

The Impact of Audit Reports on Auditor Change – Verification of the Determining Factors for Auditor Change in the Portuguese Context

Paula Heliodoro

Phd in Accounting
Instituto Politécnico de Setúbal
Campus do IPS, Estefanilha
2914 - 503 Setúbal |Portugal

Manuel Mouta Lopes

Phd in Corporate Finance
Universidade Aberta
Rua da Escola Politécnica, 141
1269-001 Lisboa, Portugal

Carlos Santos Pinho

Phd in Management
Universidade Aberta
Rua da Escola Politécnica, 141
1269-001 Lisboa, Portugal

Rosário Ramos

Phd in Mathematics
Universidade Aberta
Rua da Escola Politécnica, 141
1269-001 Lisboa, Portugal

Abstract

The issue of auditor change and its relation with the opinions issued in financial audit reports is a topic which has been gaining increasing importance in the accounting and auditing areas. The financial audit report represents the final materialization of an external and independent audit. As such, one expects that the opinion expressed by the auditor is not always that forecast by the shareholders or the management of the company being audited. This work attempts to ascertain whether or not a determining relation between a change in auditor and the issuance of qualified audit reports really exists in the Portuguese context, or, on the contrary, if other equally influential factors exist in relation to the said change. The conclusions drawn point to the existence of a significantly positive association between a qualified audit report and a change in auditor, although other relevant factors exist such as the company's growth rate, governance model and the sector in which it operates

Keywords: auditing, reporting, auditor rotation, stakeholders.

JEL Codes:G39, H83, M41, M42

1. Introduction

Financial auditing is embedded of undeniable public interest for company stake holders. Gramling *et al.* (2012) state that countless parties exist with an interest in audit work, including the managing body in charge of the supervision of the executives, the management of the company, the safeguard of the assets entrusted to them and the preparation of financial statements geared to current and potential investors, creditors, financial institutions, the State, and all other stakeholders in general.

According to Carmargo *et al.* (2011), the auditor conducts analytical work in order to issue a summarized report on the conclusions drawn from the audit performed. This report provides stakeholders with an opinion on the adequacy of the audited financial statements, and, in turn, the audited parties are those which may be affected by the decisions made by these stakeholders. Hence, according to Ballesta and García-Meca (2005), the parties with an interest in the financial statements take into account the existence of changes to the financial audit report, which might imply (i) adverse reactions in the market, affecting the relationship between the auditor and the audited party and resulting in the management of the audited company exerting pressure on the auditors, thereby questioning their independence, or (ii) the existence of legal proceedings filed against the auditors due to errors in the execution and results of the audit.

In recent years, financial auditing has been affected by several financial scandals of a global nature which plunged the auditing profession into the worst and deepest crisis in its history. As a response to the financial scandals which occurred in the United States of America (USA), the Sarbanes-Oxley Law¹ was passed in July 2002. This law aimed to protect investors by means of improving the accuracy and reliability of the financial data disclosed by companies. Furthermore, European Union (EU) Directive 2006/43/CE² was published, and, more recently, European Parliament and Council Directive 2014/56/UE, dated 16 April 2014, in relation to the legal auditing of annual and consolidated accounts, and European Parliament and Council Directive 537/2014, dated 16 April 2014, in relation to the specific requirements for auditing the accounts of entities of public interest with a view to ensuring greater harmonization among the Member States of the European Union.

In the light of these facts, and with the aim of minimizing the harm in relation to the discredit of the auditing profession in recent decades, the International Federation of Accountants (**IFAC**), via the International Auditing and Assurance Standard Board (**IAASB**), is of the understanding that the development of professional standards designed to guarantee a more appropriate and uniform performance by auditors at the global level would help boost the trust of users of financial information in audit reports.

Thus, the purpose of this work is to investigate the relationship existing between the auditor's opinion published in the audit report and the change in auditor by the audited company and to verify what other factors might have an impact on this decision to change in the Portuguese context.

The methodology used was designed in order to assess the existence of an association between qualified audit reports and a change in auditor, in addition to the impact other factors might have on this possible change, and was based on the records in relation to a change in auditor at 57 non-financial companies registered in Portugal comprising the period 2006 to 2012, assessing the existence of an association between qualified audit reports and a change in auditor, in addition to the impact other factors might have on this possible change assessing the existence of an association between qualified audit reports and an auditor change, in addition to the impact other factors might have on this possible change. The logistic linear regression technique was used for the purpose of analyzing the association between the dependent variable (auditor change) and the independent variables, estimated using the maximum likelihood method and related approximation algorithms, available in the software IBM SPSS Statistics (version 21.0).

II. The Importance of the Audit Opinion

Johnson *et al.* (2002) argue that financial audit reports are the main means of communication between stakeholders, and, as such, the auditor's opinion is usually treated as a source for assessing whether or not the information provided is true and accurate in relation to all aspects which are materially relevant to the financial and economic situation and cash flows of the entity being audited. In this perspective, Becker *et al.* (1998) state that financial audits reduce the information asymmetries existing between managers and other stakeholders in the company, enabling the users of the financial data to believe that the financial statements are credible. Santos and Pereira (2004) endorse this theory to the extent that the audit report is the end product of the auditor's work.

¹ SOX – The Sarbanes-Oxley Law (2002).

² Directive N° 2006/43/CE "In relation to the legal review of annual and consolidated accounts, amending Council Directive N° 78/660/CEE and N° 83/349/CEE and revoking European Parliament and Council Directive N° 84/253/CEE dated 17 May 2006. Published in JOCE N° L 157 dated 09/06/2006

It is by means of the same that the auditor communicates with the users of the financial information, highlighting aspects in relation to the work conducted and the conclusions with regard to the audited entity expressed in the form of an opinion. Thus, the audit report represents the formal means of communication existing between the auditor and the interested parties in relation to the conclusion on the financial audit carried out (Boynton, *et al.*, 2002). In other words, on conclusion of the audit work the auditor's opinion is published in the financial audit report, via which the conclusion of the work conducted is disclosed to the users and the informative content of which is gauged in accordance with auditing standards (Almeida and Vasconcelos, 2007).

Siqueira (2004) also studied the credibility, importance and influence of the audit report as a back-up tool for investors' decision making, encompassing institutional investors, individual entities, financial institutions and financial investors belonging to ANIMEC [*Associação Nacional de Investidores do Mercado de Capitais (National Association of Capitals Market Investors)*]. Moreover, the author mentions that the aspect of credibility remains unstable, perhaps due to the scandals which have hit the capitals markets, such as *Enron*, *World Com*, among others.

Hence, the fact that the financial audit report accompanies a company's financial statement increases the informative content of the same and represents an improvement in the information available to the users of the financial data. This information may at times underline the reliability of the same in the case of a clean audit report, such as adding new data to issues which, although not openly included in the financial statements, have a material and generally negative effect on the same, as is the case of qualified audit reports with a disclaimer of opinion or an adverse opinion or, at worst, a declaration attesting to the impossibility of issuing an audit report.

The use of the financial information may affect decisions made by the stakeholders, and, as such, the financial audit report is of significant value with regard to improving decision-making in relation to specific issues, such as, for example, rational investments. There is a consensus in literature that both financial and non-financial factors affect the decision to issue amended audit reports.

The financial auditor therefore serves as a mechanism for covering information risk. Or, in other words, that the information published guarantees the parameters of quality required to make economic decisions. As a result the financial audit report should convey the shortcomings detected in the financial information. Hence, we may conclude that auditors play a role of corporate governance in monitoring a company's financial reporting process (Ashbaugh and Warfield, 2003).

This opinion that the financial audit report is used by the users in the different decision-making processes is questioned by some authors. According to Hermosa (2002), the auditor's opinion is of little use in decision-making, as this is a report based on historical values, and, as such, the information is not up to date. Users are increasingly demanding prospective information and are turning to other information systems to obtain it. This line of thought is also shared by Barbadillo (1998), who emphasizes the fact that although the financial audit report has a nominative value which makes it a valuable instrument of information, it is little used. The results obtained by the different authors lead us to conclude that the audit report is regarded as useful by stakeholders, despite the fact they show a lack of satisfaction with the type and adequacy of the information included in these reports. Stakeholders expect the auditor to provide an impartial and true service, a detailed and thorough analysis of the financial statements, and, where applicable, to report any faults, errors or omissions detected in the audited financial statements. However, at times the company being audited expects exactly the opposite, or in other words, that the auditor ignores any issues or omissions detected (Koo and Sim, 1999). Whenever the auditor grants the client's wish in this sense, the audit conducted as such is compromised (Alleyne and Devonish, 2006), whereby it is clear that the existence of a conflict between the parties may place the execution of an independent financial audit at risk. This concept of auditor independence and the consequent implementation of the same are extremely difficult to accomplish due to contingencies of a social, financial and professional nature, which, together or separately, result in a deviation from what might be regarded as true independence (Kleinman & Palmon, 2001).

The studies conducted by Reynolds and Francis (2001) and Jennings *et al.* (2006) reveal that an auditor is economically dependent whenever most of the auditor's total earnings come from one client or a very small portfolio of clients. Furthermore, the existence of a conflict of interests is regarded as one of the factors which might question the auditor's independence. The auditor conducts his work on a daily basis in a scenario characterized by a conflict of interest, and, as such, should judge what he is being paid for (Monterrey & Sanchez, 2007).

III. Auditor Change

Recently, it has been ascertained that audited companies have been switching auditors while ignoring the legal requirements with regard to rotation³. Several different reasons have been pinpointed as being responsible for this change, the most noteworthy of which are the publication of qualified financial audit reports, or, in other words, with reservations due to disagreement or reservations due to limitation with regard to the scope of the financial statements (Benau and Barbadillo, 2000, and Santos, 2008).

According to Chew (2003), the debate on auditor change began in the 1970s as a result of the increase in competitiveness. The corporate scandal involving Enron and the associated auditing firm, Arthur Andersen, triggered a series of discussions on auditor independence throughout the financial audit process, as the companies had been working together for around 10 years. The question of rotation as a promoter of auditor independence has been widely discussed, however the effectiveness of the same is questionable in practical terms. Nagy (2005) published a study which determined that long relationship periods are not associated with a reduction in the quality of the audit, but, to the contrary, with an improvement in the same. Nevertheless, in the context of professional regulations a generally accepted maximum period exists for which an external auditor is appointed, at least in relation to entities of public interest.

Other variables have been identified as influential in the auditor's decision making. The works of Mckeown *et al.* (1991), Addams and Davis (1994) and Eichenseer, Shields (1983) and Deis and Giroux (1996) highlight the influence of the audit firm's fees in this process. The research of Hudaib and Cooke (2005), Haskins and Williams (1990) and Carpenter and Strawser (1971) mentions the fact that companies with financial problems are more likely to change their auditor. Moreover, the works of Burton and Roberts (1967), Carpenter and Strawser (1971) and Beattie and Fearnley (1995) state that another major factor in relation to such a change lies in changes in the managing bodies and governance framework of these companies (Li and Liu, 2010). Additionally, Warren (1980), Shank and Murdock (1979) and Chow and Rice (1982) are of the opinion that the size of the audited company has an influence on this issue, while Ismail and Aliahmed (2008) and Haskins and Williams (1990) add that size would not be a major factor on the whole as an absolute value, but rather the company's level of growth or changes in the size of the same. Within this scope, Burton and Roberts (1967), Andersen *et al.* (1993) and Firthe (1999) add that as a rule merger and acquisition processes determine a change in auditor, generally in the companies which have been purchased or taken over. Moreover, the works of Titman and Trueman (1986), Bedard, *et al.* (2000), Menon and Williams (2001) Beattie and Fearnley (2002), Copley and Douthett (2002) underline the fact that incentives exist to switch auditor prior to addressing changes in the company's capital structure, with the aim of acquiring the advantage of the experience or reputation of a new auditor, to the extent this may be of considerable value to investors as a means of reducing the costs of the information of the documents to be published.

With regard to another perspective in relation to the analysis of this matter, Addams and Davis (1994) emphasize that the existence of disagreement in relation to the content of the financial statements is a factor which induces a change in auditor. Haskins and Williams (1990) underscore the existence of disagreement on the opinion issued by the auditor in the financial audit report as a major factor. In another perspective, Chow and Rice (1982) and Craswell (1988) report that companies in the USA switch auditor after having received a qualified audit report, among other factors. On the other hand, Gul *et al.* (1991) suggest that there are few changes in auditor after the publication of a qualified report. Iskandar and Syed's work (1993) supports this idea by concluding that there is no significant relationship between qualified audit reports and a change in auditor. Moreover, according to these authors a change in auditor does not favor the execution of a clean audit report after the publication of a qualified audit report the previous year. Dupoch (1987) declares that the existence of loss is one of the main causes justifying the issuance of qualified audit reports. Likewise, Spathis (2003) and Laitinen (1998) conclude that indebted companies are more likely to receive a qualified audit report.

³In accordance with the provisions of European Parliament and Council Directive 2014/56/UE dated 16 April 2014, incorporated in national regulations under Law Nº 140/2015 of 07 September, in relation to entities of public interest the maximum period for the exercise of legal auditing duties by the partner responsible for the direct guidance or execution of legal auditing is seven years counting from the first appointment (this may be extended to ten years in exceptional cases), subject to renewal after a minimum period of three years

Dupoch (1987) also concludes that a low turnover of assets (sales / assets) and an increase in amounts receivable are factors which influence the issuance of qualified audit reports.

Bertin (2001) ascertained an association between the length of the mandate, the size of the audited entities and audit reports with reservations in companies in financial difficulties. The auditor is of the opinion that the size of the audited entity, the length of time of the relationship and the duration of the auditor's mandate represent factors of significance in explaining the type of opinion published in the financial audit report.

Likewise, Segura (2001) analyses the association existing between the auditor's opinion and a series of explanatory variables, such as the price of the shares, the size of the company, profitability, indebtedness and the sector of activity. The small size of the company, low profitability, the existence of loss, and the sector of activity explain the greater likelihood of receiving a qualified audit report.

More recently, the work of Branson and Breesch (2004) concluded that a change in auditor in companies in Belgium cannot be fully explained using the traditional approach. The authors declared that half the companies in Belgium have to accept, either voluntarily or involuntarily, a change in auditor determined by the parent company.

IV. Objectives and Hypotheses

In light of the bibliographical review conducted, we believe it is appropriate to include and explore other variables to assess the impact of the same in relation to a change in auditor, in addition to the variables associated with the existence of a qualified report. This second series of variables will be assigned in accordance with the company's performance.

The company's performance is justified due to the fact the responsibility of the senior management to the stakeholders is greater when the company begins to grow and exposure to public scrutiny increases, whereby the auditor is a key figure in relation to the reliability of the information provided to the market on the company's situation and development. The first impact on the company's performance arises with regard to the disclosure of the mandatory financial information comprising the financial statements, and several authors including Segura (2001), Brigham and Houston (2011), Neves (2006), Harris (1998), Brealey, *et al.* (2011) have conducted studies referring to the existence of empirical evidence between the value of certain economic-financial indicators and a change in auditor.

In this perspective, we will test two kinds of hypotheses capable of influencing a change in auditor: (i) hypotheses on the existence of qualified reports, and (ii) hypotheses on the company's performance.

The following hypotheses will be tested with regard to (i) the existence of qualified reports:

H_1 – An audit report with a qualified opinion on equity is likely to influence a change in auditor.

H_2 – An audit report with a qualified opinion on assets is likely to influence a change in auditor

H_3 – An audit report with a qualified opinion on debts is likely to influence a change in auditor

H_4 – An audit report with other qualified opinions not included in the aforementioned hypotheses are likely to influence a change in auditor.

The following hypotheses will be tested with regard to (ii) the company's performance:

H_5 – The change in auditor is influenced by the company's profitability.

H_6 – The change in auditor is influenced by the company's size.

H_7 – The change in auditor is influenced by the company's growth.

H_8 – The change in auditor is influenced by the company's capital structure.

H_9 – The change in auditor is influenced by the company's governance model.

H_{10} – The change in auditor is influenced by the company's sector of economic activity.

H_{11} – The change in auditor is influenced by the type of audit firm.

V. Methodology

The logistic regression technique was used for the analysis of the hypotheses to be tested to verify the association between the dependent variable and the independent variables studied, estimated using the method of maximum likelihood (Goldberg, 1991). The logistic regression technique was chosen due to the fact that, is a good alternative to discriminate analysis, although the more efficient when the variables feature normal distribution and homogeneous variances in all the groups.

The logistic model is flexible, allows both categorical and quantitative variables at the same time, and can give feasible results if one has careful with the assumptions. Categorical regression is, as a general rule, a more reliable predictive method. The choice of this statistical technique also involved the fact that the dependent variable was non-metric. Fávero *et al.* (2009) support the choice of this technique, stating that logistic regression consists of a technique used to describe the performance between one dummy (binary) dependent variable and metric and / or non-metric independent variables.

In this context, the following model was established to analyze the issue being researched:

$$\theta(Y_N) = \frac{e^{\alpha + \sum_{k=1}^n \beta_k X_{(N-1)k} + \varepsilon}}{1 + e^{\alpha + \sum_{k=1}^n \beta_k X_{(N-1)k} + \varepsilon}}$$

The dependent variable $\theta(Y_N)$ is the change in auditor, which is assigned the value 1 when the existence of a change in auditor is detected, and 0 in the opposite situation. The 18 candidates to independent predictors taken into consideration initially justify the hypotheses under analysis:

Table 1: A Description of the Initial Variables of the Logistic Regression Model

$\theta(Y_N)$	Change in auditor	Binary response.	
<i>EqQual</i>	Qualified opinion on equity from N-1 to N-3	A dummy variable assigned the value 1 if the company has at least one qualified opinion on Equity and the value 0 if it doesn't.	<i>Hypothesis 1</i>
<i>AstQual</i>	Qualified opinion on assets from N-1 to N-3	A dummy variable assigned the value 1 if the company has at least one qualified opinion on Assets and the value 0 if it doesn't.	<i>Hypothesis 2</i>
<i>DbtQual</i>	Qualified opinion on Debts from N-1 to N-3	A dummy variable assigned the value 1 if the company has at least one qualified opinion on Debt and the value 0 if it doesn't.	<i>Hypothesis 3</i>
<i>OthQual</i>	Other qualified opinions from N-1 to N-3	A dummy variable assigned the value 1 if the company has at least one qualified opinion on Other Areas and the value 0 if it doesn't.	<i>Hypothesis 4</i>
<i>RoE</i>	Return on Equity	Predictor in an ordinal scale in accordance with degree of profitability.	<i>Hypothesis 5</i>
<i>RoA</i>	Return on Assets	An ordinal variable assigned the value 1, 2 or 3 in accordance with profitability.	
Classification in accordance with the average turnover logarithm (ClassTO)	Ln (Average Turnover)	An ordinal variable measured by the average value of turnover in the years N-1 to N-3.	<i>Hypothesis 6</i>
Classification in accordance with the average asset value logarithm (ClassAst)	Ln (Average Assets)	An ordinal variable measured by the average value of the asset in the years N-1 to N-3.	
Standardized turnover (TONorm)	$\frac{VN_N - \bar{X}_{(VN)}}{DP}$	A numeric variable measured by the standardized value of turnover in the years N-1 to N-3.	
Standardized Asset Value (AstNorm)	$\frac{AT_N - \bar{X}_{(VA)}}{DP}$	A numeric variable measured by the standardized value of the asset in the years N-1 to N-3.	
Turnover growth rate (TORate)	$\frac{\Delta VN_N}{VN_{N-1}}$	An ordinal variable assigned the value of 1, 2 or 3 in accordance with the turnover growth rate.	<i>Hypothesis 7</i>
Asset value growth rate (AstRate)	$\frac{\Delta AT_N}{AT_{N-1}}$	An ordinal variable assigned the value of 1, 2 or 3 in accordance with the asset growth rate.	
Debt to Equity(DtEquity)	$\frac{Debt}{Equity}$	An ordinal variable assigned the value 1, 2 or 3 in accordance with the capital structure.	<i>Hypothesis 8</i>
Indebtedness (Debt)	$\frac{Debt}{Assets}$	An ordinal variable assigned the value 1, 2 or 3 in accordance with indebtedness.	
Financial Independence (AutFinan)	$\frac{Equity}{Assets}$	An ordinal variable assigned the value 1, 2 or 3 in accordance with financial independence.	
GovMod	Government Models	A dummy variable assigned the value of 1 for the Latin Model and 0 for other models.	<i>Hypothesis 9</i>
CAE	Economic Activity Classification (rev3)	Categorical variable in accordance with the type of activity.	<i>Hypothesis 10</i>
Big Four	<i>Big Four</i>	A dummy variable assigned the value of 1 when the new auditor belongs to one of the 4 major international auditing firms, and 0 in the remaining cases.	<i>Hypothesis 11</i>

The number and type of initially envisaged variables need to be screened for any collinearity among the same. This analysis revealed the existence of a possible relation of collinearity among four variables, whereby those with the greatest proportion of variance were excluded (Maroco, 2011): Debt to Equity, Indebtedness, Profitability of Equity, and Asset Classification.

VI. Sample

The sample consists in 57 companies whose financial documents are available to the stakeholders, specifically those listed on continuous markets between 2006 and 2012 and published on the Portuguese Market Securities Commission CMVM⁴ website for 57 companies from the non-financial sector. With the aim of analyzing to what extent a change in auditor is explained by the nature of the audit report the company receives, the first step consisted of classifying the audit reports of the companies comprising the sample into:

- Non-qualified audit report (no qualified opinions), and
- Qualified audit report (with qualified opinions)

This analysis provides an initial approach to the performance of the companies from the sample, that is, it enables us to identify the companies which, having received a qualified opinion may be more interested in switching auditor.

Analyzing the series of different audit opinions and a change in auditor enable, us to place the sample in four groups as illustrated in Table 2 below:

Table 2: Type of Audit Reports Registered

Group I	Companies which did not change auditor and received a clean audit report
Group II	Companies which did not change auditor despite having received a qualified audit report
Group III	Companies which changed auditor despite having received a clean audit report
Group IV	Companies which changed auditor after having received a qualified audit report.

A total of 337 cases were obtained in the period 2006 – 2012 for the 57 companies under analysis. Classification by means of turnover was measured using the average of the Napieri and logarithm and registered the following values:

Turnover Value Logarithm <12 = Small company

Turnover Value Logarithm ≥ 12 and <14 = Medium company

Turnover Value Logarithm ≥ 14 = Large company

Table 3: Characterization of the Sample in accordance with Turnover

Size of the Company	Frequency (N)	Percentage (%)
Small	136	40,3%
Medium	132	39,2%
Large	69	20,5%
Total	337	100%

Likewise, the classification of assets was measured by the logarithm of the average value of the same, registering the following results:

Logarithm of the average value of the asset <13 = Small company

Logarithm of the average value of the asset ≥ 13 and <15 = Medium company

Logarithm of the average value of the asset ≥ 15 = Large company

⁴www.cmvm.pt/index.asp

Table 4: Characterization of the Sample in accordance with the Value of the Asset

Size of the Company	Frequency (N)	Percentage (%)
Small	159	47,2%
Medium	113	33,5%
Large	65	19,3%
Total	337	100%

Despite the characterisation of the sample having been conducted using two different variables, the results obtained point in the same direction. That is to say, the sample comprises mostly small-scale entities.

Table 5: Total Registries on Change in Auditor

	Frequency (N)	Percentage (%)
Auditor changed	59	17,5%
Auditor did not change	278	82,5%
Total	337	100%

An analysis of Table 5 reveals a clear trend of not changing auditor on the part of the companies comprising our sample. Most of the companies comprising the sample did not change their auditor (82.5%). On the other hand, 59 companies changed their auditor (17.5%). Thus, a set of 337 cases was registered which will be used to test the hypotheses using the model selected.

Statistically there is a direct relationship between the size of the sample and the reliability of the estimate, as the bigger the former the closer we come to the population, and, as such, errors in estimates tend to be fewer; or in other words: the more information we have on a population, the more we find out about their characteristics (Newbold, 1997).

According to Hosmer and Lemeshow (1989) the logistic regression model uses a binomial distribution stating if the company will change auditor in the year N ($Y_N = 1$) with a likelihood of p ($\theta(Y_N = 1) = p$) or if it will keep the same auditor ($Y_N = 0$) with a likelihood of $1-p$ ($\theta(Y_N = 0) = 1-p$). However, Newbold (1997) points out that in accordance with the Central Limit theorem, when the sample is of a considerable size, that is 50 or more, its statistical behavior resembles that of normal distribution.

Indeed, the 337 cases in this study correspond to the totality of the information provided by the non-financial companies listed on a continuous market in the period 2006 to 2012, meaning the data may be used in an acceptable manner for the purposes of this work.

VII. Results

The initial phase of this study attempts to determine whether or not the change in auditor is associated with the opinion issued in the previous financial year. Thus, the following model was established to analyze the issue under investigation:

$$\text{logit}[\theta(Y_N)] = \log\left[\frac{\theta(Y_N)}{1-\theta(Y_N)}\right] = \alpha + \sum_{k=1}^{14} \beta_k X_{(N-1)k} + \varepsilon$$

As a first step, it was necessary to explore the statistical validity of this model, because it evident that there are many parameters to estimate considering all the candidates to predictors. The first result obtained from the application of the sample data showed the need to exclude 4 variables due to the fact they featured coefficients with values which are excessive in relation to the model: Big Four, Profitability of the Asset, Turnover Growth Rate and Financial Independence. The model was thereby reduced to 10 variables. According to Maroco (2011), the selection of variables with predictive power should be conducted by means of algorithms such as stepwise methods. The withdrawal of variables (Backward), Wald, LR (Likelihood Ratio), and Conditional tests were then conducted, whereby the most suitable step was withdrawn from each result in accordance with the Cox & Snell and Nagelkerke pseudo R^2 values, the Hosmer and Lemeshow test and the classification table.

This left us with the following variables selected by the 3 models: Qualified opinions on assets (Ast Qual), other qualified opinions (Oth Qual), governance model (Gov Mod), activity exercised (CAE), classification in relation to turnover (TO Rate), standardized turnover (TO Norm), and standardized assets (Ast Norm).

The final model to be tested will therefore be:

$$\text{logit}[\theta(Y_N)] = \log\left[\frac{\theta(Y_N)}{1-\theta(Y_N)}\right] = \alpha + \sum_{k=1}^7 \beta_k X_{(N-1)k} + \varepsilon$$

The binary logistic regression method was used for this model, whose classification table (Table 6) registered the following values:

Table 6: Results of the 7-Variable Model

Observations	Predicted		Correct Percentage
	Did not change Auditor	Changed Auditor	
Did not change Auditor	200	78	71.9%
Changed Auditor	21	38	64.4%
Total Percentage			70.6%

The data contained in Table 6 shows that the model predicts there will be no change of auditor in 221 cases and a change of auditor in 126 cases. In realities, there was no change in auditor in 278 cases and a change in auditor in 59 cases.

The table illustrates that the percentage of cases in which the model correctly predict no change in auditor is 71.9%, and correctly forecast a change in auditor is 64.4%. The model produced correct results in 70.6% of the cases, resulting in the following values for the variables in the model equation as illustrated in Table 7 below.

Table 7: Variables for the Model Equation

	Beta	(p-value)	Exp (B)
AstQual	1,102	0,004	3,010
OthQual	-0,709	0,078	0,492
GovMod	-1,598	0,001	0,202
CAE		0,107	
CAE(1)	-1,214	0,010	0,297
CAE(2)	-0,833	0,134	0,435
CAE(3)	-1,001	0,150	0,368
CAE(4)	-0,469	0,400	0,625
CAE(5)	-1,304	0,013	0,271
TORate		0,091	
TORate(1)	-0,651	0,084	0,521
TORate(2)	-1,567	0,052	0,209
TONorm	0,817	0,001	2,265
AstNorm	- 0,771	0,010	0,463
Constant	0,148	0,782	1,159

As illustrated in Table 7 above, the variables are statistically significant as they feature p-values which are lower than the defined level of significance ($\alpha = 0.1$). The classification of the CAE is slightly highly and represents an exception; however, the variable was maintained given the interest in studying the different groups within the CAE. The variables assigned statistical significance is:

Qualified Opinion on Assets (Ast Qual)- The variable for *Qualified Opinion on Assets* is statistically significant, as it has a *p-value* (0.004) which is lower than the level of significance defined by us ($\alpha = 0.1$).

Qualified Opinion on Other Areas (Oth Qual) - The variable for *Qualified Opinion on Other Areas* is statistically significant, as it has a *p-value* (0.078) which is lower than the level of significance defined by us ($\alpha = 0.1$).

Government Models (Gov Mod) - Similar to the previous variables the *Government Models* variable is statistically significant, as it has a *p-value* (0.001) which is lower than the level of significance defined ($\alpha= 0.1$).

CAE – The statistical significance of the *CAE* variable is slightly above the level of significance defined ($\alpha= 0.1$), with a *p-value* of 0.107. However, as mentioned previously, the variable was maintained given the interest in studying the different groups within the CAE.

Turnover Classification (TO Rate) – This variable is statistically significant as it features a *p-value* (0.091) which is lower than the defined values ($\alpha= 0.1$).

Standardized Turnover (TO Norm)– The *Standardized Turnover* variable is also statistically significant as it features a *p-value* (0.001) which is lower than the defined values ($\alpha= 0.1$).

Standardized Assets (Ast Norm) – The *Standardized Asset* variable is statistically significant as it features a *p-value* (0.010) which is identical to the defined values ($\alpha= 0.1$).

Once the aforementioned variables regarded as statistically insignificant were not included and the final model now features the following equation, weighed by the company size and activity sector:

$$\begin{aligned} \text{logit} \left[\theta(Y_N) \right] = \log \left[\frac{\theta(Y_N)}{1 - \theta(Y_N)} \right] = & 0,148 + 1,102 \times \text{AstQual} - 0,709 \times \text{OthQual} - 1,598 \times \text{GovMod} + \\ & -1,214 \times \underbrace{\text{CAE}(1)}_{\text{Industry}} - 0,833 \times \underbrace{\text{CAE}(2)}_{\text{Construction}} - 1,001 \times \underbrace{\text{CAE}(3)}_{\text{Trade}} - 0,469 \times \underbrace{\text{CAE}(4)}_{\text{Transportation}} - 1,304 \times \underbrace{\text{CAE}(5)}_{\text{Communication}} + \\ & \left(\underbrace{-\frac{1}{3} \times (-0,651) - \frac{1}{3} \times (-1,567)}_{\text{Small Company}} \right) + \left(\underbrace{+\frac{2}{3} \times (-0,651) - \frac{1}{3} \times (-1,567)}_{\text{Medium Company}} \right) + \left(\underbrace{-\frac{1}{3} \times (-0,651) + \frac{2}{3} \times (-1,567)}_{\text{Large Company}} \right) \\ & + 0,817 \times \text{TONorm} - 0,771 \times \text{AstNorm} \end{aligned}$$

It should be pointed out that the coefficients with a negative value tend to lean towards the result of the model for no change in auditor, as the exponent of the function diminishes, which results in little likelihood of an auditor change.

VIII. Findings

Based on the data obtained through the sample in question, we have ascertained that a change in auditor by the companies under analysis in our corporate context is not common practice. Furthermore, when a change in auditor occurs, it is clear the first group of hypotheses (from *H1* to *H4*) associated with the existence of qualified reports has a significant influence on such a change. With regard to the second group of hypotheses associated with the company characteristics (from *H5* to *H11*), the model enables us to conclude that some of these characteristics really do have a significant influence on the change in auditor.

As such, it is evident that the greater the value of the asset and the value of the business of the audited company, the greater the pressure on the auditor who concludes that the size of the company affects the change in auditor (*H6*). It has also been ascertained that the greater the growth in turnover the greater the pressure on the auditor who concludes that the growth of the company influences the change in auditor (*H7*). Moreover, the type of governance model used by the audited companies influences the change in auditor by the same (*H9*). Finally, we can conclude that different sectors of activity may influence a change in auditor by the audited companies (*H10*). The remaining hypotheses under analysis were not confirmed by the model.

IX. Conclusions

In light of the results obtained, despite not being common practice in Portugal, it is clear auditor change is significantly influenced by certain factors such as the existence of qualified reports, the considerable size, or growth rate of the company, whereby the governance model implemented is equally relevant to such a change. It is also true to say that the sector of activity in which the company operates is relevant, and, as such, certain sectors are more susceptible to a change in auditor. In this sense, the activity of the auditors and, consequently, their independence, may be more affected by the reasons arising from the hypotheses analyzed in this study, whereby it is appropriate that the supervisory authorities have no need to pay special attention to companies which comply with the requirements validated in this study.

Thus, the supervisory authorities should reinforce their activity in relation to the aspects addressed herein as relevant to auditor change, as a means of being able to correctly monitor the manner in which audits are conducted and the manner in which the conclusions are supported by these situations, with the aim of guaranteeing that auditors' independence of cannot be influences, and that the assumption of the importance of the audit report to stakeholders is not affected.

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