

The Audit Quality and the Cessation of the Activity of the Companies

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Abstract

The purpose of this study is to examine and test the relationship between audit quality and cessation of business by non-financial, non-listed companies operating under IAS. A logistic regression model is used to test the hypotheses based on the modified Jones model and some other variable. The results obtained considering abnormal accrual values indicate that there is no correlation between corporate termination and some of the variables studied, abnormal accrual and non-monetary accrual. On the other hand, it is statistically significant when considering working capital. By understanding whether there is a relationship between audit quality and cessation of activity, it is possible to ascertain which variables to investigate in order to ensure that such events are reduced, all the more so if there are possible earning management practices. The originality of the article lies in the analysis of the relationship between audit quality and the cessation of companies, giving new point of view to the topic.

Keywords: Abnormal accrual, audit quality, ceased firms, earning management

1. Introduction

Audit quality is a subject that has been studied from different perspectives and which has seen the proliferation of studies especially concerning the economic field. Over the years, studies on audit quality have focused on companies operating in the private sector, analysing the various aspects and variables that may influence it. Few works, however, focus on the effect that low audit quality might have on the cessation of activities. This has motivated this research that assesses the likelihood that a low level of audit quality involves the probability that in a certain year a firm ceases.

To test the hypothesis that such probability is affected by audit quality, this paper considers a sample of non-financial companies that are not listed and that prepare their financial statements according to the international accounting standards (IAS) and international financial reporting standards (IFRS). In the paper, a logistic regression is used. Its dependent variable is a dummy identifying firms that ceased and whose regressors are discretionary (abnormal) accruals that are considered a measure of audit quality. The higher discretionary accruals, the audit quality is.

The use of this analysis serves to provide a first approach to the analysis of the relationship between audit quality and company closure. In detail, the aim of this paper is to obtain indications through the results of regression models of the investigated variables that provide evidence of how low audit quality affects business closure. The motivation also stems from the analysis of the literature and existing works that analysed audit quality in private companies in relation to various aspects that make up the phenomenon, but there are no references linking it to the final life phase of companies, whether due to bankruptcy or liquidation and cessation. The analysis was carried out basing the work on the analysis of abnormal accrual values, also trying to understand if there are any distortions due to earnings management practices that may have affected the values studied. The literature analysis focused on studies using abnormal accruals as a proxy for audit quality in order to analyse the different aspects under study.

This paper is structured as follows. Section 2 provides the theoretical basis useful for understanding the context of studies concerning audit quality. In Section 3, the methodological approach is described. Section 4 contains the sample selection strategy and descriptive statistics. The overall results of the research are described in section 5. Section 6 discusses the results and represents the conclusion of this work, also identifying its limitations as well as its possible future developments.

2. Theoretical Foundations

Audit quality in one of the most widely used definitions, that of DeAngelo (1981) "*the joint probability, assessed by the market, that the auditor will be able to detect errors and irregularities in the company's accounting evidence and will communicate them to the market so that the stakeholders are not misled by a distorted representation of the company's assets, financial and economic situation*". Audit quality is a subject that has been extensively studied in relation to several factors; analysing the phenomenon using accruals as a tool, we find numerous references in the literature that assess different contexts and areas of study.

In the work of J.N. Myers, L.A. Myers, & Omer (2003) the phenomenon is investigated in relation to the length of the audit mandate and the study reports that a longer audit mandate increases audit quality and also the quality of earnings; in the paper of Reichelt and Wang (2010) it is reported that specialist auditors guarantee a higher audit quality than non-specialist auditors and, in their study, they take abnormal accruals as the basis for their conclusions.

Abnormal accruals are used as a proxy for audit quality in the study by Boone, Khurana, & Raman (2010), who, however, focus on audit opinions issued by Big 4 and non-Big 4 auditing firms, concluding that there is no propensity to issue going concern opinions for distressed companies.

In the measurement, by using abnormal accruals, of audit quality in the case of the French market in the study by Bédard, Gonthier-Besacier, and Schatt (2019), it is achieved that a more balanced audit work allocation between the engaged audit firms reduces audit quality and improves audit fees compared to an unbalanced work allocation.

In the study by Al-Hiyari, Colsey, and Muqattash (2022), it is shown that, in the Middle Eastern context, auditors of the largest audit firms are not associated with audit quality, also measured by abnormal accruals, and that audit quality between large and smaller audit firms is associated with the type of clientele rather than the competence of the auditors.

In the work of Kwon, Ki, & Kim (2021), it is established that audit firms with global networks allow auditors to share industry knowledge with foreign members. Specialised auditors in the global industry have competitive advantages from participating in the global network of audit firms and their clients are willing to pay premiums in exchange for specialised audit services. The authors use abnormal accruals combined with performance as a proxy for audit quality, the results indicate high audit quality.

Ismael and Kamel (2021) assert that there is a negative relationship between internal audit quality and abnormal accruals, implying the prominent role of internal audit in reducing earnings management upwards. The study also discovers a significant impact of internal audit competence on the reduction of UK companies' involvement in earnings management that increases revenue over internal audit independence.

Hunt, Rosser, & Rowe (2020) establish through their analysis that lower audit quality among companies that are more likely to change auditors but remain with their current auditor. Specifically, companies more likely to change auditors have a higher probability of errors and higher abnormal ratios.

Li, Hay, & Lau (2019) examined audit quality as measured by absolute abnormal accruals and audit fees for listed companies in New Zealand. The results suggest that improved audit reports were followed by an improvement in audit quality, as approximated by a reduction in absolute abnormal accruals following the adoption of the new audit reporting requirements. There was also a significant increase in audit fees

Dao, Xu, & Liu (2019) use two measures of audit quality (abnormal accruals and likelihood of detecting material weaknesses in internal control) and find that disclosure of engagement partners' names is associated with a lower level of abnormal accruals and a higher likelihood of audit firms detecting material weaknesses in controls.

The work of Lesage, Ratzinger-Sakel, and Kettunen (2016) analysed the differences in audit quality, in the Danish market, between audits by a single large audit firm and joint audits with one or two large audit firms. Most CFOs perceive the audit quality from a single of the four large audit firms to be the same as joint audits. The results are in line with perceptions.

In the article by Johl, Jubb, and Houghton (2007) analysing auditors' behaviour in the presence of aggressive earnings management (EM) in the context of the Asian economic crisis that affected Malaysia; Big 5 auditors in Malaysia seem to qualify more frequently than their non-Big 5 counterparts when high levels of abnormal accruals are present. However, the interaction between auditor sector specialisation and abnormal accruals is not significant in predicting the incidence of qualification.

In all these research, abnormal accruals are negatively associated to audit quality and lead us to hypothesise that a decrease of audit quality (i.e., increase of discretionary accruals) should positively affect the probability that a firm

ceases. This has led us to formulate the following hypothesis:

H1: there is a negative relationship between audit quality and the probability that a firm fails

3. Method

This study uses the following logistic regression to test our hypothesis:

$$\text{logistic Ceased}_{it} = \text{AQ}_{it} + \varepsilon_{it} \quad (1)$$

where AQ_{it} is the value of the audit quality of the firm i in period t and ε is the error term.

3.1 Total Accrual Estimation

As proxy of audit quality, the discretionary (abnormal) accruals are used. To estimate them, this study starts from the formula for total accruals that we can find in Cimini (2015) for which total accruals are given by the difference between earnings and cash flow:

$$\text{TA}_{it} = \text{E}_{it} - \text{CF}_{it} \quad (2)$$

- TA_{it} are total accruals of enterprise i in period t ;
- E_{it} is the earning of enterprise i in period t ;
- CF_{it} is the cash flow of enterprise i in period t ;

Using the indirect method for the cash flow item results in the following equation:

$$\text{CF}_{it} = \text{E}_{it} + \text{DEP}_{it} - \Delta \text{WC}_{it} \quad (2.1)$$

- DEP_{it} are the non-monetary costs such as depreciation and amortisation expenses of enterprise i in period t ;
- ΔWC_{it} are the changes in non-cash working capital reported by company i at the end of fiscal year t .

It is therefore possible to calculate the difference between earnings and cash flow algebraically from the above equation as follows:

$$\text{E}_{it} - \text{CF}_{it} = \Delta \text{WC}_{it} - \text{DEP}_{it} \quad (2.2)$$

Substituting the previous equations, we obtain:

$$\text{TA}_{it} = \Delta \text{WC}_{it} - \text{DEP}_{it} \quad (2.3)$$

The equation just described has different economic meanings and implications for scholars and regulators. As far as economic meanings are concerned, total accruals have two components, the change in non-monetary working capital (ΔWC_{it}) and total non-monetary costs (DEP_{it}), which are actually quite different. Depending on the size of its components, total accruals can be positive or negative. DeAngelo (1986) asserts that total accruals are generally negative due to depreciation expenses being the largest component of total accruals. However, it is easy to understand that when changes in working capital are greater than non-monetary costs, the value of total accruals will be positive. Since total accruals are the sum of the change in working capital and non-monetary costs, compensation between these two components is inevitable. It is necessary to investigate earnings management, which in our hypothesis may result from a low level of audit quality, not only with regard to non-monetary costs but also with regard to changes in working capital. Introducing the model of Jones (1991), which is one of the main statistical models investigating earnings management we report that:

1) The change in working capital is calculated as the change in the balance sheet items which are receivables, inventories and trade payables:

$$\Delta \text{WC}_{it} = (\Delta \text{CA}_{it} - \Delta \text{CASH}_{it}) - (\Delta \text{CL}_{it} - \Delta \text{STD}_{it}) \quad (2.4)$$

- ΔCA_{it} is the change in current assets of enterprise i from $t - 1$ and t ;
- ΔCASH_{it} is the change in cash and cash equivalents of company i from $t - 1$ and t and thus represents the cash flow produced in period t ;
- ΔCL_{it} is the change in current liabilities of enterprise i from $t - 1$ and t ;
- ΔSTD_{it} is the change in the current maturities of the long-term debts of firm i from $t - 1$ and t .

2) The non-monetary costs to be included in equation are also shown in the balance sheet, because in the numerical example we will provide in the following pages we show that they are the first difference (e.g. $\text{DEP}_{it} - \text{DEP}_{it-1}$) between the cumulative non-monetary costs shown in that statement. The equation clearly identifies the possible accounting items whose sum gives rise to the two components of total accruals and which could be manipulated by insiders to mislead outsiders' perceptions of company performance. These items produce:

a) the changes in working capital (ΔWC_{it}), which according to the equation are:

- the change in receivables and inventories calculated as the difference between the change in current assets and the change in cash and cash equivalents ($\Delta CA_{it} - \Delta CASH_{it}$);

- the change in trade payables calculated as the difference between current liabilities and the change in current maturities of long-term liabilities ($\Delta CL_{it} - \Delta STD_{it}$);

b) non-monetary items, generally identified as depreciation expenses (DEP_{it}).

3.2 Abnormal (Discretionary Accruals) Estimation

Several scholars have focused on the investigation of earnings management at an empirical level, the earliest studies include that of Healy (1985), later followed by the work of De Angelo (1986).

The first focuses on how managers' bonuses are a factor that tends to influence accounting procedures and accruals in order to maximise managers' profits. In this study, a distinction is made between non-discretionary accruals and discretionary accruals, the former are those that cannot be manipulated as they are linked to existing national and international regulations while the latter refer to values that can be entered on the basis of a discretionary assessment of the financial statement preparers. The difficulties encountered by the author concern the calculation of both discretionary and non-discretionary accruals. DeAngelo (1986) attempts to overcome these problems by using abnormal accruals, this approach, although improving on Healy's study, continues to have the problem of calculating non-discretionary accruals, which for the author assumes an average variance of zero.

The studies on which this paper is based are those of Jones (1991) and modified Jones introduced by Dechow, Sloan, & Sweeney (1995). In carrying out his investigative work, he assumes the following four steps:

- a) the determination of the period to be estimated and more specifically the period of the event relating to a specific event;
- b) the estimation of regression parameters using a regression model in order to predict what the normal accruals are in the event period;
- c) the calculation of abnormal accruals in the period of the event;
- d) the use of test statistics to verify the significance of abnormal accruals.

The model of Dechow et al. (1995) departs from the earlier model of Jones (1991) in that it is believed that it is easier to exercise discretion when revenues are credit-settled and not cash-settled, and that all changes in sales credits are related to earnings management; departing from the view of estimating normal accruals during the event period in that in the model of Jones (1991) it is implicitly believed that revenues are not subject to discretionary estimates by managers.

Starting from the above, there will be an initial application of the Jones modified model to see if there are any indications of possible manipulation behaviour in the balance sheet data. In a second step, the values of abnormal accruals, non-monetary costs and changes in working capital will be investigated by applying regression models to the individual variables for both years under study and attempting to trace a relationship between the resulting values, audit quality and cessation of business.

4. Sample Selection and Descriptive Statistics

The companies studied are 2,699 Italian unlisted companies that do not operate in the financial sector and adopt the IAS/IFRS during the years 2018 and 2019. The results shown in Table 1 indicate that the number of companies changed and decreased from 1,383 in 2018 to 1,316 during 2019.

Table 1. Number of firms operating in 2018 and 2019

Year	Number of firms
2018	1,383
2019	1,316
Total	2,699

The decrease in the number of firms is due to missing data. In the database the paper distinguishes the active firms and those that ceased in the years 2020 and 2021. These firms are those that have declared bankruptcy and those that have been placed in liquidation and have ceased operations are considered.

Applying the Modified Jones model of Dechow et al. (1995), table 2 provides descriptive statistics of for abnormal accruals and for its components that are the non-monetary abnormal accruals and the working capital abnormal accruals.

Table 2. Modified Jones model year 2018

2018						
Variable	Obs	Mean	Std. Dev.	Min.	Median	Max.
absabnormalaccrual	1,383	1.1950	12.2091	.0022	.1922	351.5956
Abnormal non-monetary accrual	1,383	3.6235	21.7046	.0007	.3566	520.4995
abnormal wc accrual	1,383	2.7463	11.5990	.0002	.2403	192.6302

Note. Obs = observations; wc = working capital; Std. Dev.= Standard Deviation; Min= minimum; Max = maximum.

Table 3. Modified Jones model year 2019

2019						
Variable	Obs	Mean	Std. Dev.	Min.	Median	Max.
absabnormalaccrual	1,316	.9103	8.0734	.0004	.1277	273.9571
abnormal non-monetary accrual	1,316	2.9611	17.0382	.0007	.3294	466.8314
abnormal wc accrual	1,316	2.3653	10.7757	.0012	.3113	211.5169

Note. Obs = observations; wc = working capital; Std. Dev.= Standard Deviation; Min= minimum; Max = maximum.

The table suggests that the values of the analysed variables decrease between 2018 and 2019. Assuming discretionary (abnormal) accruals a measure of earnings management, this leads us to believe that there was no evidence of an earnings management increase in the annual reports of the companies analysed.

5. Results

5.1 Main Analysis

Table 1 tabulates the regression parameters of equation (1) estimated separately for 2018 and 2019 and assuming the total abnormal (discretionary) accruals as regressor.

Table 4. Regression model of abnormal accrual (2018)

Logistic regression Year = 2018						Number of obs = 1,383
Log likelihood = -121.0455						LR chi2(1) = 0.08
						Prob > chi2 = 0.7774
						Pseudo R2 = 0.0003
ceased	Coef.	Std. Err	z	P> z	[95% Conf. Interval].	
abnormal accrual	.0034	.0103	0.33	0.742	-.0167	.0235
_cons	-4.0416	.2069	-19.53	0.000	-4.4472	-3.6360

Note. Obs = observations; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Table 5. Regression model of abnormal accrual (2019)

Logistic regression Year = 2019						Number of obs = 1,316
Log likelihood = -94.9660						LR chi2(1) = 0.33
						Prob > chi2 = 0.5646
						Pseudo R2 = 0.0017
ceased	Coef.	Std. Err	z	P> z	[95% Conf. Interval].	
abnormal accrual	.0084	.0111	0.75	0.454	-.0135	.0302
_cons	-4.2903	.2389	-17.96	0.000	-4.7586	-3.8221

Note. Obs = observations; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Findings do not support the hypothesis of this paper in the extent there is not statistical evidence that the value of abnormal (discretionary) accruals affects the probability that a firm ceases.

Tables 6 and 7 tabulate the regression parameters re-estimating equation (1) for the two components of abnormal (discretionary) accruals that is working capital and non-monetary accruals. Also, in this case the estimations have been done separately for 2018 and 2019.

Table 6. Regression model of non monetary cost (2018)

Logistic regression Year = 2018		Number of obs = 1,383			
Log likelihood = -121.574		LR chi2(1) = 1.02			
		Prob > chi2 = 0.3118			
		Pseudo R2 = 0.0042			
Ceased	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal non-monetary accrual	.0049	.0038	1.30	0.195	-.0025 .0123
_cons	-4.0648	.2091	-19.44	0.000	-4.4746 -3.6549

Note. Obs = observations; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Table 7. Regression model of non monetary cost (2019)

Logistic regression Year = 2019		Number of obs = 1,316			
Log likelihood = -97.9230		LR chi2(1) = 2.32			
		Prob > chi2 = 0.1279			
		Pseudo R2 = 0.0122			
Ceased	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal non-monetary accrual	.0082	.0042	1.97	0.048	.0001 .0163
_cons	-4.3269	.2425	-17.85	0.000	-4.8021 -3.8517

Note. Obs = observations; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Results tabulated in the tables suggest that only in 2019 the non-monetary discretionary accruals are positively associated with the probability that a firm ceases its activity within the next two years.

Such a mixed result might be attributable to the presence of self-financing by the companies and is not necessarily an indicator of companies ceasing activity.

When this paper uses the working capital discretionary accruals, results tabulated in Tables 8 and 9 suggest that in both the years analysed they are positively associated to the probability that a firm ceases within the next two years.

Table 8. Regression model of working capital (2018)

Logistic regression Year = 2018		Number of obs = 1,383			
Log likelihood = -119.7363		LR chi2(1) = 2.70			
		Prob > chi2 = 0.1005			
		Pseudo R2 = 0.0111			
ceased	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal wc accrual	.0146	.0070	2.10	0.035	.0001 .0283
_cons	-4.1039	.2132	-19.25	0.000	-4.5219 -3.6860

Note. Obs = observations; wc = working capital; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Table 9. Regression model of working capital (2019)

Logistic regression Year = 2019		Number of obs = 1,316			
Log likelihood = -93.0617		LR chi2(1) = 4.14			
ceased		Prob > chi2 = 0.0419			
		Pseudo R2 = 0.0218			
	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal wc accrual	.0177	.0066	2.67	0.008	.0047 .0306
_cons	-4.3652	.2468	-17.69	0.000	-4.8489 -3.8816

Note. Obs = observations; wc = working capital; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

With respect to the indications returned by the previous variables on working capital, we obtain a result that is indicative with respect to the topic analysed. We note, in fact, that the value of z is statistically significant with reference to both 2018 and 2019. The reason for this is to be found in the components of working capital, in particular, the items receivables and payables that are more exposed to opportunistic behaviour on the part of those involved in preparing the financial statements, and this is especially true in environments with a lower level of audit quality.

5.2 Additional and Robustness Tests

Similar results can be obtained if we consider the values jointly for the two years under analysis with reference to each individual variable analysed. Table 10 tabulates results of the regression model that uses abnormal (discretionary) accruals as proxy of earnings management. Table 11 tabulates results for non-monetary abnormal (discretionary) accruals. Table 12 tabulates results for working capital discretionary accruals.

Table 10. Regression model of abnormal accrual (2018/2019)

Logistic regression		Number of obs = 2,699			
Log likelihood = -216.3531		LR chi2(1) = 0.33			
Ceased		Prob > chi2 = 0.5680			
		Pseudo R2 = 0.0008			
	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal accrual	.0052	.0073	0.70	0.483	-.0092 .0195
_cons	-4.1550	.1564	-26.57	0.000	-4.4615 -3.8485

Note. Obs = observations; wc = working capital; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Table 11. Regression model of non-monetary cost (2018/2019)

Logistic regression		Number of obs = 2,699			
Log likelihood = -214.9877		LR chi2(1) = 3.06			
Ceased		Prob > chi2 = 0.080			
		Pseudo R2 = 0.0071			
	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal non-monetary	.0062	.0027	2.29	0.022	.0009 .0115
_cons	-4.1835	.1582	-26.44	0.000	-4.4937 -3.8733

Note. Obs = observations; wc = working capital; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

Table 12. Regression model of working capital (2018/2019)

Logistic regression		Number of obs = 2,699			
Log likelihood = -213.1298		LR chi2(1) = 6.77			
Ceased		Prob > chi2 = 0.0093			
		Pseudo R2 = 0.0156			
	Coef.	Std. Err	z	P> z	[95% Conf. Interval].
Abnormal wc accrual	.0162	.0048	3.38	0.001	.0068 .0255
_cons	-4.2239	.1612	-26.19	0.000	-4.5400 -3.9078

Note. Obs = observations; wc = working capital; coef. = coefficient; Std. Err. = Standard errors; Prob = probability.

With respect to the main analysis, not only working capital abnormal (discretionary) accruals are positively associated with the probability that a firm fail within the following years but also non-monetary abnormal (discretionary) accruals.

6. Concluding Remarks

This study, aimed at analysing the relationships between the cessation of business of unlisted non-financial companies applying IAS/IFRS and audit quality, yielded discordant results. In fact, with respect to the hypothesis that a decrease of audit quality positively affects the probability that a firm ceases within in the next two years, the paper provided evidence that only a part of abnormal (discretionary) accruals positively affect such probability. Assuming them a measure of audit quality, the working capital abnormal (discretionary) accruals are that affect (more than others) the probability that a firm ceases. The nature of this result is certainly due to the items that make up working capital, which are more manoeuvrable and modifiable during the preparation of the financial statements, and therefore in the presence of a low level of audit quality, they increase the possibility of cessation of business. The analysis, as already indicated, leaves discordant results with regard to the variable of non-monetary accrual and therefore it would need to be further investigated with future studies how much this variable may affect the issue and also whether the difference in statistical significance between the analysed years is exclusively due to the presence of self-financing produced by the companies. With regard to the last variable, abnormal accruals, it is not statistically significant and therefore does not affect the companies' cessation of business. Combining the evidence just listed with what is returned by the application of the modified Jones model in the sample of companies studied, there does not appear to be any evidence of earnings manipulation that could have affected company performance.

The study is a first step in the reading of audit quality related to the cessation of activities by companies, it suffers from the limitations due to the lack of existing references for the analysis; however, it should be emphasised that there is evidence that one of the variables analysed turns out to affect the possible distortions created within the company that can even lead to its closure, especially in an environment where audit quality is low. This result turns out to be a basis for possible future studies of the phenomenon; the scope is very broad because this study only analysed companies that operate in non-financial markets and are not listed. The analysis can also be extended to a broader time period and for future studies it will also be possible to assess the use of other variables that might provide different evidence to that taken as reference.

The analysis of the phenomenon of audit quality in relation to business closures can also represent a new point of reference for regulators, political bodies and auditing firms themselves in order to further improve the tools available to prevent business closure scenarios, especially in relation to events linked to company bankruptcies, which are events that impact on the stakeholders of companies but also, especially in the case of bankruptcies of larger companies, on the social fabric.

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