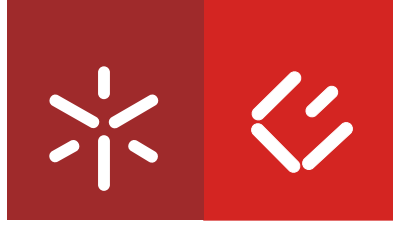


Universidade do Minho
Escola de Economia e Gestão

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**Investors' Perceptions on Mandatory Auditor
Rotation: Evidence from Euronext Lisbon**



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Master's Dissertation
Master in Finance

Work performed under the supervision of
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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

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Investors' Perceptions on Mandatory Auditor Rotation: Evidence from Euronext Lisbon

Abstract

The global crisis and the accounting scandals highlighted the importance of adopting audit policies with the ability to prevent the breach of auditors' independence. In this sense, in the United States, the Sarbanes–Oxley Act (SOX, 2002) required mandatory engagement partner rotation. Following the U.S. experience, the European Union through its rules established in 2006 the mandatory rotation of the engagement partner, and in 2014 the mandatory audit firm rotation. Portugal, as a Member State, imposed the mandatory rotation of the engagement partner in November 2008, and the mandatory audit firm's rotation in January 2016. The benefits arising from the mandatory auditor rotation are still difficult to measure and are not unanimously perceived among policymakers, and prior studies reach conflicting evidence.

In this study, we examine the relationship between mandatory auditor rotation (*engagement partner* and audit firm rotation) and firms' stock market performance, by using a sample of companies listed in Euronext Lisbon between 2009 and 2020.

The main results indicate that the mandatory audit firm rotation is positively and significantly related to firms' market performance. These results are robust to using year and industry fixed effects, and after controlling for corporate governance mechanisms and other controls. The evidence gathered suggests that investors seem to perceive mandatory rotation of audit firms as enhancing auditors' independence and skepticism, deriving in higher credibility of financial reporting and in higher audit quality. Regarding the mandatory engagement partner rotation, the results are not statistically significant.

Keywords: Audit firm; Auditor's independence; Engagement partner; Investors' perceptions; Mandatory auditor rotation.

Percepções dos investidores sobre a rotação obrigatória em auditoria: Evidência da *Euronext Lisbon*

Resumo

A crise financeira global e os escândalos contabilístico-financeiros realçaram a importância de adotar políticas e regras no âmbito do exercício da auditoria financeira, no sentido de prevenir e reduzir a violação da independência dos auditores e melhorar a qualidade da auditoria. Nesse sentido, nos Estados Unidos, a Lei Sarbanes–Oxley (SOX, 2002) passou a exigir a rotação obrigatória dos *audit engagement partners* (sócio responsável pelo trabalho de auditoria). Seguindo a experiência dos EUA, a União Europeia através de uma Diretiva e de um Regulamento estabeleceu, em 2006, a rotação obrigatória do *engagement partner*, e em 2014 a rotação obrigatória da empresa de auditoria. Portugal, como Estado-Membro da UE, impôs a rotação obrigatória do *engagement partner* em novembro de 2008, e a rotação obrigatória da empresa de auditoria em janeiro de 2016. Os benefícios decorrentes da rotação obrigatória do auditor são ainda difíceis de mensurar e não são percebidos de forma unânime entre os decisores políticos, e os estudos prévios na área a fornecem evidências conflitantes.

Nesta dissertação analisamos a relação entre a rotação obrigatória dos auditores (rotação do *engagement partner* e da empresa de auditoria) e o desempenho bolsista das empresas, usando uma amostra de empresas cotadas na *Euronext Lisbon* entre 2009 e 2020.

Os principais resultados indicam que a rotação obrigatória da empresa de auditoria está positiva e significativamente relacionada com o desempenho de mercado das empresas. Esses resultados são robustos ao usar os efeitos fixos de ano e indústria, e após o uso de variáveis de controlo relacionadas com o governo das sociedades (entre outras). A evidência recolhida sugere que os investidores associam a rotação obrigatória das empresas de auditoria a um aumento da independência e do ceticismo dos auditores, resultando em maior credibilidade do relato financeiro e da qualidade da auditoria. Em relação à rotação obrigatória do *engagement partner*, os resultados não são estatisticamente significativos.

Palavras chave: Empresa de auditoria; Independência dos auditores; *Engagement partner*; Percepções dos investidores; Rotação obrigatória.

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1 Introduction

DeAngelo (1981) defines audit quality as the market-assessed joint probability that a given auditor will both: (a) detect a breach in the client's financial reporting system, and at the same, (b) report the breach. In this conceptualization, which is the most widely used in auditing research, two main aspects are highlighted: the auditor's competence, which determines the probability of a misstatement being detected, and the independence of the auditor, which determines the likelihood of the distortion detected to be reported by the auditor (Knechel, 2009).

Audit quality has been continuously questioned, mainly as the result of international financial scandals of the last decades. These high-profile international financial fraud cases cast doubts on the effectiveness of corporate governance mechanisms and raised questions about the extent to which financial auditors are sufficiently competent and independent to assure, at least to a certain level, the integrity of the financial reporting system and mitigate financial fraud (Wells, 2005; Sikka, 2009).

In the last two decades, further attention and primacy have been given to external auditing due to the worldwide high-profile international financial scandals. Cases such as Enron Corporation have damaged relations between companies and stakeholders (Sikka, 2009). Enron which was being audited by Arthur Andersen (one of the Big5 auditors at the time) had unqualified audit reports, and against all odds, ended up filing for bankruptcy in October 2001; Arthur Andersen was dissolved in 2002 after being found guilty of crimes in the Enron case (Sikka, 2009).¹

As a result, regulators of the audit profession worldwide began to make efforts to improve audit quality.

The negative externalities arising from the Enron event led the United States (U.S.) Senate to promote a federal law, the Sarbanes–Oxley Act of 2002 (enacted on July 30th), commonly called Sarbanes–Oxley or SOX, that largely expanded requirements for all U.S. public company boards, management, and public accounting firms (Sikka, 2009). Among the new requirements of SOX, it was imposed the mandatory rotation of the engagement partner every 5 years in public companies in order to strengthen the auditors' independence and the audit quality (Cameran et al., 2015; Reid & Carcello, 2017).² However, the same requirements did not hold for the audit firms and a long debate, on whether

¹ The "Big5" international audit firms were Arthur Andersen, PricewaterhouseCoopers, Deloitte Touche Tohmatsu, Ernst & Young, and KPMG. With the Arthur Andersen dissolution in 2002, the Big5 turn into the Big 4 audit firms.

² PCAOB, is a private-sector, non-profit corporation created by the Sarbanes-Oxley Act of 2002 to oversee accounting and auditing professionals who provide independent audit reports for publicly traded companies (<https://www.investor.gov/introduction-investing/investing-basics/glossary/public-company-accounting-oversight-board-pcaob>)

audit firm rotation is beneficial or not, occurred between the U.S. regulators and the Public Company Accounting Oversight Board (PCAOB). These efforts turned out to be worthless when the U.S. House of Representatives prohibited the enactment of mandatory audit firm rotation in 2013 (Garcia-Blandon et al., 2020; Kim et al., 2019).

A few years after the SOX enactment and following the same line of action, in 2006, the European Union (EU) required the mandatory rotation of the engagement partner every 7 years (with the chance of returning after three years), for all the EU Public Interest Entities (PIEs) (Directive 2006/43/EC; art. 17°, n.º 7 of the EU Regulation No. 537/2014). In 2014, and in contrast to the U.S. rules, the EU introduced additional requirements by launching the mandatory audit firm rotation for EU PIEs (EU Regulation No. 537/2014). The baseline measure is a 10-year mandatory audit firm rotation for all PIEs (art. 17° of the Regulation), although the options available to the Member States are: (1) implement a shorter rotation period (art. 17°, n.º 2 b) of the Regulation); (2) extend the period once for up to a maximum further 10 years where a public tendering process is conducted – to a maximum term of 20 years (art. 17°, n.º 4 a) of the Regulation); (3) extend the period once for up to a maximum further 14 years where there is a joint audit arrangement – to a maximum term of 24 years (art. 17°, n.º 4 b) of the Regulation).

In Portugal, the mandatory engagement partner rotation and the audit firm rotation of PIEs were enacted in November 2008 (Decree-Law no. 224/2008, of November 20th) and January 1st, 2016 (Law no. 140/2015, of September 7th), respectively. Currently, the engagement partner rotation is required every 7 years with the possibility of returning after three years (art. 54° of the Legal Regime of Portuguese Statutory Auditors - Law no. 140/2015, of September 7th, with the amendment introduced by the Law no. 99-A/2021, of December 31th). Regarding the audit firm rotation, up to January 31st 2022, the maximum tenure of the audit firm was two or three terms, depending on whether they are of four or three years, respectively, with a maximum tenure of 10 years, and the outgoing audit firm could return 4 years after the rotation date (art. 54° of the Legal Regime of Portuguese Statutory Auditors). Nevertheless, with the recent amendment of the Legal Regime of Portuguese Statutory Auditors (Law no. 140/2015, of September 7th, with the amendment introduced by the Law no. 99-A/2021, of December 31st), since February 1st 2022, the minimum tenure of the audit firm is two years and the maximum tenure is 10 years (art. 54° of the Legal Regime of Portuguese Statutory Auditors).

The main arguments in favour of mandatory auditors' rotation are the reinforcement of duties of a deontological nature such as independence, impartiality, prevention of conflicts of interest and others,

and improving the integrity and effectiveness of the financial statements and, to this extent, enhancing the orderly functioning of the markets (preamble of the Legal Regime of Portuguese Statutory Auditors - Law no. 140/2015, of September 7th).³

Nevertheless, there is a lack of consensus regarding the cost and benefits of mandatory auditors' rotation, with the extant literature presenting arguments against and in favour of rotation, and the empirical studies presenting contradictory evidence (e.g., Blouin et al., 2007; Bamber & Bamber, 2009; Chi et al., 2009; Lennox et al., 2014; Cameran et al., 2015).

As Reid and Carcello (2017, p. 183) argue "there has been a longstanding debate within the regulatory community as to whether indefinite tenure reduces audit quality as auditors' interests may become more aligned with management over time".

Furthermore, prior studies have largely focused on assessing the impact of mandatory auditor rotation on several proxies for audit quality, and few explored the investors' perception/reaction to mandatory auditors' rotation (Reid & Carcello, 2017; Kim et al., 2019). Filling this gap in the literature, this dissertation's main objective is to explore to what extent mandatory auditor rotation (both the engagement partner and the audit firm rotation) is related with firms' market performance and, therefore, to investors' prospects, for the Portuguese context. To the best of our knowledge, this is the first study exploring these relationships in the Portuguese setting.

Notwithstanding the recurrent consideration of mandatory rotation as a policy option, it remains unclear how investors perceive mandatory audit rotation, and "whether investor reaction depends on various characteristics of companies' auditors" (Reid & Carcello, 2017, p.184).

We decide to explore the mandatory (rather the voluntary) rotation Portuguese setting since the prior literature highlights that we should be careful in drawing the conclusion that audit quality and independence are modified following a voluntary auditor change (Cameran et al., 2015). The reasoning is that voluntary auditor changes often occur in a broader context of auditor-client disagreements or other client difficulties, such as financial distress and declining performance, and these circumstances may "overstate" the negative effects on audit quality following auditor changes that have been documented in academic research (Cameran et al., 2015). Furthermore, Lennox (2013, in Cameran et al., 2015, p.3) highlights the difficulty in determining causality in a voluntary rotation setting.

³ In this study the expression "auditor rotation" encompasses both the engagement partner and audit firm rotation.

This dissertation contributes to the literature on the financial consequences of mandatory auditor rotation. Moreover, the findings are of interest to regulators as they may provide insights into how investors perceive mandatory auditor rotation and the costs and benefits of such a policy.

The remainder of this dissertation is organized as follows. The next chapter presents the literature review and the hypotheses development. Chapter 3 outlines the research design; chapter 4 describes and discusses the results. Concluding remarks are provided in the final chapter.

2 Literature Review and Hypotheses Development

2.1 Mandatory Rotations vs. Voluntary Auditor Rotation

Voluntary audit firm rotation occurs when either an audit firm resigns from the client (audit firms tend to resign from clients that pose a high risk of misreporting and litigation) or a client dismisses the incumbent audit firm and appoints a different audit firm (Lennox et al., 2014; Cameran et al., 2015). Voluntary rotation of the audit engagement partner occurs, in general, as a result of a choice of the audit firm to which the partner belongs.

Mandatory auditor rotation is rooted in a legal requirement. Mandatory audit rotation both at the engagement partner or audit firm-level is a legal requirement aiming at improving auditor independence and audit quality (Chi et al., 2009). Nevertheless, the costs and benefits of mandatory auditor rotation remain an open question (Lennox et al., 2014; Reid & Carcello, 2017).

According to Bamber and Bamber (2009), we cannot either generalize the effects of audit firm rotation or engagement partner rotation, because they encompass different costs and benefits. In audit firm rotation, the incoming audit team applies a new methodology (and client procedures), which is quite likely to differ from the previous one. At the engagement partner rotation level, in general, only the audit partner is replaced, keeping everything else roughly constant, such as the work methodology, prior working papers, and the audit team (Bamber & Bamber, 2009; Chi et al., 2009).⁴

Opponents to mandatory auditor rotation claim that the cost of implementing mandatory auditor rotation should not be neglected (Johnson et al., 2002; Ghosh et al. 2005). For instance, there are switching costs (which are supported by the client firm) related to the time required for the new auditor to get specific knowledge about the new client and its financial reporting system, and this may imply that new auditors have difficulties in detecting material misstatements, omissions in financial reporting, or even earnings management (Boone et al., 2008). Indeed, the possibility of an audit failure might be greater in the early period of audit engagement (Kim et al., 2019).

Moreover, in case of engagement partner rotation, the potential improvement in the independence in relation to the client is subject to exogenous factors, which implies that a change in the engagement partner will not necessarily lead to a better outcome. For example, the incoming audit partner is likely to solve any independence issue if the actual partner is regarded as a threat to the

⁴ In some cases, the incoming audit partner may bring his/her audit team.

independence. However, this reasoning does not verify if the problems actually emerge from the audit team and not from an individual, due to the audit culture that is rooted in the audit firm (Bamber & Bamber, 2009; Chi et al. 2009).

Proponents of mandatory auditor rotation argue that it enhances auditor independence and skepticism and believe “that audit firms with relatively longer tenure provide an increased likelihood of familiarity (or even friendships) forming between the audit staff members and client staff members, an increased likelihood of a stale audit program, and a decreased likelihood that the auditor will make decisions contrary to the prior year decisions, thereby providing a lower quality and less efficient audit (Corbella et al., 2015, p.47)”.

According to Chi et al. (2009), the benefits arising from both mandatory engagement partner and audit firm rotation bring a “fresh” and skeptical perspective, which makes the incumbent auditor more prone to find any omission or error. Furthermore, according to Arthur et al. (2017), the issue concerning the loss of industry-specific knowledge highlighted by opponents of mandatory auditor rotation is completely offset when the incoming auditors are industry specialists. In addition, the rotation of the engagement partner is less expected to jeopardize the competence of the audit team, because it has incentives to prepare and monitor its incoming partner, namely due to legal liability (Bamber & Bamber, 2009). Moreover, the auditor rotation is a clear incentive for the departing auditor in his last year to be more careful and watchful since the incoming auditor will assess his work, thus resulting in higher audit quality in the year prior to and after the rotation of the auditor (Chi et al., 2009; Lennox et al., 2014). Reducing the economic dependency between the audit firm and client is another benefit of mandatory audit rotation, as auditors retain their independence without any concern for the loss of quasi-rent or dismissal (Kim et al., 2019).

2.2 Auditor Rotation, Audit Quality and Auditors Independence

Extant research in this area explores both the impact of auditor rotation (including the audit firm and the engagement partner rotation) and auditor tenure (length of the auditor-client relationship) on audit quality and auditors' independence. This literature will be covered in this section, in particular, that related to mandatory auditor rotation.

Using a sample of Taiwan's listed firms, Chi et al. (2009) explored the effect of mandatory engagement partner rotation on audit quality (measured by the level of abnormal accruals). They

formed two samples: a mandatory rotation sample, and a nonrotating sample. Comparing these two samples, they did not find differences in audit quality. Nevertheless, when they compared the audit quality inside the mandatory rotation sample one year before and after the rotation, they found evidence that the audit quality is lower under new audit partners than one year earlier under old audit partners. Their conclusions do not support the belief that mandatory audit partner rotation enhances audit quality.

Brooks et al. (2013), using a sample of Chinese publicly traded companies, examined the effect of the engagement partner rotation. They did not find evidence of a significant difference between the audit quality verified in the post-rotation year (year 6) and in the prior year (year 5). According to these authors, prior research has focused mainly on the exact years before and after the rotation, which may explain the fact that several studies did not document any evidence of improvement.

Also in China, Lennox et al. (2014) tested the impact of mandatory partner rotation on audit quality, using audit adjustments in audited financial statements as a proxy for audit quality. They found evidence of a significantly higher frequency of audit adjustments during the departing partner's final year of tenure prior to mandatory rotation and during the incoming partner's first year of tenure following mandatory rotation. They conclude that mandatory rotation of engagement partners enhances audit quality in the years immediately surrounding the rotation.

In the Italian context, where the engagement partner is appointed for a three-year period and their term can be renewed twice up to a maximum of nine years, Cameran et al. (2016), considering that the auditor has incentives to be re-appointed at the end of the first and the second three-year periods, explored whether audit quality is lower in the first two three-year periods compared to the third (i.e., the last) term. Using the magnitude of earnings management as a proxy for audit quality, they find evidence that the engagement partner auditor becomes more conservative (i.e., allows lower levels of earnings management) in the last three-year period (the period preceding the mandatory rotation). The authors' conclusions point out an increase in audit quality in the last engagement period of the audit partner in the Italian context.

In the U.S. setting, Litt et al. (2014) investigated the effect of audit partner rotation on financial reporting quality. They find evidence of lower financial reporting quality following an audit partner change, in particular during the first two years with a new audit partner relative to the final two years with the outgoing partner. Further analyses suggest that this effect is more prevalent for larger clients, non-Big4 partners, for non-industry specialist auditors, and smaller audit offices.

Kuang et al. (2020) also explored the relationship between mandatory audit partner rotation and audit quality, in the U.S. context. They used a sample of U.S. publicly traded firms with mandatory partner rotation events and several proxies for audit quality (the existence of material restatements and the level of earnings management in audited financial statements, and audit fees). The only statistically significant evidence they found suggests that audited financial statements may be more likely to contain a material misstatement (i.e., to be subsequently restated) following a mandatory audit partner rotation, particularly when the audit firm tenure is short. For the two other audit quality proxies, they do not find significant results. Kuang et al. (2020) conclude that they do not find robust evidence consistent with mandatory engagement partner rotation materially improving audit quality.

In summary, several studies from different contexts found consistent evidence revealing that audit quality is lower in the years immediately surrounding the engagement partner rotation [Litt et al. (2014) and Kuang et al. (2020) in the U.S.; Chi et al. (2009) in Taiwan]. Nevertheless, conflicting evidence was found by Cameran et al. (2016) in the Italian context, Lennox et al. (2014) in the Chinese context, and Brooks et al. (2013), also in China, who did not find significant results.

Analysing the relationship between the likelihood to issue qualified audit reports and the engagement partner tenure, Carey and Simnett (2006), for a sample of public companies listed on the Australian Stock Exchange and Garcia-Blandon and Bosch (2013) in the Spanish context, found significant evidence that long-serving engagement partners are less prone to issue a qualified audit report than short-serving ones, evidence which goes in favour of the proponents of mandatory engagement partner rotation.

Other studies place the analysis at the audit firm-level, and Italy is one of the most interesting contexts to explore the effects of audit firm rotation since the mandatory audit firm rotation was adopted in 1975 (Cameran et al., 2015). Relying on a sample of Italian listed firms audited by a Big4 audit firm, Cameran et al. (2015) explored the effects of audit firm rotation in audit quality (proxied by the magnitude of earnings management) and they found evidence that: 1) outgoing auditors do not shirk on effort (or quality), but final-year fees are 7 percent higher than normal, which may indicate opportunistic pricing; 2) the fees of incoming auditors present a discount of 16 percent even though they present abnormally higher engagement hours in the first year (17 percent), which is suggestive of “lowballing”; 3) subsequent fees of incoming auditors are abnormally higher and exceed the initial fee discount. Cameran et al. (2015) argue that the costs of mandatory rotation are nontrivial and that higher costs could be acceptable if rotation improves audit quality. The authors further found evidence that the

quality of audited earnings is lower in the first three years following rotation, relative to later years of auditor tenure, and they conclude that since rotation is costly and earnings quality improves with longer auditor tenure, the evidence from Italy does not support the case for mandatory audit firm rotation.

Following the Cameran et al. (2015), Corbella et al. (2015) also examined the association between (mandatory) audit firm rotation and quality in the Italian context. They hand-collected publicly available data for a larger sample of Italian public companies audited by a Big4 and non-Big 4 audit firm (1583 firm-year observations) over the 1998–2011 period. Using two different measures of earnings management as a proxy of audit quality, the results of Corbella et al. (2015), overall, indicate that for companies audited by non-Big4 audit firms, audit firm rotation is associated with an increase in audit quality without the added cost of an increase in audit fees. By contrast, for companies audited by Big4 audit firms, audit firm rotation is not associated with an increase in audit quality but is associated with a decrease in audit fees.

In the South Korean context, Choi et al. (2017) compared the audit quality (proxied by the level of abnormal accruals) between samples of firms subject to mandatory and voluntary audit firm rotation. Their results indicate that audit quality is lower in the mandatory audit firm rotation sample when compared to firms that voluntarily rotated their audit firms. Additionally, they find evidence that the mandatory audit firm rotation sample, whose auditors were rotated from non-Big4 to Big4, presents lower levels of abnormal accruals consistent with the argument that the audit quality of Big4 accounting firms is superior to non-Big4 firms. Choi et al. (2017) argue that their findings suggest that extended audit firm tenure improves audit quality.

Two recent studies explored the mandatory auditor rotation in Indonesia. Martani et al. (2021) examined the impact of both audit firm and engagement partner rotation on audit quality (measured by the level of abnormal accruals), in a sample of 215 Indonesian listed firms from 2013 to 2017. The time horizon selected encompasses two phases of the law requirements concerning the rotation of the engagement partner and audit firm in Indonesia: 1) from 2008 to 2015, the maximum audit firm tenure was six years, whereas for the engagement partner was still three years; 2) from 2015 onwards, mandatory audit firm rotation is no longer required. The results show that audit tenure is not statistically relevant to explain audit quality. However, for non-Big4 audit firms, audit firm rotation improves audit quality, which means that mandatory rotation of the audit firm is still necessary to ensure a better audit service. Also in the context of the Indonesian listed firms, Widyaningsih et al. (2019) explored the impact of audit firm rotation on audit quality (measured through the level of earnings management)

before and after the abolishing of the legal requirement of the audit firm rotation. In contrast to the prior study, mandatory audit firm rotation does not seem to have a relevant impact on audit quality.

As we can observe from the above paragraphs, the evidence collected from three different contexts does not support the case of mandatory audit firm rotation [Cameran et al. (2015) and Corbella et al. (2015) for companies that are audited by Big-4 audit firms, in Italy], and even suggests that extended audit firm tenure improves audit quality [Choi et al. (2017) in South Korea, and Widyaningsih et al. (2019) in Indonesia]. With consistent results, Garcia-Bladon et al. (2020a) for the Spanish context, found evidence that long audit firm tenure does not only seem to involve higher audit quality (lower earnings management) 'per se', but also mitigate the negative effects of partner tenure and audit fees on audit quality. Similarly, in a cross-European study, Garcia-Bladon et al. (2020b), with a sample comprising firms belonging to the S&P350 market index (leading blue-chip companies of the most developed countries in Europe), did not find significant evidence of lower levels of audit quality for longer periods of audit firm tenure.

2.3 Auditor Rotation and Capital Markets Perceptions

Jensen & Meckling (1976), under the prospects of the agency theory, argue that the separation of management (agent) from ownership (shareholder) leads to a moral hazard problem, since the agent (management) may pursue his own self-interest at the expense of the principal (shareholder) and other stakeholders of the company.

As Corbella et al. (2015) argue, firms can reduce the consequences and the costs associated with moral hazard by hiring an external third party – an independent public auditor – to verify (audit) the books, records, and financial statements of the firm, thereby reducing information asymmetry between the company's agents and its principals and other interested parties. Audit quality is thus a primary tool to combat the costs associated with moral hazard to which firms are subject.

In the most widely used conceptualization, DeAngelo (1981) argues that audit quality depends simultaneously on the auditor's competence and independence. "Audit quality is a function of the auditors' education, training, and knowledge of professional standards, as well as their independence

and objectivity, their knowledge of the client's business operations and industry, and the audit team's working relationship with the client company's management (Corbella et al., 2015, pp. 46,47)."

Mandatory auditor rotation has been proposed (both by the worldwide regulators of the audit profession and some literature in the area), as an efficient tool to strengthen auditor independence, thus mitigating "the moral hazard problem" faced by companies, and reducing information asymmetry between the firms' management, shareholders and other stakeholders.

In this context, the auditor rotation issue has been explored beyond its effects on direct proxies for audit quality and auditor independence. An emergent body of literature has examined the association between auditor rotation and proxies for investors' perceptions of audit quality and auditor independence (these proxies are related to the audited firm's market performance).

Chi et al. (2009), in the context of Taiwan listed firms, explored the effect of mandatory engagement partner rotation on investors' perceptions (market reactions) of audit quality. They used the earnings response coefficients (ERC) as a proxy for investors' perceptions (market reactions) of audit quality. After controlling for common determinants of the ERC, they find that the ERC of the engagement partner mandatory rotation sample is not significantly different from that of the nonrotating sample of firms, but is significantly larger than the ERC of the voluntary rotation sample. Overall, they find no consistent support for the belief that mandatory audit partner rotation enhances investor perceptions of audit quality.

While not directly linked to the issue of auditor rotation, the study of Aobdia et al. (2015) explored the effect of the engagement partner quality on several proxies that capture market reaction, also using a sample of Taiwanese companies. They found evidence that when firms hire a higher quality audit engagement partner: 1) the company's stock price tends to experience positive abnormal returns; 2) the stock price tends to rise more sharply in response to the release of positive earnings report; 3) firms face a lower level of under-pricing when they go public in their Initial Public Offerings (IPOs); 4) under a firm commitment underwriting, the investment bank will charge a lower spread between the public offer price and the price paid by the bank. Aobdia et al. (2015) state that the benefits extend beyond the equity market and play a major role in the debt markets, where companies audited by high-quality audit engagement partners are more likely to issue debt at more favourable terms, that is, with lower interest rates. Therefore, reputable auditors convey more confidence to the market and thereby, mitigate the adverse selection problem related to the information asymmetry issue (Aobdia et. al., 2015).

In the Korean context, Kim et al. (2019) explored how investors perceive the implementation of mandatory audit firm rotation. They examined the relationship between firms with mandatorily switched audit firms and the cost of equity capital from 2006 to 2008 and found that the mandatory change in the auditors has a negative association with the cost of equity capital. The results indicate that from investors' perspective, firms under a mandatory audit firm regime pose less risk because it provides an environment for qualified audits by enhancing auditor independence and skepticism. In addition, these findings provide important insights on mandatory audit firm rotation to policy makers by showing that this phenomenon may potentially affect investors' resource allocation decisions in a positive way by aiding companies to get external funding and creating conditions for sustainable growth (Kim et al., 2019).

In the U.S., SOX requires since 2002 the mandatory rotation for audit partners of public companies, but not the audit firm rotation. Meanwhile, a public discussion about whether the mandatory engagement partner rotation rule is sufficient has been taking place and the PCAOB recently considered implementing mandatory audit firm rotation in hopes of better aligning auditors' interests with investors' interests (Reid & Carcello, 2017).

Kaplan and Mauldin (2008) examined in which manner audit firm versus audit partner rotation affect non-professional investors' perceptions on auditor independence. They found evidence suggesting that compared to audit partner rotation, audit firm rotation does not seem to enhance auditor independence among non-professional investors.

Other studies have explored the issue of auditor rotation/tenure in the U.S. and its linkage to market reactions.

Mansi et al. (2004) documented a negative and strong association between the auditor quality and the cost of debt financing and also between the cost of debt financing and auditor tenure. Creditors require a lower return on the corporate bonds issued by the companies as the auditor tenure lengthens. In addition, this suggests that debt market participants would react negatively to a possible mandatory auditor rotation, which in turn would impair the creditworthiness of the companies and raise their cost of capital. Mansi et al. (2004) conclude that, overall, the results suggest that, through their dual roles of providing information and insurance, auditor quality and tenure matter to capital market participants.

Ghosh and Moon (2005) found a positive and significantly association between auditor tenure and investors' perceptions of earnings quality in the U.S. context. Both the debtholder and the

stockholders view the auditor tenure as an improving factor for the audit quality, which in turn makes them perceiving the financial statements as being more reliable, prompting them to invest in those companies. Likewise, rating agencies tend to upgrade both the stock and debt ratings for companies with longer auditor tenures.

In the same line of reasoning, Reid and Carcello (2017) argue that American investors' prospects may be adversely affected by the potential adoption of mandatory audit firm rotation. These authors explored the market's reaction to events related to the potential adoption of mandatory audit firm rotation that occurred between 2011 and 2013 in the U.S. They found evidence that the market reacts negatively (positively) to events that increased (decreased) the likelihood of audit firm rotation, although the results are sensitive to the market index that the authors used to calculate abnormal returns. Furthermore, cross-sectional tests provide strong evidence that the market reaction is more negative (positive) on dates that increased (decreased) the likelihood of rotation given longer auditor tenure, or given a Big4 audit firm. The findings of Reid and Carcello (2017) suggest that investors do not perceive long audit firm tenure as problematic, and contradict the PCAOB's arguments that mandatory audit firm rotation promotes a better alignment between auditors and investors' interests.

Schelker (2012) tested whether auditor term length and term limits have an impact on the credit ratings of the U.S. State general obligation bonds. In contrast to the prior U.S. studies, the reported results point to a strong and positive correlation between term limits (maximum auditor tenure of 8 years) and credit ratings, which means that States that enact a binding term limit for the auditors, are able to issue debt more favourably, *ceteris paribus*.

In the same vein, the results of Mayse (2018), for a sample of U.S. non-public firms, suggest that lenders perceive higher auditor independence and higher reliability of financial statements when firms are subject to auditor rotation (engagement partner and audit firm rotation). Mayse (2018) argues that higher auditor tenures were found to negatively affect the lenders' prospects on the companies' ability to meet their future debt obligations.

Krishnan and Zhang (2019), also in the U.S. context, explored the investors' perceptions on engagement partner rotation in the 2 years after and before the rotation, by employing different metrics to capture the investors' perceptions such as: the Earnings Response Coefficient (ERP), the number of short sells and cost of equity capital. Consistent with the findings of Mayse (2018), Krishnan and Zhang (2019) documented a higher responsiveness by investors to earnings announcements after a rotation, which means that they perceive earnings to be of higher quality in the post-rotation period than in the

period prior to rotation. Likewise, short-sellers also regard the rotation of the engagement partner as an enhancing factor of the audit quality. Finally, the cost of equity capital was found to be lower, which from the perspective of the investors, means that they require a lower rate of return because companies present less risk following the rotation.

Horton et al. (2017) conducted a study with a similar methodology to that used by Reid and Carcello (2017) in the U.S., but for the European stock market. They selected nine important events between 2010 and 2013, which were regarded as having an impact, either positive or negatively, on the likelihood of adoption of the mandatory audit firm rotation (such as press news, conferences between the European Council and Parliament, etc). They documented a positive and significantly overall market reaction in response to the chosen events (most part was expected to have a positive impact), indicating that investors perceive incremental benefits arising from mandatory auditor rotation. Hereupon, this evidence corroborates the arguments of the EU Council (and PCAOB) for the mandatory audit firm rotation adoption. According to Horton et al. (2017), the contradiction of their findings to that of Reid and Carcello (2017) might be due to the fact of U.S. auditors (compared to European auditors) are subject to a higher scrutiny and litigation risk, which lessens their chances of deviating from their code of ethics. Moreover, Horton et al. (2017) were also able to uncover that investors of firms with lower earnings quality and higher levels of non-audit fees or total fees, were found to react favourably and significantly to the proposed reforms. Investors appear to perceive higher benefits from mandatory audit firm rotation for firms that are dealing with agency problems, since they expect higher financial reporting credibility, due to higher audit quality, also strengthened by capping total fees (Horton et al., 2017).

Prior studies on investors' reactions to mandatory auditor rotation have provided mixed evidence. While in the U.S. context, Mansi et al. (2004), Ghosh and Moon (2005), and Reid and Carcello (2017) found a positive relationship between auditor tenure and investors' perceptions of earnings quality, with lenders, stockholders, and rating agencies perceiving longer auditor tenure as improving earnings quality, the results of Schelker (2012), Mayse (2018) and Krishnan and Zhang (2019) suggest that lenders and investors perceive auditor rotation as enhancing auditor independence and earnings quality.

In the Taiwan setting, Chi et al. (2009) found no consistent support for the belief that mandatory audit partner rotation enhances investor perceptions of audit quality. Nevertheless, in Korea, the results of Kim et al. (2019) show that investors perceive mandatory audit firm rotation as providing an

environment that enhances auditor independence and skepticism, thus improving audit quality. Similar results were found by Horton et al (2017) for the European stock market.

2.4 Research Hypotheses

Given the opposite predictions of the effect of auditor rotation (the audit firm and audit partner rotation) on audit quality and market reactions, and the lack of consistent empirical evidence on perceived audit quality and investors' perceptions on mandatory auditor rotation, we specify the non-directional hypotheses as follows:

Hypothesis 1 (H1): Investors' perceptions of firm performance are associated with mandatory audit firm rotation.

Hypothesis 2 (H2): Investors' perceptions of firm performance are associated with mandatory rotation of the audit engagement partner.

The next chapter provides details on the research design.

3 Research Design

3.1 Empirical Model

To test empirically our research hypotheses formulated in the previous section, and following former literature (e.g., Lennox et al., 2014; Camaran et al., 2015; Aobdia et al., 2015; Barth et al., 2017; Kim et al., 2019), we modeled equation (1).

$$INV_{it} = \alpha + \beta'X_{it}(MROT) + \gamma'Z(\text{CONTROLS}) + \epsilon_i \quad (1)$$

where the dependent variable *INV* is a measure of the company's stock market performance, and, ultimately a proxy for investor perception of audit quality and auditors' independence. Similar to prior literature (e.g., Ghosh & Moon, 2005; Aobdia et al., 2015; Barth et al., 2017; Kim et al., 2019), two proxies for investors' perceptions and stock market performance are used: Tobin's Q and the Market to Book Value. Tobin's Q (*q_tobin*) is calculated as the ratio of (market value at the year-end plus total assets) to the book value of the company. Market to Book Value (*MBV*) is computed as the ratio of the market value (at the year-end) to the book value of the company.

The explanatory variable *MROT* represents the mandatory auditor rotation (engagement partner and audit firm rotation), and is measured in several ways. Following prior studies (e.g., Lennox et al., 2014; Camaran et al., 2015) four measures of mandatory auditor rotation are created: the *mrot_last_af* variable equals 1 if the audit firm is in the final year of tenure in year *t* because the audit firm is scheduled for mandatory rotation at the end of the audit, and 0 otherwise; the *mrot_first_af* variable equals 1 if the audit firm is in the first year of tenure in year *t* due to mandatory rotation of the former audit firm at the end of year *t-1*, and 0 otherwise; the *mrot_last_engp* variable equals 1 if the engagement partner is in the final year of tenure in year *t* because the partner is scheduled for mandatory rotation at the end of the audit, and 0 otherwise; the *mrot_first_engp* variable equals 1 if the engagement partner is in the first year of tenure in year *t* due to mandatory rotation of the former partner at the end of year *t-1*, and 0 otherwise. The rationale for signaling the outgoing and the incoming auditor has several underlying reasons. On the one hand, proponents of mandatory auditor rotation argue that the incoming auditor is likely to examine the work undertaken by the former auditor in the previous year, and thus, a change of auditor can provide a powerful peer-review effect, incentivizing the departing auditor partner to provide a higher quality audit in the final year of tenure (Lennox et al., 2014). The replacement auditor may bring a fresh approach to the audit. According to Lennox et al. (2014), in addition to the fresh-eyes benefit, the proponents of mandatory auditor rotation

claim that a newly appointed auditor is more independent because the new auditor would not have had time to develop close personal relationships with the client. In contrast, an auditor who has been with a client for several years may be overly trusting of the client's management or unwilling to challenge management's reporting assertions.

Two additional variables summarising the occurrence of a mandatory auditor rotation are also used: *mrot_af variable* equals 1 if the "former" audit firm is in the final year of tenure and the "new" audit firm is in the first year of tenure, and 0 otherwise; *mrot_engp variable* equals 1 if the "former" engagement partner is in the final year of tenure and the "new" engagement partner is in the first year of tenure, and 0 otherwise. In a nutshell, *mrot_af* combines both the dummy for the last year of tenure of the outgoing audit firm (*mrot_last_af*) and the dummy for the first year of tenure of the incoming audit firm (*mrot_first_af*); whereas *mrot_engp* combines both the dummy for the last (*mrot_last_engp*) and first (*mrot_first_engp*) years of tenure of the outgoing and incoming partner, respectively.

These two variables were designed with the purpose of testing the joint effect of mandatory rotation, instead of only testing the impacts of the outgoing and the incoming auditor individually. Hence, with these variables, we are able to draw conclusions on the overall effect of mandatory audit rotation by extending our scope of analysis and therefore, the results deriving from these variables have a slight difference in their meaning when compared to the individual variables of mandatory rotation (*mrot_first_engp*, *mrot_last_engp*, *mrot_first_af*, *mrot_last_af*). For instance, if the results report a positive impact on stock market performance in response to the first year of tenure of the incoming audit partner/audit firm (following a mandatory rotation), those results might be distorted by exogenous factors such as the quality of the incoming audit partner or other characteristics, not reflecting the effect of the mandatory rotation itself (Aobdia et al., 2015; Reid & Carcello, 2017). With these variables, we expect to address the gap that may be caused by those exogenous factors.

The model further includes a set of control variables (CONTROLS), related to auditor- and firm-specific characteristics, which, according to prior studies, are related to the company's stock market performance, and, ultimately to the investors' perceptions of audit quality and auditors' independence. There is evidence that the audit firm size and the audit fees explain audit independence and audit quality (e.g., Carey & Simnett, 2006; Chi et al., 2009; Cameran et al., 2015; Kim et al., 2019; Aobdia et al., 2015; Lennox et al., 2014; Mansi et al., 2004). Therefore, we control for *big_4* (a dummy = 1 if the audit firm Big4 audit firm; =0 if not) and *auditfee_ratio* (the ratio of audit fees to total fees). There is evidence that company's size, age, leverage and profitability are related to the firm's stock market

performance (e.g., Barth et al., 2017; Aobdia et al., 2015; Kim et al., 2019; Zhou et al., 2017). We thus control for *size* (natural logarithm of total assets); *age* (natural logarithm of the number of years since the company's foundation); *leverage* (total liabilities divided by total assets); sales growth (*sales_growth*, calculated as the change in sales between t and $t-1$), and return on assets (*ROA*, computed as the net income divided by total assets). Year and industry fixed effects are also included in the regression model.

3.2 Data and Sample

This study investigates investors' perceptions on mandatory auditor rotation adoption for the Portuguese case. We thus included in our sample current and former firms listed in Euronext Lisbon to conduct our empirical analysis. We collected accounting and financial data from Refinitiv Datastream and Worldscope.

As previously mentioned, in Portugal, the engagement partner rotation and the audit firm rotation became mandatory, in 2008 and 2016, respectively. Therefore, we constructed an (unbalanced) panel for a 12 year-period from 2009 to 2020.

We began with 624 firm-year observations. Excluding companies with missing data in several variables and after winsorizing all continuous variables at the 0.5% and the 99.5% level to reduce the influence of outliers, we end up with a final sample of 433 firm-year observations, from 2009 to 2020 (corresponding to 42 individual companies).

Due to the lack of data on auditors' information for the Portuguese context in databases such as Orbis, in order to construct in a reliable way, the audit firm and the engagement partner rotation variables were hand-collected from the annual consolidated financial statements for each company from 2000 to 2020 (as we described early, in Portugal, mandatory engagement partner rotation began in 2008 and mandatory audit firm rotation in 2016). After this process, we ended up with a hand-collected database with the names of the audit partners and audit firms for each company and year, which helped us identify audit firms and partners mandatorily rotated between 2009 and 2020, based on the Portuguese rules for mandatory engagement partner and audit firm rotation. Data on audit firm variables (namely audit fees, non-audit fees and total fees) and on firms' corporate governance characteristics (namely, board size and CEO duality) were also hand collected from financial statements.

In the next chapter, the main results are presented and discussed.

4 Results and Discussion

4.1 Descriptive Statistics

The industry distribution of the sample appears in Table 1. The most prominent sectors in our sample are services, manufacturing, and the sector of transportation, communications, electric and sanitary service.

Table 1. Sample distribution by Industry

Transportation, Communications, Electric, Gas and Sanitary Service	10
Manufacturing	14
Services	11
Wholesale Trade	2
Construction	2
Retail Trade	3
Total	42

Descriptive statistics for the sample are in Table 2. The mean and median value of Tobin's Q (q_tobin) is 7.34 and 4.6. Concerning the market to book value (MBV), the mean value is 1.56 and the median is 0.94. This means that, on average, the investors perceive a market value of 1.56 times the book value.

As shown in Table 2, both Tobin's Q and market to book value (MBV) have right skewed distributions (positive skewness), since, for both cases, the mean is higher than the median.

The mean value of the ratio of audit fees to total fees ($auditfee_ratio$) is about 0.89 and the median value 0.94, which means that, on average, the audit fees are about of 90% of the total fees charged by audit firms to the sample companies. The company's mean and median values of the *size* and age variables are close. On average, total liabilities represent more than 70% of the total assets (*leverage*), indicating a high level of indebtedness of the sample companies. The average sales growth ($sales_growth$) and the return on assets (ROA) values are not far from zero, revealing low profitability for the firms in our sample.

From 2009 to 2020, we found 28 cases of mandatory rotation of the audit engagement partner, and 24 cases of mandatory audit firm rotation from 2016 to 2020. As expected, we have more cases of mandatory rotation for engagement partner than for audit firms, because audit firms were only required to be mandatorily rotated in 2016. Furthermore, 36 companies are audited by a Big 4 audit firm between 2009 and 2020 (328 firm-year observations).

Table 2. Summary of Descriptive Statistics

variable	N	mean	median	sd
q_tobin	433	7.3418	4.6096	20.9677
MBV	433	1.5642	0.9378	3.2047
auditfee_ratio	433	0.8886	0.9433	.14167
size	433	13.3402	13.1551	1.7874
age	433	3.3951	3.2958	0.8121
leverage	433	0.7358	0.7051	0.2801
sales_growth	433	-.01122	0.0061	0.2230
ROA	433	0.0051	0.0166	0.0789
Dummy variables:				
mrot_last_af=1	24			
mrot_first_af=1	24			
mrot_last_engp=1	28			
mrot_first_engp=1	28			
big_4=1	328 (36 firms)			

Pearson correlations between all the variables are presented in Table 3. None of the auditor rotation variables presents a significant correlation with the firm's stock market performance (*q_tobin* and *MBV*). In terms of the control variables, only ROA and sales growth (*sales_growth*) present a positive and statistically significant correlation with the firm's stock market performance measures.

The low correlation coefficients between the independent variables suggest that multicollinearity is not an issue.

The multivariate analysis is presented in Section 4.2.

Table 3. Correlation Matrix

	q_tobin	MBV	mrot_last_a f	mrot_first_ af	mrot_af	mrot_last_e ngp	mrot_first_ engp	mrot_engp	big_4	auditfee_ra tio	size	age	leverage	sales_grow th	ROA
q_tobin	1.0000														
MBV	0.7756***	1.0000													
mrot_last_af	0.0752	0.0656	1.0000												
mrot_first_af	0.0010	-0.0010	-0.0587	1.0000											
mrot_af	0.0555	0.0471	0.6860***	0.6860***	1.0000										
mrot_last_engp	0.0166	-0.0185	0.0586	-0.0646	-0.0044	1.0000									
mrot_first_engp	0.0235	-0.0425	-0.0263	0.0531	0.0195	-0.0728	1.0000								
mrot_engp	0.0290	-0.0464	0.0220	-0.0077	0.0104	0.6682***	0.6934***	1.0000							
big_4	-0.0529	0.0057	0.0193	0.0664	0.0625	-0.1011	0.0058	-0.0737	1.0000						
auditfee_ratio	0.0038	-0.0272	0.0327	0.1087**	0.1030**	-0.0939*	-0.0606	-0.1114**	-0.0299	1.0000					
size	0.0011	0.0589	-0.0008	0.0200	0.0140	-0.0107	-0.0237	-0.0297	0.2229***	-0.1725***	1.0000				
age	0.0368	0.0773	0.0642	0.0656	0.0946**	-0.0822*	-0.0688	-0.1121**	0.1020**	0.1488**	-0.0585	1.0000			
leverage	0.0774	0.0252	-0.0416	-0.0687	-0.0804	-0.0076	0.0026	-0.0062	0.0104	0.0591	-0.1554***	0.0145	1.0000		
sales_growth	0.0685	0.1231**	0.0515	0.0663	0.0858*	0.0469	-0.0114	0.0230	0.0984**	-0.0733	0.1066**	-0.0504	-0.0015	1.0000	
ROA	0.0991**	0.1867***	-0.0251	0.0730	0.0349	-0.0197	-0.0937*	-0.0843*	0.0658	-0.1339***	0.2249***	0.0067	-0.5367***	0.3016***	1.0000

*, **, *** represent statically significant correlations at the 10%, 5% and 1% level, respectively.

4.2 Multivariate Results

In Tables 4 and 5, our research hypotheses are tested using the Ordinary Least Squares (OLS) method, controlling for year and industry fixed effects. The robust standard errors option is used to correct for heteroscedasticity. The R-squared indicates that the models are successful in explaining some of the variance in firms' stock market performance.

As suggested by the correlation analysis, multicollinearity statistics do not indicate distortions of results due to correlation among independent variables. Variance inflation factors (VIF) for all parameter estimates are lower than 2, indicating that multicollinearity is not a problematic issue (Studenmund, 1992). For all the models reported in Table 4 and Table 5, the highest VIF is 2.59.

Regressions in Table 4 are used to test hypothesis 1 (H1), under which investors' perceptions of firm performance are associated with mandatory audit firm rotation.

Table 4. Mandatory Audit Firm-Rotation and Capital Market Performance of Firms

<i>Dependent variable:</i>	q_tobin (Model 1)	MBV (Model 2)	q_tobin (Model 3)	MBV (Model 4)
mrot_last_af	10.70 (7.684)	1.619* (0.995)		
mrot_first_af	4.589* (2.715)	0.664** (0.333)		
mrot_af			7.600* (4.829)	1.135* (0.617)
big_4	-1.149 (2.918)	0.0954 (0.409)	-1.275 (2.881)	0.0757 (0.404)
auditfee_ratio	8.735 (9.312)	1.989* (1.179)	8.412 (9.196)	1.939* (1.166)
size	-0.582 (1.507)	-0.133 (0.326)	-0.560 (1.505)	-0.130 (0.326)
age	4.158 (3.517)	0.736* (0.421)	4.185 (3.537)	0.741* (0.425)
leverage	10.31* (5.346)	1.973** (0.904)	10.18* (5.298)	1.954** (0.899)
sales_growth	-1.953 (5.983)	0.200 (1.055)	-1.804 (5.901)	0.223 (1.045)
ROA	68.20*** (22.40)	11.02*** (3.434)	66.78*** (21.75)	10.80*** (3.359)
Constant	-1.234 (18.23)	0.104 (3.683)	-1.272 (18.27)	0.0983 (3.685)
Year fixed-effects	✓	✓	✓	✓
Industry fixed-effects	✓	✓	✓	✓
Observations	433	433	433	433
R-squared	0.152	0.200	0.150	0.198
mean VIF	2.51	2.51	2.54	2.54

Regarding model 1, *mrot_first_af* displays a positive and statistically significant impact on Tobins' Q, at a 10% significance level. This indicates that in the first year of tenure of the incoming audit firm (following a mandatory rotation), Tobins' Q is expected to increase, on average, 4.6 units (approximately), holding other factors constant. Conversely, *mrot_last_af* does not seem to influence investment decisions (at least to a significant level), which means that, for this proxy, there are no significant differences on investors' perceptions between the two years, with the incoming audit firm (following mandatory rotation) being considered as the effective turning point on audit quality. Nevertheless, although its impact is not significant, the sign of the coefficient is positive, which does not counter our results.

Consistently, model 2 also documents a positive and statistically significant impact of *mrot_first_af* on market to book value (*MBV*), at a significance level of 5%. The results show that during the first year of tenure of the incoming audit firm (following a mandatory rotation), the market to book value is expected to experience an average increase of 0.66 units, holding other factors constant. Moreover, the same model also reports a positive and statistically significant impact of *mrot_last_af* on market to book value, though for a lower level of significance (10%). The results state that in the last year of tenure of the outgoing audit firm (prior to mandatory rotation) the market to book value is expected to increase, on average, by 1.6 units approximately, holding other factors constant.

Concerning models 3 and 4, these aimed at testing the overall impact of mandatory audit firm rotation on investors' prospects of firms' performance. Likewise, the results establish a positive and significant relationship between mandatory audit firm rotation and investors' perceptions measured by our valuation metrics, which bolsters our results. These are important findings because, as already mentioned, they quantify the accrued impact of mandatory rotation on our dependent variables, and therefore, since they do not solely focus on the impact of one year but two, they are less sensitive to events or news that are unrelated to audit reforms. That said, the results state that mandatory audit firm rotation (which comprises 2 years), is expected to have an average impact of 7.6 and 1.135 units on Tobins' Q and Market to book value, respectively.

As disclosed by our results, we find that in model 1, *mrot_last_af* was not significant, whereas, in model 3 for the same dependent variable, we have significant results for our accrued variable (*mrot_af*). This divergence suggests that the significant impact of *mrot_first_af* outweighs the non-significant impact of *mrot_last_af*, thus confirming the entry of the incoming audit firm as a key factor on investors' perceptions of audit quality. Even for model 2, the results assert that the impact deriving from *mrot_first_af* is more significant for a higher confidence level of 95% when compared to *mrot_last_af*.

Hereupon, models 1, 2, 3, and 4 reveal a statistically significant positive association between mandatory audit firms' rotation variables and the market performance of audited companies (q_tobin , MBV), thus supporting our Hypothesis 1.

Both measures of audit firm rotation, i.e., considering the outgoing and the incoming auditor ($mrot_last_af$, $mrot_first_af$) or the mandatory audit firm rotation *per se* ($mrot_af$) produce similar results. We conclude that the mandatory audit firm rotation is associated with a higher stock market performance of the audited company. The results suggest that investors perceive mandatory rotation on audit firm level as enhancing audit quality, which makes them more willing to invest because it increases the credibility of the accounting information. This is in line with Mansi et al. (2004), which documented that auditor quality and tenure matter to capital market participants.

The evidence collected is consistent with Kim et al. (2019) who, in the Korean context, found evidence that investors perceive mandatory audit firm rotation as providing an environment for qualified audits by enhancing auditor independence and skepticism. Results are also in line with the findings of Mayse (2018), who, for a sample of U.S. non-public firms, provide evidence that lenders perceive higher auditor independence and higher reliability of financial statements when firms have an auditor rotation. In addition, these results also meet the conclusions of Horton et al. (2017) that detected a positive and significant market reaction to events, which for the most part, increased the likelihood of adoption of mandatory audit firm rotation.

Regarding the control variables, only the coefficients of *leverage* and *ROA* are positive and statically significant across models, suggesting that firms with higher levels of debt and performance present a higher stock market performance. The remainder performance-control variables are statistically insignificant.

Additionally, in models 2 and 4, we testify a positive and significant association between the market to book value and the audit-fee ratio, suggesting that the lower the level of non-audit fees (or the higher the level of audit fees), the higher will be the perceived audit quality by investors and therefore, the higher will be firms' stock market performance (Horton et al., 2017). We can see through our results that for each additional percentage point of audit-fee ratio, the market-to-book value is expected to increase, on average, 1.99 and 1.94 units for models 2 and 4, respectively. Furthermore, these results are also consistent with the findings of Schmidt (2012), who provided evidence of a positive association between non-audit fees and the likelihood of audit restatement-related litigation, which can lead to auditor settlement, meaning that high level of non-audit services fees is perceived as impairing auditor independence.

Table 5 presents regression estimates of Equation (1) aiming to test Hypothesis 2 (H2), under which investors' perceptions of firm performance are associated with mandatory rotation of the engagement partner.

In spite of the statistically significant results found for mandatory audit firm rotation, the same did not hold for the engagement partner case. As Table 5 reports, neither the engagement partner's final year prior to mandatory rotation (*mrot_last_engp*) nor the engagement partner's first year of tenure following mandatory rotation (*mrot_first_engp*) were found to be statistically significant to explain variations of our dependent variables. This suggests that investors' prospects on companies' long-term performance are not affected by the mandatory rotation of the engagement partner, which means that it does not signal the credibility of the financial statements through enhanced of engagement partner independence.

Our evidence is consistent with Chi et al. (2009), who, for the Taiwan-listed firms' context, find no consistent support for the belief that mandatory audit partner rotation enhances investor perceptions of audit quality; and with Brooks et al. (2013) that did not observe significant differences in audit quality in the years immediately before and after the rotation.

The absence of significant results for the engagement partner can be, to a certain extent, due to our small sample, which makes it harder to draw robust conclusions on. Notwithstanding, we obtained significant results for audit firms, which had a lower number of observations - only 24 moments of mandatory rotation - against the 28 of the engagement partner. Accordingly, this evidence may suggest that investors perceive the mandatory rotation of the audit firm as a more effective bounding mechanism to avoid the independence issue. This can be explained by the fact that the audit firm's replacement implies a broader change than engagement partner rotation, under which, the rest keeps roughly unchanged, namely the audit team and work methodology, and therefore, ethical standards are likely to still be the same (Bamber & Bamber, 2009; Chi et al., 2009).

Table 5. Mandatory Engagement Partner-Rotation and Capital Market Performance of Firms

<i>Dependent variable:</i>	q_tobin (Model 5)	MBV (Model 6)	q_tobin (Model 7)	MBV (Model 8)
mrot_last_engp	-0.175 (2.375)	-0.324 (0.342)		
mrot_first_engp	1.916 (5.192)	-0.235 (0.373)		
mrot_engp			0.907 (3.024)	-0.278 (0.285)
big_4	-1.679 (2.912)	-0.0115 (0.406)	-1.580 (2.939)	-0.00730 (0.403)
auditfee_ratio	7.995 (8.867)	1.833 (1.137)	8.062 (8.800)	1.835 (1.138)
size	-0.316 (1.547)	-0.115 (0.334)	-0.323 (1.546)	-0.116 (0.334)
age	4.462 (3.645)	0.801* (0.446)	4.472 (3.657)	0.802* (0.445)
leverage	9.487* (5.238)	1.670* (0.875)	9.442* (5.220)	1.668* (0.872)
sales_growth	-0.376 (5.655)	0.459 (1.031)	-0.407 (5.660)	0.457 (1.030)
ROA	62.98*** (21.01)	9.854*** (3.217)	62.77*** (20.92)	9.845*** (3.210)
Constant	-4.801 (21.11)	0.136 (4.039)	-4.748 (21.06)	0.139 (4.035)
Year fixed-effects	✓	✓	✓	✓
Industry fixed-effects	✓	✓	✓	✓
Observations	430	430	430	430
R-squared	0.141	0.188	0.141	0.188
mean VIF	2.55	2.55	2.59	2.59

4.3 Robustness Tests

In this section, we present the results from the robustness tests. These robustness checks consist in controlling for corporate governance characteristics because “the investors’ reaction could be dependent on the efficacy of the firm’s current corporate governance processes” (Horton et al., 2017, p.28). For this purpose, we add to our baseline equation (1), two key indicators related to firms’ corporate governance efficiency that have been suggested as influencing the performance of companies by prior literature: *Ceo Duality* (a dummy variable equals 1 if the CEO and the chairman are the same; and 0 otherwise) and *Board Size* (the natural log of the total number of board directors in company i in year t).

Upadhyay (2015) found a positive association between board size and risk aversion, where a higher board size impairs equity holders because companies with a high number of directors tend to forgo growth opportunities due to their conservative investment policies. Furthermore, firm performance is negatively related to board size, because it raises more agency costs and makes decision-making less efficient since it is more difficult to reach a consensus with more people, which can hinder the ability to begin strategic changes (Goodstein et al., 1994; Yan et al., 2021). Likewise, according to Aktas et al. (2019), ceo-duality also creates incentives for CEOs to undertake inefficient capital allocations or even misallocations, which drives firms' value down. Rechner and Dalton (1991) found that firms that employ independent leadership tend to outperform those opting for dual leadership, for different proxies of financial performance.

We can observe in Table 6, which displays the results of our robustness tests, that, on general, the primary results remain unaffected when we control for corporate governance characteristics. However, the governance variables are not statically significant in any of the regressions.

For models 9 and 10, the results in Table 6 demonstrate that *mrot_first_af* is still positive and significantly related to firms' market performance. Still, on model 10, we can verify that the positive and significant association between *mrot_last_af* and market-to-book value, remains unchanged.

Consistently, our accrued variable (*mrot_af*) is still statistically significant, indicating that between the prior year and the post-rotation year, the market to book value (*MBV*) is expected to increase, on average, by 1.13 units approximately, holding other factors constant. Therefore, the overall effect of mandatory rotation still seems to affect investors' prospects on companies' long-term performance, and therefore, influence their investment decisions. Yet, the same did not hold for model 11, which does not report a significant impact of the accrued variable on Tobin's Q.

The introduction of corporate governance variables does not change the baseline results on the relationship between firms' market performance and mandatory audit firm rotation reported in Table 4.

Table 6. Mandatory Audit Firm-Rotation, Firm's Capital Market Performance and Corporate Governance Characteristics

<i>Dependent variable:</i>	q_tobin (Model 9)	MBV (Model 10)	q_tobin (Model 11)	MBV (Model 12)
mrot_last_af	10.58 (7.598)	1.617* (1.006)		
mrot_first_af	4.648* (2.757)	0.653** (0.334)		
mrot_af			7.571 (4.811)	1.128* (0.626)
big_4	-1.549 (3.118)	0.158 (0.392)	-1.685 (3.089)	0.136 (0.388)
auditfee_ratio	8.537 (9.384)	2.019* (1.185)	8.208 (9.262)	1.965* (1.171)
board_size	-0.259 (0.558)	0.0301 (0.0582)	-0.274 (0.563)	0.0276 (0.0594)
ceo_duality	-0.905 (3.632)	0.445 (0.579)	-0.922 (3.643)	0.442 (0.580)
size	0.0307 (2.147)	-0.202 (0.399)	0.0940 (2.158)	-0.191 (0.401)
age	4.224 (3.530)	0.795* (0.444)	4.258 (3.549)	0.801* (0.448)
leverage	10.88* (5.672)	1.785** (0.894)	10.80* (5.635)	1.773** (0.890)
sales_growth	-2.021 (6.184)	0.252 (1.087)	-1.881 (6.107)	0.275 (1.078)
ROA	68.54*** (22.97)	10.80*** (3.457)	67.21*** (22.35)	10.59*** (3.383)
Constant	-7.617 (27.08)	0.655 (4.448)	-8.137 (27.35)	0.571 (4.484)
Year fixed-effects	✓	✓	✓	✓
Industry fixed-effects	✓	✓	✓	✓
Observations	430	430	430	430
R-squared	0.153	0.202	0.151	0.200

5. Conclusions

In this study, we investigate the association between mandatory auditor rotation and investors' perceptions on this audit reform using a sample of Portuguese listed companies. We used two different proxies for investors' perceptions: Tobin's Q and Market to book value (MBV) (where, the higher these ratios, the higher the stock market performance). Most investment decisions rely on those two variables because they provide an overall value for a certain business and capture growth opportunities. Mandatory auditor rotation was measured both at the audit firm-level and at the engagement partner level.

To the best of our knowledge, this is the first study exploring the relationship between mandatory auditor rotation and firms' market performance in the Portuguese setting.

In general, our results reveal a positive and statistically significant relationship between mandatory audit firm rotation and companies' stock market performance. Therefore, under the investors' perceptions, the net benefits deriving from the mandatory audit firm rotation policy appear to offset the costs. That is, investors seem to perceive that the loss of specific knowledge of the client and industry (deriving from mandatory audit firm rotation) does not outweigh the incremental audit quality that stems from higher auditor independence (Horton et al., 2017; Mayse, 2018; Krishnan & Zhang, 2019). Another interesting result is the tendency for investors to consider higher audit quality in the first year of tenure of the incoming audit firm (following mandatory rotation) than in the year prior to rotation (last year of outgoing firm).

Additionally, a robustness check introducing corporate governance variables in our baseline model did not undermine our results. The empirical evidence gathered in this study bolsters the arguments of EU legislators around the mandatory audit firm rotation.

In contrast, the statistical significance did not hold when we explore the mandatory engagement partner rotation. That is, investors appear to perceive mandatory audit firm rotation as a better bounding mechanism (than the mandatory engagement partner rotation) to prevent independence breaches from the auditors and agency problems.

This study provides useful insights for policymakers by reinforcing the role of the mandatory audit firm rotation rule, as the results indicate that the mandatory audit firm conveys a positive message to the market, strengthening investor confidence and credibility in the financial reporting system.

Nonetheless, we must be cautious in generalizing the conclusions obtained in this study to other countries, as the results may depend on the perceived importance of the institutional context (namely regulatory inspections, quality control policies of audit firms, etc.) and on the level of expertise of the auditors (Bedard, 2012).

It is noteworthy to point as a major limitation of this study is the small sample magnitude, which weakens our statistical inference. Moreover, we cannot discard completely endogeneity issues affecting our results.

For future research, it would also be interesting to focus more on how mandatory auditor rotation impacts the creditworthiness of the companies, and see whether there are significant differences on the cost of capital before and after the enactment of this audit reform.

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