Research article

The investors' prospects on mandatory auditor rotation: evidence from Euronext Lisbon

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Abstract: The costs and benefits of mandatory auditor rotation (audit firm rotation and partner rotation) are far from being conclusive. This paper helps fill this gap in the literature by examining the relationship between mandatory auditor rotation and firms' stock market performance in the Portuguese context. Using a sample of listed companies in Portugal from 2009 to 2020, the main finding indicates that mandatory audit firm rotation is positively and significantly related to the firm's market performance. The evidence gathered suggests investors perceive mandatory audit firm rotation as a mechanism for improving audit quality. Controlling for the engagement partner rotation, we do not find that the rotation rule has a positive effect on firms' market performance. The net benefits of the mandatory audit rotation rule seem to be driven by the mandatory change of the audit firm, with improvements in market perceptions of earnings. Robustness tests suggest that the signal and significance of the association of firms' market performance and mandatory audit firm rotation holds in the presence of corporate governance mechanisms. Also, the audit experience of the departing and incoming partners does not interact with the relationship between mandatory partner rotation and firms' market performance.

Keywords: investor perceptions; mandatory auditor rotation; audit firm rotation; engagement partner rotation; audit quality

JEL Codes: M41, M42, M21, Z23

1. Introduction

Over the past two decades, high-profile global financial scandals have brought financial auditing under public scrutiny, prompting regulators of the auditing profession to strive towards improving audit quality (Sikka, 2009). The negative externalities arising from the Enron event led the United States (U.S.) Senate to promote the Sarbanes-Oxley Act (SOX) of 2002, 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 audit engagement partner every 5 years in public companies to strengthen audit quality (Burke and Lee, 2015; Cameran et al., 2015; Reid and Carcello, 2017).

A few years after the SOX enactment and following the same reasoning, 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. 17º, n.º 7 of the EU Regulation No. 537/2014). In 2014, and in contrast to the U.S., the EU introduced additional requirements by launching the mandatory audit firm rotation for PIEs (EU Regulation No. 537/2014). The baseline measure is a 10-year mandatory audit firm rotation for all PIEs (art. 17º of the Regulation), although accounting with different options available[1] to the Member States.

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 20) and January 1, 2016 (Law no. 140/2015, of September 7), respectively. Currently, the engagement partner rotation is required every 7 years with the possibility of returning after three years (art. 54º of the Legal Regime of Portuguese Statutory Auditors-Law no. 140/2015, of September 7, with the amendment introduced by the Law no. 99-A/2021, of December 31). Regarding the audit firm rotation, up to January 31st, 2022, the maximum tenure of the audit firm was 2 or 3 terms, depending on whether they are of 4 or 3 years, respectively, with a maximum tenure of 10 years, and the outgoing audit firm could return 4 years after the rotation date (art. 54º of the Legal Regime of Portuguese Statutory Auditors). With the recent amendment of the Legal Regime of Portuguese Statutory Auditors, since February 1st, 2022, the minimum tenure of the audit firm is 2 years and the maximum is 10 years (art. 54º).

Overall, mandatory auditor rotation is expected to improve audit quality (Chi et al., 2009), which should contribute to the orderly functioning of markets by enhancing the integrity and efficiency of financial statements (EU Regulation No. 537/2014).[2]

Audit quality is "(…) the market-assessed joint probability that a given auditor will *both* (a) discover a breach in the client's accounting system, and (b) report the breach (DeAngelo,1981). DeAngelo's definition highlights two important aspects of audit quality:

1. the competence of the auditor, which determines how likely a misstatement will be detected;
2. the auditor's independence, which determines what the auditor is likely to do about a detected misstatement (Ruiz-Barbadillo et al., 2004). The expression "market-assessed joint probability" refers to the market perception of auditors' competence and independence (Watkins et al., 2004).

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[1] Options available: (1) implement a shorter rotation period (art. 17º, 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. 17º, 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. 17º, n.º 4 b) of the Regulation).

[2] In this paper, the expression "auditor rotation" encompasses both the engagement partner and audit firm rotation.

Prior literature presents a lack of consensus regarding the cost and benefits of mandatory auditors' rotation (Jenkins and Vermeer, 2013; Lennox et al., 2014; Reid and Carcello, 2017). The main argument of opponents to auditor rotation is a loss of auditor's competence. Allegations are that the loss of client-specific knowledge and the time required for the new auditor to gain that knowledge can impose difficulties on new auditors in detecting material misstatements and omissions in financial reporting (Blouin et al., 2007; Kim et al., 2019). In contrast, the main argument in favour of auditor rotation are gains in terms of auditor independence: auditor rotation brings a "fresh" and sceptical perspective, which makes the incumbent auditor more prone to detect and report material omissions or errors (Chi et al., 2009). Nevertheless, in case of the engagement partner rotation, problems of independence are not solved if they emerge from the culture rooted in the audit firm (Bamber and Bamber, 2009). On the other hand, the loss of competence highlighted by opponents of auditor rotation is offset when the incoming auditors are industry specialists (Arthur et al., 2017).

Furthermore, prior studies have largely focused on assessing the impact of mandatory audit rotation on several proxies for audit quality, and few explored the investors' perception/reaction to mandatory auditors' rotation (Reid and Carcello, 2017; Kim et al., 2019). As Reid and Carcello (2017) argue, notwithstanding the recurrent consideration of mandatory rotation as a policy option, it remains unclear how investors perceive this rule. This paper fills this gap in the literature, by exploring to what extent mandatory auditor rotation (both the engagement partner and the audit firm rotation) is related to firms' market performance, in the Portuguese context. To the best of our knowledge, this is the first study exploring this relationship in the Portuguese setting.

The reasoning behind exploring the mandatory (rather the voluntary) rotation is

1. the difficulty in determining causality in a voluntary rotation setting; and,
2. voluntary auditor changes often occur in a broader context of auditor-client disagreements or client difficulties (e.g., financial distress, declining performance).

These issues may "overstate" the negative effects of auditor rotation (Cameran et al., 2015).

Our main results reveal that mandatory audit firm rotation is positively and significantly related to firms' market performance. Investors seem to perceive mandatory audit firm rotation as a positive determinant of audit quality and financial reporting quality. Regarding the mandatory engagement partner rotation, the results are not statistically significant. Thus, the net benefits of the mandatory audit rotation rule seem to be driven by the mandatory change of the audit firm, with improvements in market perceptions of earnings. Robustness tests suggest that the signal and significance of the association of firms' market performance and mandatory audit firm rotation holds in the presence of corporate governance mechanisms. Also, the audit experience of the departing and incoming partners does not interact with the relationship between mandatory partner rotation and firms' market performance.

This study contributes to the literature by exploring an under researched area: the investors' perceptions on the mandatory auditor rotation rule (Reid and Carcello, 2017; Kim et al., 2019). The findings of this paper are of interest to regulators, as they provide insights into how investors perceive mandatory auditor rotation and the costs and benefits of such a policy, and to investors; as pointed out by Reid and Carcello (2017), mandatory audit rotation is important to investors because such a policy would be enacted for their benefit (i.e., if investors view rotation as a benefit, then the regulatory justification for such a regime is strengthened; if investors oppose the rotation, it calls into question the benefits of implementing such a policy and intensifies the debate on the matter).

The remainder of this paper is organized as follows. Section 2 presents the literature review and the hypotheses development. Section 3 outlines the research design. Section 4 describes and discusses the results. The last section presents the concluding remarks.

2. Literature review and hypotheses development

Studies that examine investor perceptions of mandatory audit rotation are scarce in the literature. Nevertheless, extant research has been exploring the impact of mandatory audit rotation (audit firm and partner rotation) on audit quality, a relationship which is considered by scholars and auditing regulators as having the ability to promote a better alignment of auditors' interests with investors' interests (Aobdia et al., 2015; Reid and Carcello, 2017).

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 on audit quality 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 exhibit abnormally higher engagement hours in the first year (17 percent), which is suggestive of "lowballing"; and,

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 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.

Corbella et al. (2015) also examined mandatory audit firm rotation and audit quality, but for a sample of Italian public companies audited by Big4 and non-Big 4 auditors, between 1998 and 2011. Using earnings management as a proxy of audit quality, overall, the results indicate that for firms audited by non-Big4, audit firm rotation is associated with an increase in audit quality without the added cost of an increase in audit fees. By contrast, and consistent with Cameran et al. (2015), for firms audited by Big4, audit firm rotation is not associated with higher audit quality but is associated with a decrease in audit fees. However, a red alert is raised by researchers, e.g., Kamarudin et al. (2022a), using conditional conservatism as a proxy for earnings quality for a set of Asian firms, argue that when auditors switch from one Big4 to a non-Big4 that could signal a decrease in the quality of earnings.

In the South Korean context, Choi et al. (2017) compared 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, thus suggesting that extended audit firm tenure improves audit quality. Also in the Asian region, two recent studies explored the mandatory audit rotation in Indonesia. Martani et al. (2021) examined the association of audit firms and partner rotation on audit quality (proxied by the level of abnormal accruals), in a sample of 215 Indonesian listed firms from 2013 to 2017. The time horizon encompasses two phases of the law requirements regarding auditor rotation in Indonesia:

1. from 2008 to 2015 the maximum audit firm tenure is six years, while for the engagement partner, the maximum tenure is 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. Widyaningsih et al. (2019) explored the impact of audit firm rotation on audit quality (measured through the level of earnings management) before and after abolishing the legal requirement for audit firm rotation in Indonesia. Unlike the results of Martani et al. (2021), mandatory audit firm rotation does not have a significant impact on audit quality.

Finally, Kamarudin et al. (2022b), using a sample of firms from emerging markets, studied the relationship between mandatory audit firm rotation and the auditing and reporting standards, and the impact of the auditor competition on audit fees. The authors conclude that both mandatory audit firm rotation requirements and the strength of auditing and reporting standards are essential in enhancing audit quality, by reducing the negative effect of audit competition.

We can observe that, while the results of prior studies are mixed, most studies do not support the idea that mandatory audit firm rotation improves audit quality (e.g., Cameran et al., 2015; Choi et al., 2017; Kamarudin et al., 2022a; Widyaningsih et al., 2019). Garcia-Blandon et al. (2020a), in the Spanish context, even found evidence that long audit firm tenure does not only seem to promote 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-country European study, Garcia-Blandon et al. (2020b) did not find significant evidence of lower levels of audit quality for longer periods of audit firm tenure.

Furthermore, there is a branch of literature exploring investor perceptions of mandatory audit firm rotation. Mansi et al. (2004) documented a high negative association between the cost of debt financing and audit firm tenure, suggesting that debt market participants would react negatively to a possible mandatory audit firm rotation. Ghosh and Moon (2005) found a positive and significant association between audit firm tenure and investors' perceptions of earnings quality. Both debtholders and stockholders view long audit firm tenure as improving audit quality, 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 contrast, the results of Mayse (2018), for a sample of U.S. non-public firms, suggest that lenders perceive higher audit quality and higher reliability of financial statements when firms are subject to auditor rotation (partner and audit firm rotation). Mayse (2018) argues that higher auditor tenures were found to negatively affect the lenders' prospects of the companies' ability to meet their future debt obligations. In Korea, Kim et al. (2019) analysed the relationship between companies under mandatory audit firm rotation and the cost of equity capital, from 2006 to 2008. In consonance with Mayse (2018), the results reveal a negative association between mandatory audit firm rotation and the cost of equity capital, indicating that, from the investors' perspective, the mandatory audit firm regime enhances audit quality, and thus decreases the cost of equity capital.

Reid and Carcello (2017) examined the market 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 market reacts negatively (positively) to events that increased (decreased) the likelihood of audit firm rotation. 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 a Big4 audit firm. Reid and Carcello's (2017) findings suggest that investors do not perceive long audit firm tenure to be problematic, and contradict the Public Company Accounting Oversight Board (PCAOB) arguments that mandatory audit firm rotation promotes a better alignment between auditors´ and investors' interests. Horton et al. (2018)

conducted a study for the European market following a similar methodology used by Reid and Carcello (2017). They selected nine important events between 2010 and 2013 associated with the mandatory audit firm rotation rule. They documented a positive and significant overall market reaction in response to the chosen events, indicating that investors perceive incremental benefits arising from mandatory audit firm rotation. Further, the authors found that investors perceive greater benefits of mandatory audit firm rotation for firms dealing with agency problems, as they expect audit firm rotation to improve financial reporting credibility.

In short, prior studies on investors' reactions to mandatory auditor rotation have provided mixed evidence. While Mansi et al. (2004), Ghosh and Moon (2005) and Reid and Carcello (2017) found a positive relationship between audit firm tenure and investors' perceptions of earnings quality, with lenders, stockholders, and rating agencies perceiving longer auditor tenure as improving earnings quality, the results of Horton et al. (2018), Mayse (2018), and Kim et al. (2019) suggest that investors perceive incremental benefits from mandatory audit firm rotation.

Given the opposite predictions of the effect of audit firm rotation on audit quality and market reactions, and the lack of consistent empirical evidence on perceived audit quality and investors' perceptions of mandatory auditor rotation, we specify the following non-directional hypothesis:

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

Other studies place the analysis at the mandatory engagement partner rotation level. Using a sample of Taiwan's listed firms, Chi et al. (2009) explored the effect of mandatory partner rotation on audit quality (i.e., level of abnormal accruals). Comparing a mandatory rotation sample with a nonrotating sample, they do not found differences in audit quality neither on ERC. Yet, when comparing audit quality in the mandatory rotation sample one year before and after the rotation, they found that audit quality is lower under new audit partners. Similar studies were conducted in the U.S. context. Litt et al. (2014) also find evidence of lower financial reporting quality following an audit partner change (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, non-industry specialist auditors, and smaller audit offices. Kuang et al. (2020) used several proxies for audit quality, and the only statistically significant evidence they found suggests that audited financial statements are more likely to contain a material misstatement (i.e., to be subsequently restated) following a mandatory audit partner rotation. Chi et al. (2009), Litt et al. (2014), and Kuang et al. (2020) argue that they do not find robust evidence consistent with mandatory engagement partner rotation materially improving audit quality. Nevertheless, several studies present opposite findings.

In China, Lennox et al. (2014) 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. In Italy, where audit partners are appointed for a three-year period and their term can be renewed twice up to a maximum of nine years, Cameran et al. (2016) consider that the auditor has incentives to be re-appointed at the end of the first and the second three-year periods, and thus explored whether audit quality is lower in the first two three-year periods compared to the third term. Using the magnitude of earnings management as a proxy for audit quality, they find evidence that the audit partner becomes more conservative (i.e., allows lower levels of earnings management) in the last three-year period. Lennox et al. (2014) and Cameran et al. (2016) conclusions point out an increase in audit quality in the years immediately

surrounding the mandatory partner rotation. Consistently, Laurion et al. (2017) argue that, overall, partner rotations support a fresh look at the audit engagement, as they find that, relative to non-rotation firms, there is an increase in the frequency of restatement discoveries and announcements, as well as an increase in deferred tax valuation allowances among U.S. publicly listed firms. Xiao et al. (2023) also find evidence that, in general, the mandatory audit partner rotation implementation reduces earnings management activities from Chinese listed firms.

Other studies have explored the issue of audit partner rotation/tenure and its linkage to market reactions. In the U.S., where SOX requires, since 2002, the mandatory rotation of audit partners for public companies (but not the audit firm rotation), Kaplan and Mauldin (2008) examined in which manner audit firm versus audit partner rotation affects non-professional investors' perceptions on audit quality. They found evidence suggesting that compared to audit firm rotation, audit partner rotation improves the perceived audit quality among non-professional investors. Also in the U.S., Krishnan and Zhang (2019) explored the investors' perceptions on partner rotation in the 2 years after and before the rotation, by employing different metrics to capture the investors' perceptions (ERC, the number of short sells, and the cost of equity capital). The authors documented a higher responsiveness by investors to earnings announcements after a partner rotation, which means they perceive earnings to be of higher quality in the post-rotation period. Likewise, short-sellers also regard partner rotation as enhancing audit quality. Finally, the cost of equity capital was found to be lower, i.e., investors require a lower rate of return because companies are perceived to be less risky following the rotation.

In summary, while previous studies on mandatory audit partner rotation and audit quality provide conflicting evidence, studies exploring the linkage between audit partner rotation and market reactions provide consistent evidence that investors perceive benefits from partner rotation. The mixed evidence of prior studies motivates us to specify our second non-directional hypothesis:

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

3. Research design

3.1. Empirical model

To test the research hypotheses, we employ the following regression model (1):

$$INV_{i,t} = \alpha + \beta'X_{i,t}(MROT) + \Upsilon'Z\ (CONTROLS) + \varepsilon_t \qquad (1)$$

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. Similar to prior literature (e.g., Ghosh and Moon, 2005; Aobdia et al., 2015; Barth et al., 2017; Kim et al., 2019), two proxies for investor perceptions and stock market performance are used: Tobin's Q and the Market to Book Value. Tobin's Q (*q_tobin*) corresponds to the firm's market value at the end of the year plus total assets divided by the firm's book value. 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 higher *q_tobin* and *MBV*, the higher the stock market performance of the firm.

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, encouraging the departing auditor 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 financial auditing. According to Lennox et al. (2014), in addition to the fresh-eyes benefit, 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 on 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 short, *mrot_af* combines 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*); *mrot_engp* combines the dummy for the last (*mrot_last_engp*) and first (*mrot_first_engp*) years of tenure of the outgoing and incoming partner. These two variables allow us to draw conclusions on the overall effect of mandatory audit rotation, extending our scope of analysis beyond the effects of the outgoing and the incoming auditor. Evidence collected from these variables is more comprehensive when compared to the individual variables of mandatory rotation. For instance, if results report a positive impact on stock market performance in response to the first year of the incoming audit partner/audit firm tenure (following a mandatory rotation), evidence collected 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 and 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 associated with the company's stock market performance, and, ultimately with investor perceptions of audit quality. There is evidence that audit firm size and audit fees explain audit quality (e.g., Aobdia et al., 2015; Camaran et al., 2015; Carey and Simnett, 2006; Chi et al., 2009; Kim et al., 2019; Lennox et al., 2014; Mansi et al., 2004). Therefore, we control for *big_4* (a dummy that assumes 1 if the audit firm is in the Big4 group, and 0 otherwise) and *auditfee_ratio* (ratio of audit fees to total fees). Prior studies also document that companies' size, age, leverage, and profitability are related to the firm's stock market performance (e.g., Aobdia et al., 2015; Barth et al., 2017; 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 companies' foundation), *leverage* (total liabilities divided by total assets), sales growth (*sales_growth*, calculated as the change in sales between year *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.

3.2. Data and sample

As previously mentioned, in Portugal, the engagement partner rotation and the audit firm rotation rules became mandatory in 2008 and 2016 for PIEs, respectively. We therefore collected data on firms listed in Euronext Lisbon, for a 12 year-period from 2009 to 2020 (i.e., an unbalanced panel data). 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 99.5% levels to reduce the influence of outliers, the final sample includes 433 firm-year observations (42 companies), from 2009 to 2020.

Accounting and financial data were collected from Refinitiv Datastream and Orbis databases. However, given the lack of data on auditor-related information (especially, the engagement partner name and audit and non-audit fees) for the Portuguese companies in those databases, we hand-collected that data from the firm's annual consolidated financial statements from 2000 to 2020[3]. One of the authors retrieved the annual consolidated financial statements from the firm's website, and gathered the information on the audit firm name and the engagement partner name for each year. After this, the information collected was validated by each of the other two authors. Following this process, a meeting took place to discuss and resolve small divergences found.

4. Results and discussion

4.1. Descriptive statistics

Table 1 describes our sample by industry across the 2009–2020 period. We can observe that the most prominent sectors in our sample are services, manufacturing, and the sector of transportation, communications, electric and sanitary service.

Table 1. Industry distribution.

Industry distribution	
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 variables are presented in Table 2.

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[3] In Portugal, mandatory engagement partner rotation began in 2008, and mandatory audit firm rotation in 2016. Thus, to be able to identify the first mandatory cases of the engagement partner rotation (every 7 years) we collected data since 2000.

Table 2. Descriptive statistics.

Variable	N	Mean	median	Sd	Min	Max
q_tobin	433	7.3418	4.6096	20.9677	−55.6131	167.0053
MBV	433	1.5642	0.9378	3.2047	−5.5173	29.7536
auditfee_ratio	433	0.8886	0.9433	0.1417	0.2572	1
Size	433	13.3402	13.1551	1.7874	7.9714	17.5599
Age	433	3.3951	3.2958	0.8121	0.6931	5.4161
Leverage	433	0.7358	0.7051	0.2802	0.0565	2.2785
sales_growth	433	−0.0112	0.0061	0.2230	−0.9510	0.7596
ROA	433	0.0051	0.0166	0.0789	−0.4631	0.2744
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)					

Note: Table 2 provides the number of observations, the mean, the standard deviation (SD), the median (P_{50}), min and maximum values. All variables are as described in Subsection 3.1, as follows: *q_tobin* corresponds to the firm's market value at the end of the year plus total assets divided by the firm's book value; *Market to Book Value* (*MBV*) is computed as the ratio of the market value at the end of the year to equity book value; *auditfee_ratio* is the ratio of audit fees to total fees; S*ize* is the logarithm of total assets; *Age* is measured as the logarithm of the number of years since the companies' foundation; *leverage* is the ratio of total liabilities to total assets; sales growth (*sales growth)* represents the change in sales between *t* and *t-1*; return on assets (*ROA*) is the net income divided by total assets; *mrot_last_af* variable assumes 1 if the audit firm is in the final year of tenure in year *t*, and 0 otherwise; the *mrot_first_af* variable equals 1 if the audit firm is in the first year of tenure in year *t*, and 0 otherwise; the *mrot_last_engp* variable equals 1 if the engagement partner is in the final year of tenure in year *t*, and 0 otherwise; the *mrot_first_engp* variable equals 1 if the engagement partner is in the first year of tenure in year *t*, and 0 otherwise; *big 4* are the four largest accounting companies: Ernst & Young, Deloitte, KPMG, and PricewaterhouseCoopers.

The mean and median value of Tobin's Q (*q_tobin*) is 7.34 and 4.61. Concerning the market to book value (*MBV*), the mean value is 1.56 and the median is 0.94. This means that, on average, investor perceives a market value of 1.56 times the book value. As shown in Table 2, both Tobins'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 *auditfee_ratio* reveals that audit fees are about 89% of the total fees. The company's mean and median values of *size* are close and the same happens with *age*. On average, total liabilities represent more than 70% of the total assets (*leverage*), indicating a high level of corporate indebtedness across the sample. The average *sales_growth* and *ROA* values reveal low profitability for the firms in our sample.

During the sample period, we found 28 cases of mandatory rotation of the audit engagement partner and 24 cases of mandatory audit firm rotation. As expected, we have more cases of

mandatory rotation for engagement partners 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 (328 firm-year observations).

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* 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. Pearson correlation matrix.

	q_tobin	MBV	mrot_last_af	mrot_first_af	mrot_af	mrot_last_engp	mrot_first_engp	mrot_engp	big_4	auditfee_ratio	size	Age	leverage	sales_growth	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

Note: This table reports the Pearson's correlation coefficients for our sample across 2009–2020. *, **, *** represent statically significant correlations at the 10%, 5% and 1% level, respectively. All variables are as described before.

4.2. Empirical analysis

We test our research hypotheses using the Ordinary Least Squares (OLS) estimator, controlling for year and industry-fixed effects; Tables 4 and 5 display the results. 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 (see, e.g., Studenmund and Cassidy, 1992). For all the models reported in Table 4 and Table 5, the highest VIF is 2.59. Table 4 reports results from testing 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.

Dependent variable	q_tobin (Model 1)	MBV (Model 2)	q_tobin (Model 3)	MBV (Model 4)
mrot_last_af	10.70	1.619*		
	(7.684)	(0.995)		
mrot_first_af	4.589*	0.664**		
	(2.715)	(0.333)		
mrot_af			7.600*	1.135*
			(4.829)	(0.617)
big_4	−1.149	0.0954	−1.275	0.0757
	(2.918)	(0.409)	(2.881)	(0.404)
auditfee_ratio	8.735	1.989*	8.412	1.939*
	(9.312)	(1.179)	(9.196)	(1.166)
Size	−0.582	−0.133	−0.560	−0.130
	(1.507)	(0.326)	(1.505)	(0.326)
Age	4.158	0.736*	4.185	0.741*
	(3.517)	(0.421)	(3.537)	(0.425)
Leverage	10.31*	1.973**	10.18*	1.954**
	(5.346)	(0.904)	(5.298)	(0.899)
sales_growth	−1.953	0.200	−1.804	0.223
	(5.983)	(1.055)	(5.901)	(1.045)
ROA	68.20***	11.02***	66.78***	10.80***
	(22.40)	(3.434)	(21.75)	(3.359)
Constant	−1.234	0.104	−1.272	0.0983
	(18.23)	(3.683)	(18.27)	(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

Note: Table 4 reports regression estimates of Equation (1) for testing H1. All variables are as described before. Robust standard errors are shown in parentheses. Fixed effects scheme includes year and industry. *, **, ***

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

In model 1, while the coefficient of *mrot_last_af* is positive but statistically insignificant, *mrot_first_af* presents a positive and statistically significant association with Tobins' Q. This indicates that in the first year of the incoming audit firm tenure (following a rotation), Tobins' Q is expected to increase, on average, 4.6 units (approximately), holding other factors constant. Reinforcing the results of model 1, model 2 documents a positive and statistically significant association between *mrot_last_af* and *mrot_first_af* and market to book value (*MBV*). The results indicate that in the last year of the departing audit firm tenure (prior to mandatory rotation), the market to book value is expected to increase, on average, by 1.6 units approximately, holding other factors constant. Similarly, 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.

Model 3 and model 4 are used to test the overall association between mandatory audit firm rotation and investors' prospects of firms' performance. We find a positive and significant relationship between mandatory audit firm rotation and firms' market performance. Mandatory audit firm rotation is expected to have an average impact of 7.6 and 1.135 units on Tobins' Q and Market to book value, respectively. These findings quantify the overall accrued impact of mandatory rotation on firms' market performance, thus being more comprehensive, as they go beyond the individual variables of mandatory rotation used in model 1 and model 2, and are less sensitive to exogenous factors that may affect the departing/ incoming audit firms (Aobdia et al., 2015; Reid and Carcello, 2017).

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, thus supporting H1. Overall, the evidence collected suggests that mandatory audit firm rotation improves firms' market performance, with the incoming audit firm playing a more relevant role than the departing audit firm in promoting the investors' prospects of firms' performance. Investors seem to perceive that the costs associated with loss of client-specific knowledge highlighted by opponents of audit firm rotation (Blouin et al., 2007; Kim et al., 2019) seems to be outweighed by the benefits brought in by the incoming auditor. The new audit team applies a new methodology and client procedures, and brings a new perspective that makes it more prone to detect and report material misstatements (Bamber and Bamber 2009; Chi et al., 2009).

We infer that investors perceive mandatory rotation on the audit firm level as enhancing the financial reporting and the financial audit quality, leaving them more willing to invest. The evidence collected is consistent with Mayse (2018), who finds that lenders perceive higher audit quality and higher reliability of financial statements when firms are subject to audit firm rotation. Results are also in line with the evidence collected by Reid and Carcello (2017), Horton et al. (2018), Kim et al. (2019), and Krishnan and Zhang (2019) who documented that investors perceive incremental benefits arising from mandatory audit firm rotation.

For the set of 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 profitability present a higher stock market performance. Additionally, in models 2 and 4, we found a positive and significant association between the market to book value and the audit-fee ratio. In line with Horton et al. (2018) this suggests that the higher ratio of audit fees to total fees, the higher the perceived audit quality by investors. These results are also consistent with the findings of Schmidt (2012), who provided evidence that a high level of non-audit services fees is perceived as impairing audit quality.

Table 5 provides results from testing H2, under which investors' perceptions of firm performance are associated with the mandatory rotation of the engagement partner. While we found a positive and significant association between mandatory audit firm rotation and firms' market performance, the results did not hold for the mandatory engagement partner rotation. 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 in firms' market performance. The investors' prospects of companies' performance are not affected by the mandatory rotation of the engagement partner, which suggests that mandatory partner rotation does not signal the investor perception of audit quality. Thus, results do not support H2. Our evidence is consistent with Chi et al. (2009), Litt et al. (2014), and Kuang et al. (2020), who find no consistent support for the belief that mandatory audit partner rotation enhances investor perceptions of audit quality.

The absence of significant results for the engagement partner rotation can be, to a certain extent, due to our small sample, which makes it harder to draw robust conclusions. Notwithstanding, we obtain significant results for audit firm rotation. Accordingly, overall, the evidence collected suggests that investors perceive the mandatory rotation of the audit firm as a more effective mechanism for promoting audit quality. This can be explained by the fact that the audit firm rotation implies a broader change beyond the partner. In general, under the engagement partner rotation regime only the audit partner is replaced, keeping everything else roughly constant such as the audit team and the work methodology, and therefore, ethical standards are likely to still be the same (Bamber and Bamber, 2009; Chi et al., 2009). Furthermore, given the high-profile corporate scandals in Portugal over the last two decades, the most relevant of which occurred after the enactment of the mandatory audit partner rotation (e.g., Banco Espirito Santo and Banco Internacional do Funchal), investors seem to perceived incremental benefits arising from the audit firm rotation when compared to audit partner rotation. Horton et al. (2018) claim that "if investors perceive some level of market failure, as suggested by the regulators, then potentially this new regulation may constrain the behaviour of managers", that is, investors seem to place an extra trust in the benefits of new regulations, in particular, the audit firm mandatory rotation rule enacted in Portugal in 2016.

Table 5. Mandatory Engagement Partner Rotation and Capital Market Performance.

Dependent variable	q_tobin (Model 5)	MBV (Model 6)	q_tobin (Model 7)	MBV (Model 8)
mrot_last_engp	−0.175	−0.324		
	(2.375)	(0.342)		
mrot_first_engp	1.916	−0.235		
	(5.192)	(0.373)		
mrot_engp			0.907	−0.278
			(3.024)	(0.285)
big_4	−1.679	−0.0115	−1.580	−0.00730
	(2.912)	(0.406)	(2.939)	(0.403)
auditfee_ratio	7.995	1.833	8.062	1.835
	(8.867)	(1.137)	(8.800)	(1.138)
Size	−0.316	−0.115	−0.323	−0.116
	(1.547)	(0.334)	(1.546)	(0.334)

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Dependent variable	q_tobin (Model 5)	MBV (Model 6)	q_tobin (Model 7)	MBV (Model 8)
Age	4.462	0.801*	4.472	0.802*
	(3.645)	(0.446)	(3.657)	(0.445)
Leverage	9.487*	1.670*	9.442*	1.668*
	(5.238)	(0.875)	(5.220)	(0.872)
sales_growth	−0.376	0.459	−0.407	0.457
	(5.655)	(1.031)	(5.660)	(1.030)
ROA	62.98***	9.854***	62.77***	9.845***
	(21.01)	(3.217)	(20.92)	(3.210)
Constant	−4.801	0.136	−4.748	0.139
	(21.11)	(4.039)	(21.06)	(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

Note: Table 5 presents coefficient estimates from regressing Equation (1) for testing H2. All variables are as described before. Robust standard errors are shown in parentheses. Fixed effects scheme includes year and industry *, **, *** represent statically significant correlations at the 10%, 5%, and 1% level, respectively.

4.3. Robustness checks

As a robustness check we further control for the effects of corporate governance mechanisms because "the investors' reaction could be dependent on the efficacy of the firm's current corporate governance processes" (Horton et al., 2018). In order to explore such effects, we add to our baseline Equation (1) two key indicators of corporate governance that have been suggested by prior literature to be related to firms' performance: *Ceo Duality* (a dummy variable equals 1 if the Chief Executive Officer (CEO) and the chairman are the same; and 0 otherwise) and *Board Size* (the natural logarithm 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, suggesting that a higher board size impairs equity holders since companies with a high number of directors tend to forgo growth opportunities due to their conservative investment policies. Goodstein et al. (1994) further found that firm performance is negatively related to board size, suggesting that a larger board raises more agency costs and makes decision-making less efficient (i.e., it is more difficult to reach a consensus among a large number of members), which can hinder the ability to begin strategic changes. Likewise, according to Aktas et al. (2018), 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 evidence that firms employing an independent CEO tend to financially outperform those choosing a dual leadership (CEO-duality).

Table 6. Mandatory audit firm rotation, market performance, and corporate governance mechanisms.

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

Note: Table 6 presents estimates from regressing Equation (1) including corporate governance variables: board_size and ceo_duality. All variables are as described before. Robust standard errors are shown in parentheses *, **, *** represent statically significant correlations at the 10%, 5%, and 1% level, respectively.

Table 6 displays the results of our robustness tests. We can observe that, globally, the baseline results remain unchanged, when we control for corporate governance mechanisms.[4] The coefficients of *mrot_last_af* and *mrot_first_af* remain positive and significantly related to firms' market performance. However, the coefficient of *mrot_af* is now only positively and significantly related to

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[4] For brevity, we only display results for the audit firm rotation models. Untabulated results reveal that the coefficients of the partner rotation variables (*mrot_last_engp, mrot_first_engp* and *mrot_engp*) remain statistically insignificant when we add the corporate governance variables to the models.

MBV. The mandatory audit firm rotation is related to investors' prospects of companies' performance. The coefficients of the corporate governance variables are not statically significant. Controlling for corporate governance does not change the baseline results on the association between firms' market performance and mandatory audit firm rotation reported in Table 4.

Prior literature argues that individual audit partners differ in terms of incentives, risk preferences, knowledge, experience, and cognitive abilities, which ultimately affect audit quality (e.g., Knechel, 2000; Chin and Chi, 2009; Gul et al., 2013; Sundgren and Svanström, 2014; Goodwin and Wu, 2016). Aobdia et al. (2015) further report that the identity of audit partners provides informational value to capital market participants. In light of such arguments, we further explore the intermediate role of the partner's audit experience in terms of the mandatory partner rotation and the firms' market performance relationship. *PartnerExp* is a dummy variable that equals 1 if the audit experience of the engagement partner is greater than the median experience of the engagement partners across the sample, and 0 otherwise. The interaction terms of interest are *mrot_last_engp*PartnerExp* and *mrot_first_engp*PartnerExp.* Results are reported in Table 7.

The coefficients of *mrot_last_engp*PartnerExp* and *mrot_first_engp*PartnerExp* are statistically insignificant, suggesting that the audit experience of the departing and incoming engagement partners does not interact with the relationship between mandatory engagement partner rotation and firms' market performance.

Table 7. Mandatory partner rotation and firms' market performance: the audit partner's experience role.

Dependent variable	q_tobin (Model 13)	MBV (Model 14)
mrot_last_engp	−1.469	−0.691
	(2.737)	(0.478)
mrot_first_engp	2.908	−0.561
	(7.332)	(0.461)
PartnerExp	1.466	1.633
	(10.76)	(1.130)
mrot_last_engp*PartnerExp	−1.660	−0.669
	(4.658)	(0.699)
mrot_first_engp*PartnerExp	2.699	−1.073
	(8.958)	(0.835)
big_4	−0.266	0.00509
	(3.247)	(0.443)
auditfee_ratio	6.941	1.927*
	(8.653)	(1.060)
Size	−0.156	−0.119
	(1.546)	(0.330)
Age	4.349	0.792*
	(3.615)	(0.442)
Leverage	8.803*	1.704**
	(5.162)	(0.852)
sales_growth	−0.663	0.527

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Dependent variable	q_tobin (Model 13)	MBV (Model 14)
	(5.719)	(1.028)
ROA	61.55***	10.01***
	(21.16)	(3.224)
Constant	−7.239	0.119
	(21.91)	(4.049)
Year fixed-effects	✓	✓
Industry fixed-effects	✓	✓
Observations	430	430
R-squared	0.143	0.190

Note: Table 7 presents estimates from regressing Equation (1) including variables: *PartnerExp*, *mrot_last_engp*PartnerExp,* and *mrot_first_engp*PartnerExp*. All variables are as described before. Robust standard errors are shown in parentheses *, **, *** represent statically significant correlations at the 10%, 5%, and 1% level, respectively.

5. Conclusions

In this study we explore the association between mandatory auditor rotation and investors' prospects on firms' market performance, using a sample of Portuguese listed companies. We use two different proxies for firms' market performance: Tobin's Q and market to book value. Mandatory auditor rotation is measured both at the audit firm level and engagement partner level.

As far as we know, this is the first study exploring the relationship between mandatory auditor rotation and firms' market performance in the Portuguese setting.

We decide to explore the mandatory (rather the voluntary) rotation because:

1.   the inherent difficulty in determining causality in a voluntary rotation setting; and,

2.   several factors may cause voluntary auditor rotations (e.g., auditor-client disagreements, client difficulties), and, as Cameran et al. (2015) argue, these issues may ''overstate'' the negative effects of auditor rotation.

The main results reveal that mandatory audit firm rotation is positively and significantly related to firms' market performance. Investors seem to perceive mandatory audit firm rotation as a positive determinant of audit quality and financial reporting quality. Regarding the mandatory engagement partner rotation, the results are not statistically significant. Thus, the net benefits of the mandatory audit rotation rule appear to offset the inherent costs and seem to be driven by the mandatory change of the audit firm (rather than the engagement partner rotation), with improvements in market perceptions of earnings.

Investors seem to perceive that the loss of client and industry-specific knowledge (derived from mandatory audit firm rotation) does not outweigh the enhancements in auditor independence and audit quality resulting from mandatory audit firm rotation (Horton et al., 2018; Mayse, 2018; Krishnan and Zhang, 2019). While we hypothesise that the main driver of audit quality upgrade is auditor independence, prior studies (e.g., Svanberg and Öhman, 2016; Umar and Anandarajan, 2004) argue that auditors are more likely to "act under the good rules" in audit firms with ethical cultures that reward ethical behaviour, which might be associated to an increase in audit competence, the other component of audit quality. Furthermore, the last decade high-profile corporate scandals in Portugal seems to have induced investors to perceive incremental benefits from the "new"

mandatory audit firm rotation rule when compared to audit partner rotation. Horton et al. (2018) argue that, after market failures, investors perceive new regulations as potentially constraining the manager's behaviour.

Robustness tests suggest that the signal and significance of the association between firms' market performance and mandatory audit firm rotation holds in the presence of corporate governance mechanisms. Also, the audit experience of the departing and incoming partners does not interact with the relationship between mandatory engagement partner rotation and firms' market performance.

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 rotation conveys a positive message to the market, strengthening investor confidence and credibility in the financial reporting system. Nevertheless, we must be cautious in generalising 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 out as a major limitation of this study the small sample magnitude, which weakens our statistical inference. Moreover, we cannot completely discard endogeneity issues affecting our results.

For future research, it will be interesting to expand the research to other countries, including, e.g., south European countries, as well as to a longer period of analysis. Another research window to open is related to audit firms' ethical cultures, which may play an important role (Sweeney et al., 2013). Svanberg and Öhman (2016) emphasise that auditors are more likely to play by the rules in ethical cultures characterized by the rewarding of ethical behaviour. However, in line with former literature (e.g., Adili et al., 2020), the effect of organizational culture on the auditor's behavior justifies further studies on the potential impact of ethical culture on the auditor's behavior.

Use of AI tools declaration

The authors declare they have not used Artificial Intelligence tools in the creation of this article.

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Conflict of interest

All authors declare no conflicts of interest in this paper.

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