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'Big 4' influence on audit market

Abstract

The main purpose of this paper is to determine the impact that Big 4 companies have had after the adoption of International Financial Reporting Standards (IFRS) became mandatory on the audit market. Thus, after thorough research of the specialised studies, the impact of the financial reporting based on IFRS is analysed, while considering that Big 4 companies have created a strong monopoly that led to several changes on the audit market. All the companies listed on the Bucharest Stock Exchange that traded premium shares from 2011 to 2019 were analysed. With the use of ANOVA analysis, this paper verifies if the profitability, shareholders' funds, firm size and the size of the business group influence the choice of the audit firm. Our results confirm that the choice of an audit firm is influenced by the shareholders' funds, number of employees and the size of the business group. Besides, this paper presents an analysis of the changes that have occurred from 2011–2019 on the audit market of Romania.

Keywords

IFRS | Big 4 | audit fees | financial reporting | accounting standards | monopoly | audit market

JEL Codes

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1 Introduction

The objective of this study is to analyse the impact of financial reporting according to the International Financial Reporting Standards (IFRS) and the role of Big 4 companies on the audit market. In this context, all the companies listed on the Bucharest Stock Exchange, type of shares and premium for the period 2011–2019 were analysed.

As Ball (2014) states, accounting is the direct result of modelling economic and political factors, which lead intrinsically to the harmonisation of accounting standards. The private organisation, the International Accounting Standards Board (IASB), was established in 1973 in London. It issues a set of standards that are used to prepare financial statements: International Accounting Standards (IAS) that was issued by the IASB until the end of 2001 and IFRSs. Currently, when we use the term IFRS, we refer to the set of rules (IAS/IFRS). The adoption of IFRS, at the European Union level, has increased the credibility of the IASB body worldwide (Brown and Preiato, 2013). In other words, globalisation creates the necessity of having one set of standards for financial reporting and the appearance of Big 4 companies is only the intrinsic result of the actual context.

Moreover, globalisation is the proper word that characterises the 21st century, which leads intrinsically to a global set of standards, given that the number of multinationals has increased lately. As for the direct impact that Big 4 companies have on the global convergence of accounting and auditing standards, those in charge of Big 4 have always expressed their desire for a single global set of high-quality standards. Financial reporting according to IFRS has led to a transition involving a re-qualification of the auditors, a total restructuring at the level of software/technological platforms, specialised training for those who use the financial statements and last but not least, the existence of the regulatory systems aligned for the IFRS. The appearance of IFRS maximised the level of globalisation and the harmonisation of accounting and finance regulations and encouraged the accountants with different habits to embed distinct national and international cultures (Ball, Robin, & Wu, 2003). With the raising of globalisation, convergence with international standards concerning financial reporting has attained a necessary and very used option. In

2005, EC Regulation No. 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards, which apply to listed companies concerning the preparation of consolidated accounts, has been settled into effect with an important view to increasing the transparency of the entire financial reporting. Nowadays, these standards are accepted in 175 countries and the figures continue to increase every year (IASB, 2018).

The higher level of competition and the insertion of new information technologies determine the internalisation and the globalisation of the whole world (Burns & Baldvinsdottir, 2005). Consolidating the accounting profession is the main outcome of closure for increasing the protection from the different professional clusters. The dynamic in the time of accountants was deeply influenced by the globalisation of economies and the frequent exchanges in the business circumstances (Elliot & Jacobson, 2002). Moreover, Jeacle (2008) defines accounting as 'the language of the businesses.

Audit services appeared because of the big lack of trust between agents and principals. The main function of the audit is to enhance the confidence between parties. Anyway, poor quality in auditing will diminish the principal aim of the services. Martin Bauman, the chief auditor of the Public Company Accounting Oversight Board (PCAOB) emphasised, 'Audit self-regulation is dead and independent audit regulation and oversight, around the globe, is alive and well'. The chair of the International Forum of Independent Audit Regulators (IFIAR), Lewis Ferguson mentioned that 'the high rate and severity of inspection deficiencies in critical aspects of the audit, and at some of the world's largest and systematically important financial institutions, is a wake-up call to firms and regulators alive'. The vice-chair of IFIAR Janine van Diggelen highlights that audit quality is altered by consulting services and the profitability considering the development of the increased management consulting practice.

In this paper, the hypothesis that the number of firms audited by the Big 4 has increased over time under IFRS and a strong monopoly that has led to several changes on the audit market is investigated. An analysis was performed of all the companies listed on the Bucharest Stock Exchange, type of shares, premium, for the period 2011–2019 by making use of the ANOVA statistical model. The considered dependent variables that were tested to investigate their influence on the choice of the audit firm were by profit/loss, shareholders' funds, the number of employees of a company, profit margin and the number of companies in the corporate group. The structure of the paper includes literature review, research methodology, results and the general conclusions of the research. The literature review supports that the adoption of IFRS has increased in time the number of Big 4 clients, which has led to several changes on the audit market. The methodology comprises the impact of the dependent variables profit/loss, shareholders' funds, the number of employees of a company, profit margin and the number of companies in the corporate group on the independent variable concerning auditor's choice. The results show that the variable shareholders' funds, the number of employees and the number of companies in the corporate group are statistically significant to influence the selection of audit firms, taking into consideration the two categories of auditors: Big 4/non-Big 4.

2 Literature Review

On a global level, the adoption of IFRS has led to an increase in empirical research to improve the quality of financial reports, by systematically increasing value (Chalmers, Clinch, Godfrey, & Wei, 2012). Several empirical reviews have summarised the specialised literature referring to financial reporting under IFRS, but its effects on the audit market have not been deepened in our country. Finally, we identify several studies that specifically focus on auditor choice and compliance with IFRS (Hodgdon et al., 2009; Ebrahim, 2014) and other empirical work that generally examines the determinants of IFRS compliance, which is a testing variable (Glaum et al., 2013). In addition to the other studies, regarding the adoption of IFRS on the quality of financial reports, another stream of research focuses on audit fees and how they have influenced the Big 4 audit market firms.

On the level of the European Union, Pope and McLeavy (2011) analysed the mandatory adoption of IFRS in the light of the INTACCT project (European Revolution of IFRS: Conformity, consequences and political lessons). It was concluded that the effects of the adoption of IFRS will never be uniform not only because of the different incentives of the developers but also the application method.

In the case of Romania, this aspect has been marked since 2012 when the adoption of IFRS became mandatory, which implies a continuous economic and financial transformation. The term, already known as 'Big 4' was first used at the beginning of the 19th century, to designate large companies. The origin of these terms 'Big 4'and 'audit' were first encountered in the Anglo-Saxon countries. The connection between them is given by the international analysis of audit services. As Zeff states, in 2003, Big 4 companies are considered the engine of profitability and internationalisation of audit and accounting services worldwide. Since 1970, customer expectations have increased with the competitiveness that exists on the audit market. Rewczuk and Modzelewski (2019) show the majority of companies are audited by the Big 4 even if this factor affects positively the audit fees. This is the real reason why the auditors were forced not only to deliver accounting figures but also new possibilities for meeting the inherent risk. More, Wlodarczyk and Bialek-Jaworska (2018) argue that factors, such as liquidity, debt and corporate governance influence the auditor's opinion. Bunea (2006) argued that there are issues that can appear to implement IFRS as insufficient financial resources, professional judgement and big difficulties concerning the accounting profession. These companies have, over time, changed their primary ethical objectives into commercial ones. This shows that the auditor consulting services were initially found separately based on the following relation, namely, the success of the audited firm proves the success of the consulting firm. The traditional role of large companies, as Tokar states, in 2005, is to provide guidance in the application of standards and to develop the same interpretation of the issues raised by IFRS. The first obstacle to a unanimous interpretation is given by several factors that differ from country to country. The Big 4 dictionary is one interpretation, one name. Several studies, Albu, Albu, Szilveszter, and Vladu (2011); Paunescu (2015); Tache (2019) show the role of Big 4 companies on the audit market in Romania.

If auditors could not obtain sufficient and adequate audit demonstration to substantiate the audit opinion, they could not provide absolute assurance from the financial reporting. The quality of audit is measure by 'compliance with the standards, the quality of the disclosures in the reporting, the amount of discretionary accruals, the number of going-concern opinions issued, the number of material misstatements identified and the extent to which the auditor permits misstatements not to be corrected, or the amount of the audit fee paid' (AFM, 2019).

A study by Vanstraeken (2012) shows that in 67% of cases, the audit companies did not foresee anything regarding a possible bankruptcy that subsequently happened. Empirical research argues the negative relationship between the quality of statutory audit and the economic influence of the client regarding audit fees (Choi, Kim, & Zang, 2010). If the auditor will be chosen by a third party, and not by management, the audit company will not be influenced to respect the demands of the client (Choi et al., 2010).

The psychological and behavioural literature attests that an increased degree of deviation from professional standards will be determined by the degree of incentives for audit firms (Bazerman, Moore, Tetlock, & Tanlu, 2006). The independent audit performance remains a solid prerequisite for public confidence. The pattern used by PIE (Public Interest Entity) in audit (Beattie & Fearnley, 1994) is the tenure between the auditor and the client, the affiliation of the client with the audit company and the provision of non-audit services (NAS) provided by the client.

The nature of non-audit standards (NAS) is compound as follows (Beattie & Fearnley, 2002): administrative services, which include preparing plans, budgets computation, guidance for the financial administration of the client, implementation and evaluation of financial information system, salary administration and annual support in reporting, valuation of services, internal controls services defined as control procedures for assessing the system, legal services, which act in certain situations, corporate finance services designated to offer guidance and advice in business finance, tax services and other services as compliance, support with corporate governance and IT, judicial investigation, CSR, risk management and provision advice.

An objective and an independent audit opinion are consolidated by reliable reporting, which leads to a proper financial market. The statutory audit represents the procedure where the assurance to the internal or external users is provided by the confidence of information delivered by entities in the financial reporting conforming to the generally accepted reporting standards. Auditors provide an expert and independent opinion regarding the accuracy of reporting, which has to present a true and fair view of financial information regarding the performance and the position of the entity. This reporting will directly influence the public to make well-founded decisions. Primarily, auditors have a basic responsibility to represent the truth of the public interest.

The main objective of the financial reports is to provide information for the internal and external users of the financial statements. The audit report not only represents an assurance for potential capital providers/investors, lending decisions but also the systematic allocation of resources to increase the overall efficiency of the capital market. Thus, the desire for convergence is supported by many arguments in the context of a common financial language. In the future, when the scope of IFRS will expand in Romania, many investors would benefit from common information systems and similar results.

The specialised literature makes the appearance of the request for audit services based on four basic theories:

- thePoliceman Theory.
- the Lending Credibility Theory.
- the Theory of Inspired Confidence.
- the Theory of Agency (Hayes, Dassen, Schilder, & Wallage, 2005).

The necessity for comparability and evaluating the performance of financial statements has increased gradually, in recent years, for some public interest entities, and the reporting framework that provides comparable information is represented by the International Financial Reporting Standards. To report stature, listed companies are obliged to use IFRS, while most Romanian companies use the Romanian Accounting Standards.(RAS). For foreign investors, companies are obliged to use both standards and can report to the principal company.

There are several differences not only in the form (presentation of financial statements) but also in substance (the content of financial statements that materialise in a different result). Therefore, until the Romanian standards become similar to the international standards, we will have different results regarding the deferred tax (term met in the financial statements according to IFRS, but which does not exist in the financial statements according to the RAS), the evaluation of the real estate investments (the notion that is accounted to the fair value according to IFRS respectively, it is registered for revaluation reserves according to RAS), goodwill (an item not depreciated under IFRS, respective depreciation according to RAS), the difference between the functional currency (IFRS) and presentation currency (RAS) and the two standards, IFRS 15 and IFRS 16 have brought in considerable changes, changes that were not found until then in the Romanian accounting history. IFRS 15 'Revenue recognition' has brought considerable changes, especially in telecommunications, real estate investments and software development. According to IFRS, revenue recognition goes from the transfer of risks/benefits to the transfer of control. IFRS 16 'Leasing' standard recognises the right of use as an element of the respective leasing asset, as a debt, with no operational/financial leasing distinction. Regarding the standard IFRS 9 'Financial Instruments' it brings significant changes to the level of financial results.

Audit services play a critical role in applying the new reporting standards, especially on implementation costs (Loukil, 2016). Since the financial reporting according to the IFRS became mandatory, the audit costs have undergone considerable changes. The audit is the control mechanism of the company and its main purpose is to reduce agency costs. It has always been seen as: 'a politically neutral technique of auditing accounts' (Flint, 1988 cited in Klarskov, 1998: 518).

Agency Theory highlights the immanent chain of contracts between associates/shareholders and agents (managers who are required to control all the resources within an entity) (Jensen & Meckling, 1976; Adams, 1994). This theory postulates the general idea that the stakeholders/shareholders do not have access to all the information when the managers have to make certain decisions. The asymmetrical information that emerges from this theory can be a moral hazard when managers act only to maximize their wealth and not for the increase in the wealth of the company they work for (Mohammad, 2009).

There is a possibility of a decrease in the establishment of monitoring processes from the managers' viewpoint, which affects the working conditions of the audit companies (Hudson, 2014). In this context, the Agency Theory postulates that the managers tend to favour the interests of the shareholders to the detriment of the creditors, which may include restrictions in the contracts carried out which lead to the distorted increase of the agency's costs. This is the moment where the auditors defend the interests of the shareholders/creditors impartially, verifying the internal controls, the risk and the financial reporting of the management.

For the first time, this aspect was observed by Jensen and Mackling as follows: 'the existence and size of agency costs depend on the nature of the costs monitored by the agent (manager)'. The audit companies having the obligation to control the financial statements and the management behaviour attest to the decrease of the expenses related to the audit services. In 2011, in a specialised journal, Leventis, Weetman, & Caramanis stated that: 'audit costs are the most measurable and direct costs of the agency and reducing audit costs reveals reducing agency costs'. It is quite obvious to conclude that the audit firms make bigger checks when there are problems, which increase the number of hours worked, leading to an increase in the level of expenses. Another advantage of large firms compared to small firms is that they have a rather sophisticated accounting system, thus having an advantage given by internal audit, which immanently reduces the total level of expenses related to audit services. For example, in France, adopting IFRS for the first time increased the quality of financial statements (Cormier et al., 2009). In another study, earnings management increased after adopting IFRS in France (Jeanjean & Stolowy, 2008). Therefore, some studies prove that these expenses related to audit services increase with the adoption of IFRS (Vieru & Schadewitz, 2010).

The relationship between audit expenses and financial reporting according to IFRS is based on the adoption of IFRS, which involves an additional effort from the audit firms that must verify additional information, such as footnotes, asset/debt assessment and managerial forecasts (DeGeorge, Ferguson, & Nasser, 2013). The adoption of IFRS increases professional judgement (Diehl, 2010) because these principles are based on fair value, which can significantly increase the errors and the risk encountered and can lead to a significant distortion (DeGeorge et al., 2013). Regarding the relationship between the audit expenses that record abnormal values and the discretionary power during the post-IFRS period, Jung (2016), attested that there exists a positive correlation. Moreover, the expenses related to the audit services are based on the following independent variables: total assets, the total number of employees, stocks, liquidities, leverage, loss/profit of the company, rate of return on assets, increase of sales, audit firm, audit opinion and changing the audit firm (Boone, Khurana, & Raman, 2010; Choi et al., 2010; Reichelt & Wang, 2010; Lopez & Peters, 2012; Asthana & Boone, 2012).

The exaggerated dimension of audit spending is based on the following theories:

- The theory of economic ties – this theory emphasises that the independence of the audit can only be determined if there is an economic commitment, which can influence the quality of the audit. In this case, the client has to pay higher audit expenses, instead of having a managerial discretion in their financial statements or annual reports (Choi et al., 2010);
- The theory of audit effort – this theory shows that an exaggerated increase in these expenses does not automatically lead to an increase in the quality of the audit services (Eshleman & Guo, 2014).

On the other hand, the Agency Theory attests that the existing monitoring mechanisms align the interests of the two involved parties (managers and shareholders) not only to eliminate the inherent conflict of interests but also to eliminate an opportunistic manager's behaviour (Alzoubi, 2016). This monitoring is given by the audit companies that solve the existing divergences at the management and shareholder level, manage the behaviour of the opportunistic managers and even reduce the existing information asymmetry. The asymmetrical information must be reduced by the audit firms, which must detect all the differences between the annual financial statements and the current data. The work of the auditor, which materialises in the audit opinion, must be a guarantee for external investors. The relationship between the financial audit and the quality of audit services has changed with the adoption of IFRS. Therefore, the fair value that results from convergence with IFRS increases discretionary power in making one's own decisions (Hamberg, Paananen, & Novak, 2011).

The public accounting statements offer the benefit to investors to compare the fairness of financial information. In this context, creative accounting tweaks the standards intending to project false figures of the company. By twisting the truth, creative accounting will mislead the investors as follows: overestimating revenues defined as recognising revenues prematurely, a lower degree of depreciation charges means that reducing the taxes with assets, deferring the period to record the expenses, the unknowing contingent liabilities arise from unrecorded potential liabilities, the undervaluation of pension relies on the hypothetical estimates of liabilities and inventory manipulation with the overstating of the cost regarding goods sold out.

The mandatory rotation of audit firms represents an important instrument that increases the independence of auditors (Jackson, Moldrich, & Roebuck, 2008). Again, there are two theories in the literature that attest to contrary expectations. The independence theory shows that the quality of audit services will decrease if the number of audited years by the same auditor is too high, while the expertise theory suggests the reverse (Johnson, Khurana, & Reynolds, 2002). Opposite to these theories, an empirical study conducted by Knechel and Vanstraelen (2007) shows a hypothetical bankruptcy. The mixed results from empirical literature will lead to unequivocal evidence (Lin & Tepalagul, 2014). In the conditions of a competitive market, the mandatory rotation of auditors can affect stakeholders. Audit reform was implemented to increase the quality and independence of statutory audits. A high degree of the quality of financial reporting should be a prerequisite for an audit.

These audit expenses are based on audit effort and risk factors that are influenced by the audit firms (Choi et al., 2010). As an example, in South Korea, audit costs may be affected in some cases by Key Audit Partner (KAP) discounts when the audit firm observes a rather low audit risk value. At the same time, the fierce competition of KAP and the rates related to the audit services can lead to compensations regarding the audit expenses, taking into account not only the effort but also the increased risk of audit leading to the increase of the quality of the audit services (Park, 2012). Current research shows that there is a correlation between audit costs and the size of the audited firm (Simunic, 1980; Walace, 1984; Fleischer & Goettsche, 2012; Fung, Gul, & Krishnan, 2012). Other specialised studies show that these expenses are inversely proportional to the size of the audited firm (Simunic, 1980).

With regard to revenues from an audit client, the advisory branch represents a potential obstacle in auditor's independence (Blay & Geiger, 2013) and the quality of audit is lower (Causholli, Chambers, & Payne, 2014) if the client receives additional advisory services. After the insertion of statutory limitations, the position of audit and advisory services has improved (Brenk, 2018). A high degree of market power is associated with high quality of audit services and access barriers and fewer incentives from the market, concerning audit fees (DeAngelo, 1981).

3 Methodology

The analysis is based on official data published by Bucharest Stock Exchange, Eurostat, Transparency International and the official site of the Big 4 companies. The database covers the entire period of 2011–-2019 registered for 25 companies from Romania, on average 70% audited by Big 4 and 30% audited by Non-Big 4 firms. Five variables have been analysed to observe if the choice of an audit firm is influenced by the profit/loss, the shareholders' funds, the number of employees of a company, profit margin and the number of companies in the corporate group. From the total sample, 79.2% of companies did not change the audit company from Big 4 to non-Big 4 and they respect the rotation of audit firms. Therefore, the majority of firms moved from one Big 4 to another.

In this paper, the ANOVA statistical analysis together with the F-test is used to observe if the variables such profit/loss, shareholders' funds, the number of employees of a company, profit margin and the number of companies in the corporate group have any influence on the choice of the audit firm. The one-way analysis of variance ANOVA is a statistical model used to analyse the differences between the means corresponding to two or more statistically independent groups. The use of ANOVA statistical analysis depends on the fulfilment of the following assumptions: (i) the dependent variable is normally distributed, (ii) the independent variable constitutes two or more categorical independent groups, (iii) the observations are independent and (iv) the homogeneity of variances.

The comparison of the average values accompanied by the Romanian market takes into account the correct distribution. It is important to know if they can be dispersed if they can be considered equal or not. This is decided using the F-test, based on theoretical distribution according to Fisher–Snedecor (Jula, 2017).

Test hypotheses are close to unilateral bilateral and top tips.

$$\text{Bilateral test: } H_0: \sigma_1^2 = \sigma_1^2;\ H_1: \sigma_1^2 \neq \sigma_1^2$$

One-sided tests:

$$H_0: \sigma_1^2 = \sigma_1^2;\ H_1: \sigma_1^2 < \sigma_1^2 \ or\ H_1: \sigma_1^2 > \sigma_1^2$$

When the null hypothesis is true, then the statistics $F^* = \frac{(s_1^2)}{(s_2^2)}$ are distributed F with $v_1 n_1$-1 and $v_2 n_2$-1 the degree of freedom, when it can be used in tables values for F (v_1; v_2) for determining critical probabilities.

The independent variable is represented by the belonging to the category Big 4/non-Big 4 which is influenced by the dependent variable profit/loss, shareholders' funds, the number of employees of a

Tab. 1. The percentage of the companies audited by Big 4/Non-Big 4 during the period 2011–2019

Auditor type	2011	2012	2013	2014	2015	2016	2017	2018	2019
Non Big 4	16%	28%	16%	24%	16%	16%	20%	20%	28%
Big 4	84%	72%	84%	76%	74%	74%	80%	80%	72%

company, profit margin and the number of companies in the corporate group. In the analysed reports, due to the lack of information, the number of observations is not the same for all the variables. For all the companies listed on BVB and that only 5 companies from the total sample of 24 firms have changed the auditor from Big 4 to non-Big, the following variables were used in this analysis, covering the period 2011–2019 as the reference years:

- Profit/loss presents the company's financial performance for an appropriate period.
- Shareholders' funds are represented by the amount of equity in an entity, which belongs to the shareholders.
- The average number of employees represents the number of employees employed with individual employment contracts, paid by the company for normal average working time, during the reference period. It is determined that the simple arithmetic mean calculated by dividing the sum of the daily number of employees from the reference period, including weekly rest days, legal holidays and other non-working days, to the total number of calendar days.
- Profit margin refers to the degree to which an entity makes money, essentially by dividing income by revenues.
- The number of companies in the corporate group includes the parent company and subsidiary corporations.

4 Results

For the period 2011–-2019, all the companies listed on the Bucharest Stock Exchange, which trade premium shares, were analysed and the results of ANOVA analysis were presented as standard values of logarithms and only for the variable profit margin as a percentage. In this sense, it was determined that the impact of Big 4 companies that exist after the adoption of IFRS became mandatory and if the choice of an audit firm is influenced by profit/loss, shareholders' funds, the number of employees of a company, profit margin and the number of companies in the corporate group. Moreover, the potential monopoly created by Big 4 companies does not seem to be affected by the additional expenses, which are expected to be charged by Big 4. Financial reporting according to the IFRS increases the number of companies audited by Big 4 (Paunescu, 2015), although the audit fees are higher for this type of auditors (Jung, 2015). Moreover, the audit market in Romania appears to be concentrated for the analysed period, and the power of non-Big 4 companies is not strong after 2012 (Table 1), after the adoption of IFRS became mandatory. In the transition year (2012), it registered the highest percentage of companies audited by Non-Big 4 audit firms compared to the analysed period of 2011–2019.

Figure 1 emphasis the trend of Big 4 companies which have audited the analized companies. increases in time for the companies audited by Deloitte, while in the analysed period EY and PwC registered the lowest percentages in the period 2011–2019 of clients. It is noticed that the period after the adoption of IFRS became mandatory, KPMG recorded the lowest values and Deloitte reveals to be in the top, for the companies which trade premium shares on BVB, for the years 2011–2019.

Table 2 presents the descriptive statistics of the variable profit/loss of the listed companies on BVB (premium shares) during the period 2011–2019 as performed using SPSS. As it may be noticed, the mean for profit/loss for the companies audited by non-Big 4 companies is not equal with the mean for the companies audited by Big 4, which allows for the rejection of the null hypothesis implying that the variable profit/loss of the companies does not influence the choice of the audit firm.

The results corresponding to the ANOVA analysis are presented in Table 3. The reported results of the one-way ANOVA test show that at a 10% significance level there are greater differences between groups than within groups (i.e. profit/loss of companies audited by one type of the auditors). It may be considered that the profit/loss of a company affects the choice of audit firm between Big 4 and non-Big 4 firms but at the low 6% significance level.

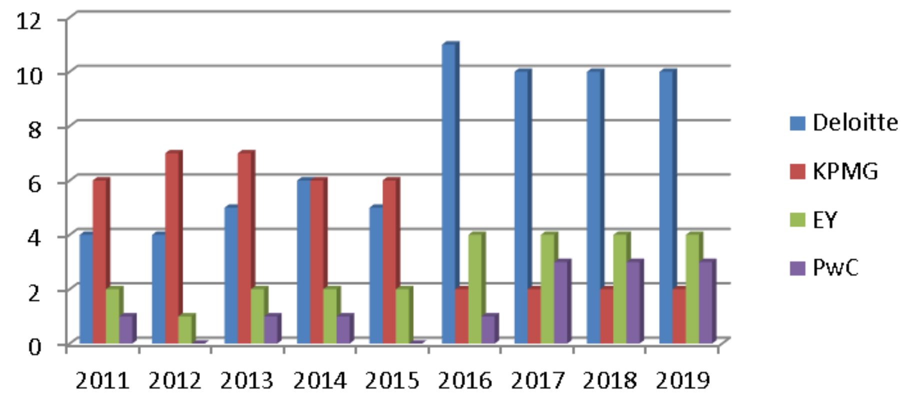

Fig. 1. The trend of Big 4 companies charged by the listed companies on BVB during the period 2011–2019.

Tab. 2. Descriptive statistics of the variable profit/loss of the listed companies on BVB during the period 2011–2019

	N	Mean	Std. deviation	Std. error	95% Confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Non-Big 4	45	7.34	7.48	6.65	7.11	7.49	7.35	8.06
Big 4	135	8.10	8.40	7.33	7.93	8.23	8.21	9.17
Total	180	8.00	8.34	7.22	7.83	8.12	8.21	9.17

Tab, 3. ANOVA analysis of the profit/loss of the listed companies on BVB (premium shares) during the period 2011–2019

ANOVA	*F* test	*P*-value	MS_B	MS_W
	7.89	0.06	16.68	17.57

Notes: *The difference of means is significant (p 0.05).
MS_B, mean square between groups; MS_W, mean square within groups.

The second dependent variable that was considered for this analysis is the shareholders' funds. The descriptive statistics are presented in Table 4. It may be observed that a higher mean of shareholders' funds corresponds to companies audited by Big 4.

The ANOVA analysis results reported in Table 5 show a p-value of 0.02, which is lower than the threshold of significance the variable shareholders' funds (0.05). In this case, the results show a statistically significant difference between the Big 4 and non-Big 4 groups. It may be concluded that the shareholders' funds have a significant impact on the choice of the audit firm. There are greater differences between groups than within groups.

The third variable taken into account for this study is the number of employees. The descriptive statistics presented in Table 6 show that the mean number of employees of the companies audited by non-Big 4 is lower than the mean number of employees of the companies audited by Big 4 firms which is also emphasised in the ANOVA statistical analysis in Table 7.

The ANOVA analysis reported in Table 7 shows that the size of a company (proxied by a logarithm of the number of employees) represents a decisive factor influencing the choice of the auditor firms. This is emphasised by the p-value of 0.00 implying that there is a statistically significant difference between the means of firm size. Large companies prefer Big-4 auditors. In this case, the null hypothesis may not be rejected and the number of employees has a significant impact on the choice of the audit firm.

Table 8 presents the descriptive statistics of the variable profit margin of the listed companies on BVB (premium shares) during the period 2011–2019. As it

Tab. 4. Descriptive statistics of the variable shareholders' funds of the listed companies on BVB (premium shares) during the period 2011–2019

	N	Mean	Std. deviation	Std. Error of shareholders' funds	95% Confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Non-Big 4	45	5.65	5.87	5.04	5.35	5.83	4.17	6.56
Big 4	135	6.13	6.26	5.20	6.02	6.22	4.13	6.91
Total	180	6.05	6.22	5.09	5.95	6.14	4.13	6.91

Tab. 5. ANOVA analysis of the shareholders' funds of the listed companies on BVB (premium shares) during the period 2011–2019

ANOVA	*F* test	*P*-value	MS_B	MS_W
	10.48	0.01	12.42	13.44

Notes: *The difference of means is significant (p 0.05).
MS_B, mean square between groups; MS_W, mean square within groups.

Tab. 6. Descriptive statistics of the number of employees of the listed companies on BVB (premium shares) during the period 2011–2019

	N	Mean	Std. deviation	Std. error	95% Confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Non-Big 4	36	3.11	3.11	2.34	2.93	3.24	1.86	3.85
Big4	107	3.65	3.70	2.69	3.54	3.74	1.32	4.38
Total	143	3.56	3.67	2.59	3.46	3.65	1.32	4.38

Tab. 7. ANOVA analysis of the number of employees of the listed companies on BVB (premium shares) during the period 2011–2019

ANOVA	*F* test	*P*-value	MS_B	MS_W
	13.81	0.00	8.43	7.29

Notes: *The difference of means is significant (p 0.05).
MS_B, mean square between groups; MS_W, mean square within groups.

may be noticed, the mean for a profit margin for the companies audited by non-Big 4 companies is higher than the mean for the companies audited by Big 4.

However, the results of the ANOVA analysis presented in Table 9 show that there is no statistically significant difference between group means. As such, the null hypothesis is rejected and it may be considered that the profit margin of a company does not affect the choice of audit firm (Big 4/non-Big 4 firms). There are insignificantly greater differences between groups than within groups (i.e. the profit margin of companies audited by one type of auditors).

The final variable taken into account for this study is the number of members of the business group of the listed companies on BVB (premium shares) during the period 2011–2019. The descriptive

Tab. 8. Descriptive statistics of the variable profit margin of the listed companies on BVB during the period 2011–2019

	N	Mean (%)	Std. deviation	Std. error of profit margin	95% Confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Non-Big 4	41	1.29	1.20	0.39	1.16	1.39	0.75	1.93
Big 4	115	1.14	1.39	0.36	0.96	1.26	1.91	1.89
Total	156	1.18	1.36	0.26	1.07	1.27	1.91	1.93

Tab. 9. ANOVA analysis of the profit margin of the listed companies on BVB (premium shares) during the period 2011–2019

ANOVA	*F* test	*P*-value	MS_B	MS_W
	1.92	0.16	2.99	2.71

Notes: *The difference of means is significant ($p < 0.05$).
MS_B, mean square between groups; MS_W, mean square within groups.

Tab. 10. Descriptive statistics of the number of companies in the business group for the listed companies on BVB (premium shares) during the period 2011–2019

	N	Mean	Std. deviation	Std. Error of the number of companies in corporate group	95% Confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Non-Big 4	48	1.16	1.08	0.24	1.04	1.25	0.30	1.66
Big4	150	1.91	2.33	1.24	1.67	2.06	0.48	2.96
Total	198	1.81	2.27	1.13	1.59	1.96	0.30	2.96

Tab. 11. ANOVA analysis of the number of companies in business group of the listed companies on BVB durin the period 2011–2019

ANOVA	*F* test	*P*-value	MS_B	MS_W
	4.67	0.03	5.21	4.54

Notes: *The difference of means is significant ($p < 0.05$).
MS_B, mean square between groups; MS_W, mean square within groups.

statistics presented in Table 10 show that the mean of the number of companies in the business group for the listed companies audited by non-Big 4 is smaller than the mean of the number of members of the business group for the listed companies audited by Big 4 firms.

The ANOVA analysis reported in Table 11 shows that the number of companies in the business group represents a decisive factor influencing the choice of auditor firms.

5 Conclusions

Durig the period 2011–2019, all the companies listed on Bucharest Stock Exchange, which trade premium shares were analysed. Concerning the shareholders' funds, the number of employees and the number of firms in the business group, there is a statistically significant difference between listed companies audited by Big 4 and non-Big 4 firms. The choice of an audit firm is influenced by the shareholders' funds, the number of employees and the number of members of the business group.

On another hand, from the total sample of listed companies on BVB (premium shares), 79.2% of companies did not change the audit company from Big 4 to non-Big 4, and they respect the rotation of audit firms. Therefore, the majority of firms moved from one Big 4 to another Big 4 company. Audit reporting depicts a significant activity and the impact of Big 4 companies form a substation contribution concerning the investors' decisions. Financial reporting under IFRS is sustained by the evolution of the degree of the quality of financial statements, such as transparency, reliability and comparability.

This paper follows to establish the dynamics of the audit market considering the monopoly created by Big 4 companies and the influence of financial reporting under IFRS. It could be confirmed that for the analyzed sample during the period 2011–2019, on average 70% of companies are audited by Big 4 and only 20.8% changed the audit firm from non-Big 4 to Big 4. Thus, it could be confirmed that financial reporting according to IFRS has increased the number of companies audited by Big 4 after 2012, when the financial reporting under IFRS became mandatory for listed companies.

Future research in this field can aim at considering other factors as well when establishing the influence of the choice of audit firms. On these lines, the decision of stakeholders/shareholders versus managers and the decision of the parent company, which can decide for all the subsidiaries and branches, regarding the choice of audit firm can affect the selection of the auditor.

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