 0,5795627 |
| LEV×RET | 0,292980 | 0,063363 | 4,62 | 0,000 | 0,1687906 | 0,4171691 |
| LEV×DR×RET | 0,254829 | 0,525031 | 0,49 | 0,627 | -0,7742137 | 1,2838710 |
| Fixed Term | 0,326561 | 0,084916 | 3,85 | 0,000 | 0,1601283 | 0,4929944 |

ANNEX 2. Analysis results of Fixed Effects and Random Effects Estimation (Model) for the Manufacturing Sector 2005-2018 period

Fixed Effects Estimation for the Manufacturing Sector 2005–2018

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|-----------------|-------------|--------------|-------------------------|------------------|
| RET | -0,006338 | 0,047204 | -0,13 | 0,893 | -0,0991241 | 0,0864492 |
| DR | 0,101131 | 0,082481 | 1,23 | 0,221 | -0,0609974 | 0,2632597 |
| DR×RET (b₁) | 0,476937 | 0,233029 | 2,05 | 0,041 | 0,0188861 | 0,9349871 |
| SIZE | 0,066910 | 0,013077 | 5,12 | 0,000 | 0,0412054 | 0,0926150 |
| SIZE×DR | -0,020482 | 0,014695 | -1,39 | 0,164 | -0,0493680 | 0,0084034 |
| SIZE×RET | -0,000045 | 0,009479 | 0,00 | 0,996 | -0,0186758 | 0,0185868 |
| SIZE×DR×RET | -0,087286 | 0,041291 | -2,11 | 0,035 | -0,1684501 | -0,0061219 |
| MTB | 0,003321 | 0,003428 | 0,97 | 0,333 | -0,0034168 | 0,0100593 |
| MTB×DR | -0,016946 | 0,006205 | -2,73 | 0,007 | -0,0291420 | -0,0047497 |
| MTB×RET | 0,000027 | 0,001379 | 0,02 | 0,984 | -0,0026841 | 0,0027378 |
| MTB×DR×RET | -0,128679 | 0,029881 | -4,31 | 0,000 | -0,1874128 | -0,0699442 |
| LEV | -0,286257 | 0,030803 | -9,29 | 0,000 | -0,3468042 | -0,2257104 |
| LEV×DR | 0,068259 | 0,047782 | 1,43 | 0,154 | -0,0256636 | 0,1621807 |
| LEV×RET | 0,031806 | 0,033424 | 0,95 | 0,342 | -0,0338943 | 0,0975066 |
| LEV×DR×RET | 0,300216 | 0,132154 | 2,27 | 0,024 | 0,0404479 | 0,5599844 |
| Fixed Term | -.1734258 | .0836609 | -2.07 | 0.039 | -.3378731 | -.0089784 |

Random Effects Estimation for the Manufacturing Sector 2005–2018

| Variable | Coefficien | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|-----------------|-------------|--------------|-------------------------|------------------|
| RET | 0,016413 | 0,046956 | 0,35 | 0,727 | -0,0756184 | 0,1084450 |
| DR | 0,109125 | 0,082206 | 1,33 | 0,184 | -0,0519956 | 0,2702452 |
| DR×RET (b₁) | 0,428576 | 0,129872 | 3,30 | 0,011 | -0,0262852 | 0,8834377 |
| SIZE | 0,042954 | 0,009917 | 4,33 | 0,000 | 0,0235176 | 0,0623894 |
| SIZE×DR | -0,022689 | 0,014645 | -1,55 | 0,121 | -0,0513921 | 0,0060143 |
| SIZE×RET | -0,004465 | 0,009447 | -0,47 | 0,636 | -0,0229805 | 0,0140497 |
| SIZE×DR×RET | -0,080155 | 0,041158 | -1,95 | 0,051 | -0,1608233 | 0,0005129 |
| MTB | 0,006484 | 0,003117 | 2,08 | 0,037 | 0,0003753 | 0,0125928 |
| MTB×DR | -0,020660 | 0,006156 | -3,36 | 0,001 | -0,0327248 | -0,0085954 |
| MTB×RET | -0,000464 | 0,001361 | -0,34 | 0,733 | -0,0031316 | 0,0022029 |
| MTB×DR×RET | -0,151288 | 0,029392 | -5,15 | 0,000 | -0,2088949 | -0,0936803 |
| LEV | -0,263050 | 0,027976 | -9,40 | 0,000 | -0,3178816 | -0,2082180 |
| LEV×DR | 0,086926 | 0,047280 | 1,84 | 0,066 | -0,0057403 | 0,1795921 |
| LEV×RET | 0,041898 | 0,033273 | 1,26 | 0,208 | -0,0233163 | 0,1071127 |
| LEV×DR×RET | 0,332228 | 0,131322 | 2,53 | 0,011 | 0,0748426 | 0,5896133 |
| Fixed Term | -0,028053 | 0,0592559 | -0,47 | 0,636 | -0,1441926 | 0,0880863 |

ANNEX 3. Analysis results of Fixed Effects and Random Effects Estimation (Model) for the Service Sector 2000-2004 period

Fixed Effects Estimation for the Service Sector 2000–2004

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|------------------|----------------|-------------|--------------|-------------------------|-----------------|
| RET | 0,5484228 | 0,4756111 | 1,15 | 0,282 | -0,5483384 | 1,645184 |
| DR | 2,0586240 | 1,188419 | 1,73 | 0,121 | -0,681874 | 4,799123 |
| DR×RET (b₁) | 6,0722230 | 3,91854 | 1,55 | 0,016 | -2,963946 | 15,10839 |
| SIZE | 0,0954802 | 0,1072786 | 0,89 | 0,399 | -0,1519047 | 0,342865 |
| SIZE×DR | -0,3188596 | 0,1989871 | -1,6 | 0,148 | -0,7777247 | 0,1400055 |
| SIZE×RET | -0,0427350 | 0,0783935 | -0,55 | 0,601 | -0,2235107 | 0,1380406 |
| SIZE×DR×RET | -0,8958741 | 0,6464839 | -1,39 | 0,203 | -2,386669 | 0,5949205 |

| | | | | | | |
|------------|------------|-----------|-------|-------|------------|------------|
| MTB | 0,0547021 | 0,0126529 | 4,32 | 0,003 | 0,0255246 | 0,0838797 |
| MTB×DR | -0,1503810 | 0,0671705 | -2,24 | 0,056 | -0,3052765 | 0,0045144 |
| MTB×RET | -0,1039939 | 0,0194831 | -5,34 | 0,001 | -0,1489221 | -0,0590657 |
| MTB×DR×RET | -0,3403041 | 0,309839 | -1,1 | 0,304 | -1,054794 | 0,3741859 |
| LEV | -0,1864959 | 0,1740145 | -1,07 | 0,315 | -0,5877739 | 0,2147822 |
| LEV×DR | -0,3105855 | 0,2202954 | -1,41 | 0,196 | -0,8185877 | 0,1974166 |
| LEV×RET | -0,4669165 | 0,2765094 | -1,69 | 0,13 | -1,104548 | 0,1707152 |
| LEV×DR×RET | -1,7699240 | 0,9825226 | -1,8 | 0,109 | -4,035625 | 0,4957772 |
| Fixed Term | -0,2113425 | 0,6131285 | -0,34 | 0,739 | -1,625219 | 1,202534 |

Random Effects Estimation for the Service Sector 2000–2004

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|------------------|------------|-------|--------------|-------------------------|------------|
| RET | 0,0652848 | 0,5290843 | 0,12 | 0,902 | -0,9717013 | 1,1022710 |
| DR | 0,4541406 | 1,1214450 | 0,40 | 0,686 | -1,7438510 | 2,6521330 |
| DR×RET (b₄) | 1,0615000 | 0,4891705 | 2,17 | 0,031 | -7,2295250 | 9,3525250 |
| SIZE | 0,0297937 | 0,0613570 | 0,49 | 0,627 | -0,0904637 | 0,1500511 |
| SIZE×DR | -0,0894916 | 0,1847728 | -0,48 | 0,628 | -0,4516396 | 0,2726564 |
| SIZE×RET | 0,0066705 | 0,0916754 | 0,07 | 0,942 | -0,1730100 | 0,1863509 |
| SIZE×DR×RET | -0,2018755 | 0,6762372 | -0,30 | 0,765 | -1,5272760 | 1,1235250 |
| MTB | 0,0421214 | 0,0128436 | 3,28 | 0,001 | 0,0169483 | 0,0672944 |
| MTB×DR | -0,0834307 | 0,0729319 | -1,14 | 0,253 | -0,2263746 | 0,0595133 |
| MTB×RET | -0,0859295 | 0,0226925 | -3,79 | 0,000 | -0,1304060 | -0,0414530 |
| MTB×DR×RET | -0,1108575 | 0,3522618 | -0,31 | 0,753 | -0,8012779 | 0,5795628 |
| LEV | -0,2389889 | 0,1103272 | -2,17 | 0,030 | -0,4552262 | -0,0227516 |
| LEV×DR | 0,2173014 | 0,2153950 | 1,01 | 0,313 | -0,2048649 | 0,6394678 |
| LEV×RET | -0,0231200 | 0,2673425 | -0,09 | 0,931 | -0,5471018 | 0,5008617 |
| LEV×DR×RET | 0,1771319 | 1,1621830 | 0,15 | 0,879 | -2,1007050 | 2,4549690 |
| Fixed Term | 0,0102328 | 0,3288263 | 0,03 | 0,975 | -0,6342549 | 0,6547205 |

ANNEX 4. Analysis results of Fixed Effects and Random Effects Estimation (Model) for the Service Sector 2005-2018 period

Fixed Effects Estimation for the Service Sector 2005–2018

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|------------------|------------|-------|---------|-------------------------|-----------|
| RET | -0,006204 | 0,067926 | -0,09 | 0,927 | -0,1417121 | 0,1293045 |
| DR | -0,235195 | 0,169483 | -1,39 | 0,170 | -0,5733037 | 0,1029145 |
| DR×RET (b₄) | -0,141726 | 0,510621 | -0,28 | 0,782 | -1,1603860 | 0,8769341 |
| SIZE | -0,027844 | 0,021057 | -1,32 | 0,190 | -0,0698505 | 0,0141625 |
| SIZE×DR | 0,020401 | 0,026160 | 0,78 | 0,438 | -0,0317866 | 0,0725892 |
| SIZE×RET | -0,007055 | 0,011873 | -0,59 | 0,554 | -0,0307413 | 0,0166304 |
| SIZE×DR×RET | -0,024635 | 0,088435 | -0,28 | 0,781 | -0,2010582 | 0,1517889 |
| MTB | -0,001333 | 0,003228 | -0,41 | 0,681 | -0,0077714 | 0,0051059 |
| MTB×DR | -0,019497 | 0,015581 | -1,25 | 0,215 | -0,0505793 | 0,0115851 |
| MTB×RET | 0,008418 | 0,005334 | 1,58 | 0,119 | -0,0022227 | 0,0190591 |
| MTB×DR×RET | -0,090356 | 0,054856 | -1,65 | 0,104 | -0,1997896 | 0,0190783 |
| LEV | -0,127583 | 0,067856 | -1,88 | 0,064 | -0,2629521 | 0,0077862 |
| LEV×DR | 0,171816 | 0,085952 | 2,00 | 0,050 | 0,0003463 | 0,3432859 |
| LEV×RET | 0,071697 | 0,050555 | 1,42 | 0,161 | -0,0291569 | 0,1725518 |
| LEV×DR×RET | 0,619218 | 0,223667 | 2,77 | 0,007 | 0,1730155 | 1,0654210 |
| Fixed Term | 0,409623 | 0,1303592 | 3,14 | 0,002 | 0,1495636 | 0,6696825 |

Random Effects Estimation for the Service Sector 2005–2018

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-------------------|------------|-------|--------------|-------------------------|------------|
| RET | -0,0167030 | 0,083250 | -0,20 | 0,841 | -0,1798694 | 0,1464634 |
| DR | -0,2400470 | 0,200480 | -1,20 | 0,231 | -0,6329814 | 0,1528873 |
| DR×RET (b₄) | -0,1197390 | 0,054855 | -2,18 | 0,029 | -0,0122261 | 0,2272518 |
| SIZE | 0,0429210 | 0,017840 | 2,41 | 0,016 | 0,0079550 | 0,0778879 |
| SIZE×DR | 0,0136000 | 0,031417 | 0,43 | 0,665 | -0,0479765 | 0,0751766 |
| SIZE×RET | -0,0082910 | 0,013983 | -0,59 | 0,553 | -0,0356965 | 0,0191145 |
| SIZE×DR×RET | -0,0234320 | 0,097907 | -0,24 | 0,811 | -0,2153266 | 0,1684627 |
| MTB | 0,0005540 | 0,003936 | 0,14 | 0,888 | -0,0071601 | 0,0082689 |
| MTB×DR | -0,0114560 | 0,019271 | -0,59 | 0,552 | -0,0492260 | 0,0263145 |
| MTB×RET | 0,0008700 | 0,006356 | 0,14 | 0,891 | -0,0115865 | 0,0133271 |
| MTB×DR×RET | -0,0491040 | 0,066755 | -0,74 | 0,462 | -0,1799408 | 0,0817323 |
| LEV | -0,2341890 | 0,065150 | -3,59 | 0,000 | -0,3618808 | -0,1064973 |
| LEV×DR | 0,2290750 | 0,097241 | 2,36 | 0,018 | 0,0384859 | 0,4196635 |
| LEV×RET | -0,1290750 | 0,581902 | -0,22 | 0,824 | -1,2695820 | 1,0114320 |
| LEV×DR×RET | 0,5295520 | 0,255672 | 2,07 | 0,038 | 0,0284445 | 1,0306590 |
| Fixed Term | -0,033625 | 0,1159344 | -0,29 | 0,772 | -0,2608523 | 0,1936023 |

ANNEX 5. Analysis results of Fixed Effects and Random Effects Estimation (Model) for the All Businesses 2000–2004 period

Fixed Effects Estimation for the All Businesses 2000–2004

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|------------|-------|---------|-------------------------|------------|
| RET | -0,100668 | 0,112985 | -0,89 | 0,374 | -0,3240048 | 0,1226685 |
| DR | -0,181915 | 0,322951 | -0,56 | 0,574 | -0,8202893 | 0,4564597 |
| DR×RET (b₄) | 0,365260 | 0,147244 | 2,48 | 0,014 | 0,0742039 | 0,6563159 |
| SIZE | -0,054892 | 0,031322 | -1,75 | 0,082 | -0,1168052 | 0,0070213 |
| SIZE×DR | 0,008532 | 0,049613 | 0,17 | 0,864 | -0,0895375 | 0,1066004 |
| SIZE×RET | 0,005692 | 0,021409 | 0,27 | 0,791 | -0,0366272 | 0,0480106 |
| SIZE×DR×RET | -0,130156 | 0,179369 | -0,73 | 0,469 | -0,4847137 | 0,2244018 |
| MTB | -0,000753 | 0,005182 | -0,15 | 0,885 | -0,0109954 | 0,0094905 |
| MTB×DR | -0,083254 | 0,022724 | -3,66 | 0,000 | -0,1281724 | -0,0383362 |
| MTB×RET | -0,016888 | 0,007304 | -2,31 | 0,022 | -0,0313257 | -0,0024497 |
| MTB×DR×RET | -0,328448 | 0,093807 | -3,50 | 0,001 | -0,5138757 | -0,1430197 |
| LEV | -0,435014 | 0,058806 | -7,40 | 0,000 | -0,5512546 | -0,3187738 |
| LEV×DR | 0,488792 | 1,207202 | 0,40 | 0,686 | -1,8974740 | 2,8750590 |
| LEV×RET | 0,301773 | 0,065898 | 4,58 | 0,000 | 0,1715133 | 0,4320326 |
| LEV×DR×RET | 0,487174 | 0,478055 | 1,02 | 0,310 | -0,4577935 | 1,4321410 |
| Fixed Term | 0,587556 | 0,173543 | 3,39 | 0,001 | 0,2445149 | 0,9305964 |

Random Effects Estimation for the All Businesses 2000–2004

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|------------|-------|--------------|-------------------------|------------|
| RET | -0,036515 | 0,100123 | -0,36 | 0,715 | -0,2327533 | 0,1597234 |
| DR | -0,081905 | 0,280013 | -0,29 | 0,770 | -0,6307209 | 0,4669113 |
| DR×RET (b₄) | 0,713570 | 0,150861 | 4,73 | 0,000 | -1,4315630 | 2,8587030 |
| SIZE | 0,003916 | 0,013549 | 0,29 | 0,773 | -0,0226388 | 0,0304707 |
| SIZE×DR | -0,012505 | 0,043293 | -0,29 | 0,773 | -0,0973566 | 0,0723468 |
| SIZE×RET | -0,007142 | 0,018863 | -0,38 | 0,705 | -0,0441132 | 0,0298290 |
| SIZE×DR×RET | -0,176106 | 0,164949 | -1,07 | 0,286 | -0,4993993 | 0,1471871 |
| MTB | 0,004802 | 0,004536 | 1,06 | 0,290 | -0,0040894 | 0,0136923 |
| MTB×DR | -0,062899 | 0,020882 | -3,01 | 0,003 | -0,1038259 | -0,0219719 |

| | | | | | | |
|------------|-----------|----------|--------|-------|------------|------------|
| MTB×RET | -0,016037 | 0,006533 | -2,45 | 0,014 | -0,0288414 | -0,0032327 |
| MTB×DR×RET | -0,305878 | 0,084028 | -3,64 | 0,000 | -0,4705701 | -0,1411857 |
| LEV | -0,388633 | 0,034806 | -11,17 | 0,000 | -0,4568509 | -0,3204150 |
| LEV×DR | 0,325331 | 0,130241 | 2,50 | 0,012 | 0,0700625 | 0,5805985 |
| LEV×RET | 0,278571 | 0,060378 | 4,61 | 0,000 | 0,1602321 | 0,3969093 |
| LEV×DR×RET | 0,551913 | 0,416993 | 1,32 | 0,186 | -0,2653790 | 1,3692040 |
| Fixed Term | 0,248374 | 0,076932 | 3,23 | 0,001 | 0,0975900 | 0,3991576 |

ANNEX 6. Analysis results of Fixed Effects and Random Effects Estimation (Model) for the All Businesses 2005-2018 period

Fixed Effects Estimation for the All Businesses 2005–2018

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|-----------------|-------------|--------------|-------------------------|------------------|
| RET | 0,031612 | 0,038938 | 0,81 | 0,417 | -0,0448864 | 0,1081096 |
| DR | 0,092753 | 0,073161 | 1,27 | 0,205 | -0,0509814 | 0,2364876 |
| DR×RET (b₄) | 0,349839 | 0,210658 | 1,66 | 0,097 | -0,0640261 | 0,7637033 |
| SIZE | 0,068472 | 0,010961 | 6,25 | 0,000 | 0,0469382 | 0,0900055 |
| SIZE×DR | -0,020536 | 0,012827 | -1,60 | 0,110 | -0,0457356 | 0,0046631 |
| SIZE×RET | -0,009064 | 0,007636 | -1,19 | 0,236 | -0,0240662 | 0,0059380 |
| SIZE×DR×RET | -0,060325 | 0,037345 | -1,62 | 0,107 | -0,1336940 | 0,0130447 |
| MTB | 0,001365 | 0,002562 | 0,53 | 0,594 | -0,0036678 | 0,0063972 |
| MTB×DR | -0,004968 | 0,005151 | -0,96 | 0,335 | -0,0150865 | 0,0051514 |
| MTB×RET | 0,000439 | 0,001228 | 0,36 | 0,721 | -0,0019730 | 0,0028515 |
| MTB×DR×RET | -0,026152 | 0,017280 | -1,51 | 0,131 | -0,0601001 | 0,0077968 |
| LEV | -0,276050 | 0,028524 | -9,68 | 0,000 | -0,3320887 | -0,2200116 |
| LEV×DR | 0,065681 | 0,042207 | 1,56 | 0,120 | -0,0172402 | 0,1486028 |
| LEV×RET | 0,059043 | 0,027765 | 2,13 | 0,034 | 0,0044951 | 0,1135917 |
| LEV×DR×RET | 0,116283 | 0,110939 | 1,05 | 0,295 | -0,1016713 | 0,3342377 |
| Fixed Term | -0,167129 | 0,731987 | -2,28 | 0,023 | -0,3109371 | -0,0233208 |

Random Effects Estimation for the All Businesses 2005–2018

| Variable | Coefficient | Std. Error | t | P value | 95% Confidence Interval | |
|-------------------------------|-----------------|-----------------|-------------|--------------|-------------------------|------------------|
| RET | 0,042376 | 0,038902 | 1,09 | 0,276 | -0,0338707 | 0,1186224 |
| DR | 0,086977 | 0,073100 | 1,19 | 0,234 | -0,0562964 | 0,2302501 |
| DR×RET (b₄) | 0,305885 | 0,040090 | 7,63 | 0,000 | -0,1050459 | 0,7168159 |
| SIZE | 0,050360 | 0,008572 | 5,87 | 0,000 | 0,0335589 | 0,0671605 |
| SIZE×DR | -0,019850 | 0,012821 | -1,55 | 0,122 | -0,0449783 | 0,0052782 |
| SIZE×RET | -0,010957 | 0,007638 | -1,43 | 0,151 | -0,0259272 | 0,0040130 |
| SIZE×DR×RET | -0,052819 | 0,037151 | -1,42 | 0,155 | -0,1256332 | 0,0199948 |
| MTB | 0,003330 | 0,002435 | 1,37 | 0,171 | -0,0014429 | 0,0081030 |
| MTB×DR | -0,005304 | 0,005174 | -1,03 | 0,305 | -0,0154454 | 0,0048376 |
| MTB×RET | 0,000252 | 0,001226 | 0,21 | 0,837 | -0,0021499 | 0,0026539 |
| MTB×DR×RET | -0,026590 | 0,017274 | -1,54 | 0,124 | -0,0604470 | 0,0072673 |
| LEV | -0,256656 | 0,025739 | -9,97 | 0,000 | -0,3071041 | -0,2062081 |
| LEV×DR | 0,072149 | 0,041971 | 1,72 | 0,086 | -0,0101123 | 0,1544100 |
| LEV×RET | 0,062133 | 0,027767 | 2,24 | 0,025 | 0,0077099 | 0,1165555 |
| LEV×DR×RET | 0,114764 | 0,110250 | 1,04 | 0,298 | -0,1013228 | 0,3308503 |
| Fixed Term | -0,0635549 | 0,0522549 | -1,22 | 0,224 | -0,1659727 | 0,0388629 |