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The effects of audit firm rotations and retentions: an event study in Chile

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Abstract

We study markets' reactions towards securities issued by firms that announce an external auditor's retention instead of an external auditor's rotation. We focus on *differences* in reactions to announcements when markets are stable versus when markets are convulsed. We carry out an event study of publicly traded Chilean companies (100% of the non-financial component of the main Chilean Stock Indexes) that announced a rotation or retention from 2004 to 2019. In the period 2009 to 2012, two major corporate scandals significantly affected Chilean financial markets. We find that, during the period without scandals, the market reacted more positively when a company announced a retention instead of a rotation of its auditor, however, during the period with scandals, the market reacted more positively when a company announced a rotation instead of a retention of its auditor. Our results suggest that, during the period without (with) scandals, the start-up costs and know how losses of an auditor's change dominated (were dominated by) the improvements in auditor's independence associated with this change. Additional results, obtained from tests performed with data subsamples, are consistent with our hypothesis and uncover differences between the announcements' *factual* and *perceived effects*. We end by discussing the implications for firms and regulators.

Keywords Audit firm rotation · Audit firm retention · Market reaction · Event study · Corporate scandal · Factual and perceived effects · Chile

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1 Introduction

Frequently, international or local financial markets are struck by events (such as fraud, serious maleficence, negligence or other illegal wrongdoing) that have the capacity to destroy shocking amounts of value.[1] These value-destroying events are constant reminders of the fundamental role that external accounting auditors are called to fulfil as verifiers of the reasonableness with which financial statements reflect companies' financial situations.[2]

Aware of this fundamental role, many authors have studied auditors' desirable attributes such as quality, efficiency and independence as well as the effects that these attributes might have upon auditing outcomes.[3] Others have studied the ways in which auditor's quality, efficiency and independence might be shaped by firms' decisions to voluntarily rotate their audit firms (VAFRO).[4] Additional papers have researched the ways markets react towards VAFRO announcements.[5]

Surprisingly, unlike VAFROs related inquiries, the literature has given much less attention to the effects that a voluntary audit firm retention (VAFRE) has on auditor's attributes as well as on market reactions. Because of this restricted academic attention, we have limited knowledge regarding whether, and how, the effects generated by VAFROs could be significantly different from the effects generated by VAFREs. More specifically, in which ways are auditors' quality, efficiency and independence shaped differently by VAFREs versus VAFROs? Do markets react differently to VAFREs compared to VAFROs? And how does the answer to the last question change when markets have been impacted by value destroying events?

VAFREs and VAFROs are decisions to extend and to end respectively the auditor-auditee relationship, that is, they determine the length of the auditor-auditee relationship (tenure). Because tenure creates costs and benefits for the audited firm in the form of factual effects (changes in auditor's quality, efficiency and independence 'in fact') and perceived effects (changes in auditor's independence 'in appearance' and auditee's financial stability), securities prices will react to VAFREs and VAFROs announcements by internalizing the aggregate effect of these costs and

[1] Together, the ENRON and WorldCom scandals destroyed close to US$ 250 billion in market capitalization. Due to its manipulation of emission levels, Volkswagen suffered direct losses of approximately US$30 billion and U.S. authorities fined the firm an additional US$ 25 billion.

[2] Many National Board of Accountants state their role in similar terms. See for example the Chilean Accepted Accounting Principles and compare them with the ones used in the U.S. According to Cameran et al., (2005), auditors contribute to a better functioning of financial markets in two ways. They provide information to managers, shareholders, regulators and stakeholders. Second, through their qualified opinions, they backup information or correct errors included in the statements.

[3] See for example, DeAngelo (1981), Arruñada and Paz-Arce (1997), Fearnley and Beattie (2009), Ewelt-Knauer and Pott (2013).

[4] See for example, Chen et al. (2008), Patterson et al. (2019) or Dordzhieva (2022).

[5] See for example, Fried and Schiff (1981), Eichenseher et al., (1989), Knechel et al. (2007) or Chang et al. (2010). Note that a VAFRO will not only determine the tenure of an auditor–client relationship, but it will also define the characteristics of that match (e.g., Big-4 or non-Big-4, specialized or non-specialized auditor).

benefits.[6] What is not clear *a priori* is which of these costs and benefits are significant enough to dominate the market reaction.

Contrary to the uncertainty surrounding the unconditional markets' response to VAFREs and VAFROs, intuition suggests that the relevance of some of the costs and benefits triggered by rotation/retention announcements will change with market conditions. When markets are stable, investors should be more receptive to improvements in attributes such as the quality and efficiency of the auditor. Because several authors have suggested that auditing quality improves with tenure (e.g., DeAngelo, 1981 and Arruñada & Paz Ares, 1997), the value of VAFREs, relative to VAFROs, should increase when markets are stable. However, when markets have been affected by value-destroying events connected to the role of external auditors, investors should become more receptive to improvements in auditors' reliability and probity, that is, in auditors' independence. Given that several other authors have suggested that auditor's independence decreases with tenure (e.g. DeAngelo, 1981 and Beattie & Fearnley, 2002), in this case the value of VAFREs, relative to VAFROs, should decrease when markets are convulsed.

We do not know how relevant the market condition effect is. Nevertheless, if this effect is strong enough, it could be the source of a VAFRE's premium when markets are stable, and the source of a VAFRE's discount when markets are convulsed. In the second case, a VAFRO would act as a mechanism that helps agents restore their trust in markets. Only empirical evidence can uncover if indeed this is the case.

In this article we analyse market reactions to announcements of voluntary changes and voluntary retentions of auditors made by 96 Chilean companies during 2004–2019.[7] A civil-law legal tradition country and Latin American emerging market, Chile is a middle-high income O.E.C.D. member that has a concentrated auditors' market regulated by specialized agencies (C.M.F.) and codes (law 18.045) that currently define a mandatory audit *partner* (not firm) rotation system. Although the Chilean financial market is highly sophisticated, in the last years it has been rocked by major local corporate scandals.

During 2009, the pharmacy chain FASA was sanctioned for collusive behaviors that involved substantial overpricing.[8] In the handling of this case, controlling shareholders were accused of violating their fiduciary duties with the minority shareholders and FASA's auditor's testimony was required to clarify key issues during the administrative trial.[9] Only two years later, in mid-2011, it was revealed that the

[6] There is an extensive literature that has studied factual and perceived effects of VAFREs. In Sect. 2 we cover that literature in detail.

[7] A 100% of the non-financial firms that belong to the main Chilean Stock Indexes: IPSA and IGPA. IPSA is the selective index that measures the variation in prices of the 40 most traded Chilean stocks. IGPA is the index that measures the variation in prices of all Chilean stocks registered in the Chilean stock market.

[8] Only in the case of FASA this was US$ 45 million, Chilean Public Prosecutor's formalization (2009).

[9] Controlling shareholders approached the public prosecutor (FNE) to strike a deal to reduce FASA's sanctions. The deal was made without informing the minority shareholders, who later questioned the strategy of recognizing FASA's responsibilities. All directors were sanctioned for violations of their fiduciary duties. The outcome ignited distrust among the media, investors and regulators of controlling shareholders and managers. This sentiment led to a generalized call to strengthen the role played by

retailer La Polar had fraudulently managed its accounts for credit card receivables associated with half a million clients. Drastic sentences against both firms, their directors/executives, and La Polar's auditor were issued during 2012. The effects of FASA and La Polar were massive in several dimensions. Both events dragged down local financial markets. In addition, corporate and securities laws were substantially reformed (through laws 20.382 and 20.552) and the first comply-or-explain corporate norm NCG 341 was introduced to the country. The Chilean market for corporate directors changed significantly (Bustos et al., 2023) and the Chilean auditors' market became more heavily regulated.[10] Perhaps because investors and regulators became more aware of the latent conflicts of interest among corporate agents, the role of auditors in preventing these conflicts was emphasized after the scandals.

The cases of FASA and La Polar open a space for us to study how market reactions to VAFREs and VAFROs may differ when markets are convulsed by value-destroying events.

We first test for VAFRE's and VAFRO's market reactions over the entire period 2004–2019 without controlling for corporate scandals. We find that there is a statistically significant reward for those firms that did not change auditors. Companies that retained their auditor benefited from a per-day excess return that oscillated between 8 and 12 bps, depending on the window of time following the announcement. Instead, we find that price reactions for companies that rotated their auditor were not statistically significant for the same windows of time. Although the relevance of this result cannot be ignored, its implications are less robust after we note that differences (test of means) in reactions towards VAFREs and VAFROs proved to be statistically insignificant. The seeming contradiction in these two findings is clarified after we describe the next step in our research.

In the next step we test for VAFRE's and VAFRO's market reactions over the entire period controlling for corporate scandals. We find that there is a statistically significant reward (difference between VAFRE and VAFRO) for those firms that *did not announce a change* in auditors outside the range of years in which FASA and La Polar took place. The difference in per-day excess returns during a 2-day window following the announcement was 23 bps. At the same time, we find a statistically significant reward (difference between VAFRO and VAFRE) for those firms that *did announce a change* in auditors in the range of years when the scandals took place. This time the difference in per-day excess returns during the same 2-day window following the announcement was 39 bps.

In all our estimations, we test for alternative hypotheses that the market reaction was not related to the retention/rotation of the auditor.[11] We analyse whether the market reaction could be connected to other material events such as changes in the

Footnote 9 (continued)
agents, such as credit rating agencies, regulators and auditors, in assuring accountability and probity in the markets.

[10] In 2012, regulators created a division to monitor auditors and issued NCG 355 to raise auditing standards.

[11] Indeed, authors such as Wang and Hefner (2014) or Dimitrov and Jain (2011) document positive market reactions to shareholders meetings.

dividend policy, adjustments in the composition of the directors' board or occurrences of extraordinary shareholders meetings.[12] We also consider whether the market reaction could be partially linked to the global financial crisis of 2008 and 2009. Our findings support the hypothesis that VAFROs and VAFREs have explanatory power over market reactions.

We suggest that our results capture the *aggregate* response of the markets to the costs and benefits associated with an auditor retention compared to an auditor change. While the aggregate response was positive during periods when no scandals occurred, the aggregate response was negative during periods when scandals did occur. To provide evidence that is aligned with this hypothesis, we study market responses to variations in specific costs and benefits associated with the auditor retention decision.

Because many authors (e.g., Dordzhieva, 2022 and Patterson et al., 2019) advocate that optimal client-auditor tenure is primarily determined by a trade-off between auditing quality and auditors' independence, we concentrate our study on these two concepts.[13]

On one hand, an incumbent auditor usually offers a higher quality service than a new auditor given that the current auditor has more experience (learning effect)[14] and a long term relationship produces investments tailored to the client that increase the efficiency of this service (specific investments effect).[15] Overall these two effects decant into a higher quality service provided by an incumbent auditor in its last year of tenure compared to that provided by a new, voluntarily chosen, auditor during its first year of tenure.

On the other hand, a prolonged and overly comfortable auditor–client relationship can jeopardize the independence 'in appearance' with which an auditor is called to perform its duties. As discussed by the literature, the auditor's loss in objectivity can seriously harm the outcome of the services it provides. Consequently, we should expect that markets will react more positively to auditor rotations when auditor tenures have become prolonged. A second dimension in which a retention might imply a cost to the firm is a reduction in the auditor's independence 'in fact'. For instance, due to potential conflicts of interest, markets will react more positively to auditor's

[12] In Chile, financial statements are revealed in March and shareholders meetings (when the continuity or change of the auditor is decided) take place in April. Because of this timing of events, we rule out the possibility that investors are learning about the financial or business performance of the company at the shareholders meeting.

[13] Auditor retentions have the main benefits of improving auditing quality (higher probability to detect errors and accurately certify reports) and efficiency (lower fees and better auditor–client matches). On the side of the costs, auditor retentions have the main of drawback of reducing auditor's independence (both 'in fact' and 'in appearance'). We extensively discuss these issues in the literature review section.

[14] See the detailed discussion in De Angelo (1981).

[15] See for example Arruñada and Paz Ares (1997) who argue that the auditor will be more willing to invest if it knows that the contract could last for many years. On a moral general discussion on hold-ups see Klein (1998). To the specific-investment effect we also add that the new auditor will have to incur start-up costs in the form of training employees and learning about the company's operations.

rotations when the auditor's income relies more heavily on other services provided to the same client.[16]

We apply several tests based on our data subsamples in which specific attributes, such as quality or independence, take high or low values. Although we cannot derive definitive causality implications, we find evidence that is consistent with our hypotheses regarding the roles played by the auditing quality and the auditor's independence 'in fact'. Furthermore, we find evidence that the markets' reaction towards changes in quality associated with a retention was greater during the period without scandals, however the markets' reaction towards independence 'in fact' associated with a rotation was greater during the period with scandals. This result is consistent with a more positive market reaction towards an auditor rotation (retention) in a period with (without) scandals. In rather stable periods, investors are generally more concerned with quality and efficiency, but in rather convulsed periods, they are generally more concerned with objectivity and independence.

Our results have several implications for firms and regulators. Firms should be more aware of the positive market reactions towards their announcements to retain auditors and should time their auditors' rotations conditional upon the stability of markets. In addition, VAFREs and VAFROs are not informationally complementary events.[17] On average, Chilean markets react positively both to VAFREs and VAFROs, however, they do so in different magnitudes. For regulators, although the forces at play in endogenously determined voluntary rotations are different from the forces at play in exogenously imposed mandatory rotations (e.g., Lennox & Pittman, 2011), they should keep in mind that VAFREs' and VAFROs' informational content will disappear if mandatory rotations are imposed. Furthermore, our study uncovers patterns that can be used to craft more efficient regulatory rules. For instance, our results favor the use of rules that encourage auditors' rotations amidst corporate scandals.

To summarize, we contribute to literature in four ways. First, we provide evidence of positive market reactions to VAFREs. Second, within a single time series we uncover different market reactions towards VAFREs and VAFROs when we condition by market stability. Third, we support markets capacity to internalize some costs and benefits associated with rotations and retentions. We find evidence of reactions towards changes in independence 'in fact' but no evidence of reactions towards changes in independence 'in appearance'. Fourth, we are the first paper to study the Chilean case. We believe this case is relevant because it adds to the few papers that have analyzed retention and rotation decisions in emerging markets that do not have a mandatory firm rotation system.

Finally, the reader should be aware of potential limitations in our work because we do not track changes in auditor partners, we do not include financial firms, and we do not separate by auditor type. In addition, the conclusions of single-country analysis face the risk of depending too heavily on the country's idiosyncrasies.

The remainder of this paper is organized as follows. In chapter 2 we review the literature. Chapter 3 explains institutional issues associated with the Chilean market,

[16] See DeAngelo (1981), Fearnley and Beattie (2009) or Ewelt-Knauer and Pott (2013).

[17] For instance, if markets react negatively to a VAFRO then they will react positively to a VAFRE.

announcements that are usually made at the shareholders meetings, the role of auditors and the procedure for changing them in Chile. Chapter 4 states our main research questions. In Chapter 5 we present the model, and the data used in the estimations. Chapter 6 summarizes our main results. Chapter 7 states and tests hypotheses about the individual costs and benefits associated with the retention/rotation announcement. Chapter 8 discusses robustness, implications and limitations of the results. Finally, chapter 9 summarizes our conclusion.

2 Literature review

Our paper connects to three strands of the literature. First it connects to the literature that has studied VAFROs' effects on *actual/factual* attributes of auditing such as quality, efficiency and independence 'in fact'. Second, our paper intersects with the literature that studies VAFROs' effects on *perceived* attributes of auditing such as auditor's independence 'in appearance' and client's perceived financial stability. Third, our study overlaps with articles that analyse reactions to VAFROs. Here we note the absence of papers that study VAFREs and the reduced set of papers that have studied VAFROs in emerging markets.

2.1 Actual/factual effects of voluntary audit firm rotation

Auditor's quality: Auditors aim to correctly certify the veracity and accuracy of the material information revealed by firms to markets and regulators (e.g., DeFond & Zhang, 2014 or Dordzhieva, 2022). A non-trivial issue that makes the measurement of auditor's quality challenging is that the auditor's reports not only reveal the capacity of the auditor to detect errors in their clients' disclosures but also the auditor's willingness to inform them (see De Angelo, 1981). Keeping this identification challenge in mind, several authors have approached the measurement of auditor's quality from diverse angles that include the revision of abnormal or discretionary accruals (e.g., Chi et al., 2009; Chen et al., 2008 and Johnson et al., 2002); audit corrections of client financial misstatements (Lennox, 2014); third party restatements of financial statements (e.g., Myers et al., 2003); and likelihood of issuing a going-concern opinion (e.g., Geiger & Raghunandan, 2002).

A topic of interest is the way in which tenure, the length of the client-auditor relationship, affects auditing quality. Although some articles such as Carey and Simnett (2006) or Carcello and Nagy (2004), have found a negative correlation between tenure and quality, most studies (e.g., Manry et al., 2008; Chen et al., 2008; Fargher et al., 2008 or Johnson et al., 2002 among others), find that a longer audit firm tenure is not associated with lower reporting quality.[18]

[18] The increment in auditing quality is significant in the first years, however improvements become negligible beyond a certain time. DeAngelo (1981) emphasizes the role played by start-up costs and a learning effect. A new auditor has less experience than the current one and it is less capable to prevent a value-destroying event. Arruñada and Ares (1997) stress the role of specific investments. That is, longer tenures give auditors more incentives to invest in technology and human capital that is tailored to the needs of a particular client.

Auditor's cost efficiency: The literature has identified three main issues that link firms' decisions to keep or change their external auditors with the efficiency of auditing services. First, new auditors might charge lower fees for their services to *attract* new clients, a low-bailing strategy (e.g., DeAngelo, 1981 or Ettredge et al., 2007). Second, auditors will improve their productivities over time (e.g., Arruñada & Paz-Ares, 1997). Finally, specific proprietary structures (e.g., concentrated ownership in the form of economic groups) or regulatory structures (e.g., tax rules) will define more convenient client-auditor matches.[19]

Auditor's independence 'in fact': A third central effect of a voluntary audit firm rotation over the client-auditor relationship is the impact that this change might have over the auditor's objectivity and integrity to reveal its findings, what the literature denominates auditor's independence (e.g., see Olazabal & Almer, 2001 or Nelson, 2006). Seminal papers (such as DeAngelo, 1981 and Fearnley & Beattie, 2004) have not only emphasized that external auditors' willingness and unbiasedness at revealing their findings will critically determine the outcome of an auditing service but in addition, have emphasized that independence is a bidimensional concept: there exists independence 'in fact' and independence 'in appearance'.

We leave the discussion of independence 'in appearance' for later. Here we note that authors who study independence 'in fact' use auditors' non audit services income as a proxy for lack of independence.[20] While it is not evident that auditors will risk reputational and legal penalties (Fearnley & Beattie, 2004; Sori & Karbhari, 2006) the threat of losing a client that represents several sources of income might jeopardize auditors' willingness to raise a flag when they should (Moore et al., 2006; Raiborn et al., 2006). Canning and Gwilliam (1999) show evidence that supports this logic.

2.2 Perceived effects of voluntary audit firm rotation

Auditor's independence 'in appearance': As stated by Fearnley and Beattie (2004) auditor's independence refers to the ethical approximation that audit firms have at fulfilling their duties. Unsurprisingly, independence 'in fact' is hard to measure. Due to this disappointing reality, researchers have concentrated their efforts at measuring the effects of independence 'in appearance'. As the terminology suggests it, independence 'in appearance' refers to the way in which external agents perceive auditors' level of independence.[21]

[19] For example, Louis (2005) provides evidence from market reactions to local markets merger announcements, finding that acquiring companies audited by non-Big 4 firms outperform the market reaction to those audited by Big 4 firms. The author suggests that non-Big 4 audit firms have superior knowledge of local markets.

[20] A commonly mentioned fact is that, at the time of the ENRON scandal, Arthur Andersen was earning more from non-audit services provision than from the audit ($25 m from audit and $27 m from non-audit services).

[21] For example, Johnstone et al. (2001) argue that independence creates value as it leads to more credible reports. Auditor independence 'in appearance' increases the confidence of investors.

The literature has estimated this type of independence in two ways: via experiments and via market reactions.[22] Focusing on market reactions, two lines of research suggest that rotations are linked with perceived improvements in auditor's independence. First, when a corporate scandal involving auditors had recently occurred (e.g., Whisenant, 2006 or Ho & Wang, 2006 find positive market reactions when firms switched auditors after ENRON/SOX) and second, when tenures have become too long (e,g., Chu et al., 2012 find a positive correlation between long client-auditor tenures and companies' allowance for bad debts).

Client's perceived financial stability: A final effect that we must mention is the material information that rotations might convey to the markets. Markets could learn about firms' financial conditions, strategic transactions, or other relevant issues. For instance, Lennox and Pittman (2011) take advantage of a regime switch from mandatory to voluntary audit rotation that took place in the U.K. in 2004, to study changes in credit risk ratings associated with firms' decisions to be audited. In addition, good amount of literature documents that markets react negatively to VAFROs when these announcements reveal that companies had going concerns or disagreements with their auditors.[23] These negative reactions have been linked to the reasons why auditors leave their clients, which range from a greater likelihood that their clients could violate debt-covenants to a greater probability of future legal disputes.

2.3 Market's reactions to voluntary audit firm rotation

As discussed before, there are many reasons why stock prices could react to VAFROs. To the actual changes in quality, efficiency and independence 'in fact' we must add changes in independence 'in appearance' and perceived signalling triggered by firms' decisions. What is not clear *apriori* is how all these effects will compound in a unique market response.

Several papers have studied the aggregate market response to VAFROs. Most of the event studies performed before ENRON find either a negative (Eichenseher et al., 1989; Fried & Schiff, 1981; Smith, 1988) or a negligible (Johnson & Lys, 1990; Nichols & Smith, 1983) market response. Results are more mixed after ENRON/SOX. While Knechel et al (2007) find a negative reaction for Big 4 clients who switched to non-Big 4 auditors during 2000 and 2003, additional post SOX literature (e.g., Ho & Wang, 2007 and Louis, 2005) suggests a nonnegative market response to a switch from a Big 4 to smaller auditors.

[22] Kaplan and Mauldin (2008) run an experiment with MBA students and find that compared to audit partner rotation, audit firm rotation does not strengthen independence 'in appearance' among non-professional investors. Ewelt-Knauer et al (2013) mention that experimental evidence on the effects of audit firm rotation upon independence 'in appearance' varies, where participants are some type of financial statement users. Some other literature has studied independence 'in appearance' via experiments in the context of mandatory rotations (Moody et al., 2006; Gates et al., 2007; Ebimobowei & Keretu, 2011; Cameran et al., 2005; Kamath et al., Kamath et al., 2018; Wang & Tuttle, 2009).

[23] For instance: Dhaliwal et al., 1993; Shu, 2000; DeFond & Jiambalvo 1993 or Geiger et al., 1998. A prolific niche in the literature documents negative market reactions to auditors' resignations (e.g., Krishnan & Krishnan, 1997; DeFond et al., 1997; Wells & Loudder, 1997; Dunn et al., 1999; Shu, 2000; Whisenant et al., 2003; Beneish et al., 2005; Lee, Lee, 2022).

Other papers take advantage of events that should have changed only, or mainly, one of the effects mentioned in 2.1 and 2.2, and use those events to test hypotheses regarding expected market reactions. For instance, Chang et al (2010) find that, post ENRON/SOX markets reacted positively to VAFROs from Big 4 to smaller accounting firms. The reaction suggests a reward for improving auditor's quality and independence.[24]

While much of the literature on voluntary client-auditor dynamics has studied market reactions to VAFROs, there is almost no paper that studies market reactions to VAFREs.[25] We believe that there are two reasons for that. First, there might be the perception that a market reaction to a VAFRE is the exact complement of a reaction to a VAFRO.[26] Second, as retention decisions occur at the shareholders meetings, it is challenging to isolate its effects. There is some literature (see Wang & Hefner, 2014 or Dimitrov & Jain, 2011) that studies market reactions to shareholders meetings, nevertheless to our knowledge there is no article that studies market reactions to VAFREs.

We end by noticing that the literature that has studied VAFROs in emerging markets is reduced. Although researchers have tested market reactions to VAFROs in some emerging countries we are unaware of similar studies for large regions of the world.[27] For instance, in its literature review, Florio (2024) registers only two papers addressing VAFROs' effects in Latin America, and both are for Brazil, a country with a mandatory audit firm rotation system.

3 Chilean institutionality

We mention general aspects of Chilean institutionality regarding financial and auditors' markets. We describe issues associated with auditor regulation and shareholders' meetings. We also provide additional information about FASA and La Polar scandals.

3.1 Chilean economy and financial markets

Chile is a middle-high income country that, on average during 2004 to 2019, ranked top three in per capita income, ease of doing business, rule of law and human development index in Latin America (I.M.F. and W.B. data). The Chilean financial market is composed of more than 300 public companies or security issuers. Their aggregate

[24] In addition, Sankaraguruswamy and Whisenant (2004) show how client-auditor realignments because of "verifiable reasons" or "non-verifiable reasons" conveyed to the markets, different types of information.

[25] Although there is important literature that studies retentions from the perspective of auditors (see Lee, Lee, 2022) we have not found papers that study the topic from the perspective of the client.

[26] Note that the informational content of these announcements cannot be perfect complements because they happen at different moments in time.

[27] Nawangsari and Iswajuni (2019) find a positive effect in Indonesia. Chen et al (2008), Sayyar et al (2015), Choi et al (2015), Arioglu and Tuan (2015) find the opposite in Taiwan, Malaysia, Korea and Turkey.

market capitalization fluctuated during 2004 and 2019 between 66 and 150% of the country's GDP. IPSA (40 most traded Chilean stocks) and IGPA (all Chilean stocks registered in the Chilean stock market) are the main Chilean Stock Indexes. Economic groups control almost all the largest companies, a fact that correlates with high levels of ownership concentration.[28]

As a country belonging to the civil-law legal tradition, Chilean regulation is formal. Since 1981, two major laws regulate its corporate life: The corporations' law (Law18.046) and the capital markets law (Law 18.045). With the objective of encouraging better corporate governance practices, in 2012 (NCG 341) and later in 2015 (NCG 385) regulators introduced to the country the first soft-regulation codes based on the Comply or Explain principle.

3.2 FASA and La polar

As we mentioned in the Introduction, two major scandals impacted Chilean financial markets in 2009 and 2011 respectively. A collusion scandal (FASA) that involved the three main Chilean pharmacies brought civil and criminal charges against firms and executives. FASA's auditor's testimony was part of the evidence that was used by the authorities to sanction shareholders for the violation of their fiduciary duties during the handling of the scandal. A fraud scandal (La Polar) that involved credit account manipulations brought legal actions against Price WaterHouse, La Polar's auditor at the time. Charges included deficiencies in its role in preventing and detecting the irregularities.

Both FASA and La Polar negatively affected markets.[29] In addition, both scandals were followed by major legal reforms. While Law 20.382 was enacted in 2010, a significant reform to corporate's law that increased standards of corporate governance, Law 20.552 was enacted in 2012, a significant reform to market's law that raised auditing standards and increased auditor's potential liabilities. A point of relevance for this paper is anecdotic evidence post FASA and La Polar that regulators became more sensitive about auditors' independence and conflicts of interest. For example, at the end of 2012, S.V.S. requested Deloitte to terminate a long-term rental agreement with one of its important clients.[30] Legal responsibilities such as fiduciary duties and accountability of corporate practices increased public expectations regarding external auditors' probity and objectivity. Furthermore, Bustos et al (2023) show that the directors' market was structurally changed by FASA and La Polar. Much like what occurred after ENRON/SOX in the U.S., the supply for directors contracted (due to greater risks) and the demand for directors expanded (due to major needs in skills and diversity) in the aftermath of the Chilean scandals.[31]

[28] For example, Larraín and Urzúa (2016).

[29] Following the scandals, La Polar lost 99% of its market value and Pension funds faced significant losses.

[30] https://www.df.cl/mercados/svs-oficia-a-deloitte-por-conflicto-de-interes-en-arriendo-de-edificio-y

[31] See Linck et al (2009).

3.3 Chilean auditors: market and institutions

The Chilean auditing industry for public companies is highly concentrated.[32] The market share for the Big Four (Deloitte, PwC, KPMG and EY) is closer to 85% with the other 15% of the market served by close to 70 minor firms. The significant number of M&As that has taken place in recent years has contributed to the consolidation of this situation.

The auditor profession is regulated by the Board of Accountants through their Chilean GAAP (Generally Accepted Accounting Principles) and is supervised by the C.M.F. (the S.V.S. at the time of FASA and La Polar).[33] In the last 20 years there has been a significant increment in the amount of regulation addressing issues that range from the type of entities that are allowed to provide services to how these services should be provided.[34]

3.4 Shareholder's annual meeting

In the context of Law 18.046, shareholders decide the continuity or replacement of the auditor for large and publicly traded firms. During the shareholders annual meeting, a committee of Directors proposes changes which shareholders approve or reject. In a typical process, the Committee presents at least two alternative auditors. Contesting auditors make an offer that includes: number of hours that will dedicate during the auditing process, the quality of the hours and the fee for the service. While the most typical reasons to retain an auditor are efficiency (fees or control change) and service quality,[35] reasons to replace auditors also include a self-imposed rule of mandatory change and personal disputes.[36]

At the annual meeting, shareholders not only decide the continuity of the auditor but in addition managers discuss financial results from the previous period, important transactions, executives' compensations and dividend policy. Furthermore, at extraordinary meetings managers discuss all types of firm's restructuration and security issuances.

[32] This is in line with realities in many international markets in which these same companies are present.

[33] The equivalent of the Securities and Exchange Commission in the US.

[34] In Chile, audit firms can provide consultancy services as well as audits. While this is different to regulations in the USA, it should be noted that these services must be specified and any service directly related with auditing is prohibited. For more details see Law 18,045, Section XXVIII, NCG 275 from 2010 and NCG 355 from 2013. Much of the new regulation was triggered by financial scandals that involved auditors.

[35] Despite La Polar scandal, PriceWaterHouse retained half of its big clients in 2012.

[36] An extract of a news article from 4/10/13: "Auditor rejected to recognize profits from one of SQM operations questioned by SVS. Discrepancies ended in a notorious discussion between Julio Ponce (controller) and executive from E&Y. The auditor was quickly replaced by PriceWaterHouse, La Polar auditor".

4 Main research questions

Given the literature findings, and considering the Chilean institutionality, we expect that VAFROs and VAFREs will generate benefits and costs to the firms that announce them. A priori it is not clear how these benefits and costs will compound to generate an aggregate effect. However, we expect that a rational market will respond to this aggregate effect.

On one hand, markets should react positively (negatively) to a VAFRO (VAFRE) because a rotation (retention) will appease (increase) concerns regarding the auditor's lack of independence, both 'in fact' and 'in appearance', from its clients. This last effect will become stronger with the extension of the auditor–client relationship because the auditor's specific client interests should become stronger with the passage of time.

On the other hand, markets should react negatively (positively) to a VAFRO (VAFRE) because a rotation (retention) will imply a loss (preservation) of the know-how and specific investments that the auditor might have accumulated during its years working for a particular client. We expect that this effect will be strengthened with tenure. In other words, and consistent with most of the literature, auditing quality will increase with tenure.

The previous effects regarding costs and benefits associated with VAFROs and VAFREs should be enhanced during periods with corporate scandals. Compared to periods without scandals (before 2009 and after 2012), during periods with scandals (2009–2012) markets should react more positively to a reduction in over-extended tenures or non-auditing services (improvement in independence). We expect to find the opposite regarding quality. Compared to periods with scandals, during periods without scandals markets should react more positively to a retention of high-quality auditors (preservation of quality).

Table 1 summarizes the main expected effects of VAFROs and VAFREs.

While in Sect. 7 we test whether Chilean markets react to these effects as expected, here we state the two main research questions that we address in the next section.

Question 1 (Q1): How does the Chilean financial market (stock prices) react to an unanticipated announcement of an audit firm retention?

Question 2 (Q2): How does the Chilean financial market (stock prices) react to an unanticipated announcement of an audit firm rotation?

After having answered these main questions for the whole period, we focus on answering the same two questions during two subperiods. The subperiod in which a scandal took place, (*Q1* becomes *Q1S* and *Q2* becomes *Q2S* respectively), and the subperiod in which a scandal did not take place (*Q1* becomes *Q1N* and *Q2* becomes *Q2N* respectively).

Table 1 VAFRO's and VAFRE's costs and benefits

Effect	How is it measured?	VAFRO cost or benefit?	VAFRE cost or benefit?
Quality	abnormal accruals; financial misstatements; third party restatements; going-concern opinions	Cost	Benefit
Independence 'in Fact'	Non-audit income as percentage of total auditors' income	Benefit	Cost
Independence 'in Appearance'	Tenure (although it is imperfect as it is also a proxy for quality)	Benefit	Cost
Major Corporate Scandal	Scandal took place	Benefits increase	Costs increase

5 Model and data

5.1 Empirical analysis

Using an event study, we determine the market reaction to a company's announcement of a change or a retention in its auditor.[37] We test for evidence in favour of abnormal returns when the event takes place. As it is the common practice, daily market returns, and daily company returns are calculated in the following way:

$$\mathrm{R_{it}} = \mathrm{Log}\left(\frac{\mathrm{P_{it}}}{\mathrm{P_{it-1}}}\right); \mathrm{R(IPSA_t)} = \mathrm{Log}\left(\frac{\mathrm{IPSA_t}}{\mathrm{IPSA_{t-1}}}\right)$$

where $\mathrm{P_{it}}$ is the price of share i for period t, $\mathrm{R_{it}}$ are the returns of share i for period t, $\mathrm{IPSA_t}$ is the Chilean selective index value (as defined before, it includes the 40 most traded stocks in the Chilean market) for period t, and $\mathrm{R(IPSA_t)}$ are the returns for this index for period t.

We use a market model to determine normal returns. The dependent variable is the return on shares between days -250 and -10 (day 0 is the day of the event, which for us is the shareholders meeting). The range was chosen to include a period of nearly a tradeable year.

$$R_{it} = \alpha_i + \beta_i * R(IPSA)_t + \varepsilon_{it}$$

where as usual ε_{it} is the error that follows a normal distribution with mean 0 (for company i in period t). To calculate the cumulative abnormal returns for company i during period (t_1, t_2) which we denote $CAR[t_1, t_2]_i$ we proceed as follows. First, we define the daily abnormal return for company i in period t:

$$AR_{it} = R_{it} - \alpha_i - \beta_i * IPSA$$

then we obtain $CAR[t_1, t_2]_i$:

$$CAR[t_1, t_2]_i = \sum_{t=t_1}^{t_2} AR_{it}$$

Inferences based on our data require consideration of the potential for serial correlation of the errors within firms across shareholder meetings. Consequently, in our regression analysis, the standard errors are clustered at the firm level. In addition, because shareholder meetings are concentrated during a few weeks each year there could be cross-sectional correlation in abnormal returns on the event dates as well. Although we don't report addressing this second type of potential correlation, we verify that results do not change materially when we use a 2-way clustering approach.

[37] For more details on event studies, see MacKinlay (1997).

5.2 Data

We collected annual shareholders' meeting data for an unbalanced panel of 96 non-financial companies listed between 2003 and 2019. While from corporate minutes we identified each firm's auditor, from regulatory documents we completed the data by adding the initial auditor's tenure.[38] Table 2 presents all the client-auditor relationships that we study. Auditor tenure varies significantly. For example, while CAP kept Deloitte from 1979 to 2018, CMPC's auditor was PWC in 2011, Deloitte in 2012, and EY in 2013.

Table 3 summarizes statistics for all auditor-auditee relationships during the period 2004–2019 (1,275 relationships). The average tenure of auditors in our sample was 7.37 years (median of 5 years), with the longest tenure being 47 years in the case of PWC as auditor of CEMENTOS (in 2007 PWC was replaced by KPMG). The average duration of an auditor-auditee relationship in our sample falls well below estimations for auditor-auditee in Europe, which ranges between 30 and 40 years (Arruñada & Paz-Ares, 1997).

Of these 96 firms and 1,275 observations we excluded the observations associated with firms whose main listed share class traded less than 100 days in the pre-event estimation window and those that did not trade the day of the annual shareholders' meeting. These restrictions reduced the sample to 95 firms and 1,147 firm-years between 2004 and 2019. Of these observations, 1,003 are from companies that did not change auditors and 144 from companies that changed auditor. Eleven auditing firms participated in these 144 rotations.[39]

Figure 1 shows the distribution of rotations for each year. The figure shows a clear upward trend in the percentage of rotations from 2009 to 2012, consistent with the occurrence of FASA and La Polar. The year 2012 marks a peak in the series. Another peak occurs in 2007 and 2008 that can be linked to the subprime crisis or the introduction of IFRS standards.

Next, we present our main findings. At this point, we do not correct for other events that took place during the shareholders' meetings that might convey material information to the markets, such as changes in dividend policies, changes in the board composition, or other relevant business decisions. Neither do we correct for year fixed effects. We delay discussing these issues to Sect. 8.1, where we address robustness of our estimations. We show that our main conclusions hold even after we incorporate these corrections.

[38] We considered only firms that traded in the main stock indexes (IPSA and IGPA) during this period or were part of one of the main business groups.

[39] The big four (DELOITTE, EY, KPMG, and PWC) were chosen in 94.44% of these rotations, while the remaining 5.55% is split between BDO, GRANT THORNTON, HLB, HUMPHREYS, JMA, MS, and UHY.

6 Results

We find that market reactions towards VAFREs and VAFROs change when markets are rather stable (not affected by corporate scandals) or convulsed (affected by corporate scandals). We first show that markets reacted positively and significantly towards retention announcements for the entire period under study. We then note that this reaction was not significantly different than the reaction towards rotation announcements. Later we show that there were different market reactions towards VAFREs and VAFROs when these announcements happened during the period in which Chilean markets were shocked by FASA and La Polar (2009–2012) instead of when the announcements happened outside that period (before 2009 and after 2012). Not only are differences in market reactions towards VAFREs and VAFROs statistically and economically significant, but the direction in the reactions' difference reverts. When the announcements occur during periods with scandals then market reactions to VAFROs dominate market reactions to VAFREs. However, when the announcements take place during periods without scandals then market reactions to VAFREs dominate market reactions to VAFROs.

6.1 Market reactions over the entire period: 2004 to 2019

Table 4 shows the cumulative abnormal returns regarding retention and rotation announcements for different windows of time. We focus on the results presented in Panel A which are derived from the full sample of observations.

While the stock prices of the firms that announce a retention experience a statistically significant increment, the stock prices of the firms that announce a rotation, in general, experience a non-statistically significant variation.

As a point of departure, the results for the windows of time that cover days before the event show that there were no abnormal returns occurring prior to the event.[40] Keeping that in mind, we gave particular attention to the window that covers the immediate effect of the announcement (0–1 days).[41] If we look at the cumulated returns of companies that retained auditors, we find an abnormal return of 23 basis points (an average of 11 basis point per day effect) that is significant at the 99%. Instead, we do not find a statistically significant change in the cumulated returns of companies that changed auditors.

The window [2;6] comprises the work week (5 days) following the event. This is the only case in which market responses to the two announcements were significant. However, when we test effects over different symmetric windows (between days -1 and 1, days -6 and 6, or days − 10 and 10 around the event) we retrieve the

[40] This reveals that there were no informational leakages before the shareholder meetings took place.

[41] We work with a two-day window because some shareholders' meetings take place in the afternoon (after the trading period), hence any price impact in those stocks would be reflected the following day.

Table 2 Firm-auditor relationships

COMPANY	TENURE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
AESANDES	3	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
AGUASANDINAS	2	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
AGUNSA	10	PWC	EY	EY	EY	EY	EY	EY	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
ALMENDRAL	11	PWC	PWC	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	EY	EY	EY	EY
ANDINA	6	PWC	PWC	PWC	PWC	PWC	PWC	EY	EY	EY	EY	PWC	PWC	PWC	PWC	EY	EY	EY	EY
ANDROMACO	2	KPMG	KPMG	KPMG	KPMG	KPMG	EY	EY	EY	EY	KPMG	KPMG							
ANTARCHILE	15	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	DELOITTE	DELOITTE	DELOITTE	PWC	PWC	KPMG	PWC	PWC	PWC
AQUACHILE							PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
AUSTRALIS								PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	
BANMEDICA	3	DELOITTE	PWC	PWC	PWC	DELOITTE	DELOITTE	DELOITTE	PWC	PWC	DELOITTE	DELOITTE	DELOITTE	PWC	PWC	PWC	PWC	PWC	PWC
BANVIDA	2	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	DELOITTE	DELOITTE
BESALCO	2	EY	EY	EY	EY	EY	KPMG	KPMG	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	DELOITTE	DELOITTE	DELOITTE	MAZARS
BICECORP			DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	PWC	PWC
BLUMAR	14	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	EY	EY	EY	EY	EY
CALICHERA	11	EY	PWC	PWC	PWC	PWC	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
CAMANCHACA									PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	EY	EY
CAMPOS	4	EY	EY	EY	EY	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG
CAP	25	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY
CCT	33	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC						
CCU	22	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
CEMENTOS	43	PWC	PWC	PWC	PWC	KPMG	KPMG	KPMG	KPMG	KPMG	PWC	PWC	PWC	PWC	PWC	EY	EY	EY	EY
CENCOSUD	2	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	EY	EY	PWC	PWC	PWC
CGE	2	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	EY	EY	EY	EY	EY	EY	EY	EY	EY
CIC	5	KPMG	KPMG	KPMG	KPMG	JMA	JMA	JMA	JMA	JMA	JMA	GRANT	GRANT	DELOITTE	DELOITTE	PWC	PWC	PWC	PWC
CINTAC	14	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY
CMPC	28	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	DELOITTE	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG
COLBUN	3	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	EY
COLOSO	34	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
CONCHATORO	1	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	BDO	BDO	BDO
COPEC	19	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	DELOITTE	DELOITTE	DELOITTE	PWC	PWC	PWC	PWC	PWC	PWC
CRISTALES	2	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG
CTC	2	DELOITTE	DELOITTE	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	PWC	PWC	PWC	PWC
CUPRUM	9	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	KPMG	EY	EY	EY	EY	EY	EY	EY	EY
ECL	2	EY	EY	EY	EY	EY	EY	EY	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY
COMPANY	TENURE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
EISA									BDO	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	PWC	PWC	PWC	PWC	PWC
EMBONOR	2	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
ENAEX	9	EY	EY	KPMG	KPMG	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
ENDESA	2	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG					
ENELGXCH (ENDESA)															KPMG	KPMG	KPMG	KPMG	MAZARS
ENERSIS	2	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	EY					
ENELCHILE (ENERSIS)															EY	EY	EY	EY	KPMG
ENJOY			EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
ENTEL	6	DELOITTE	EY	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	EY	EY	EY	EY
ESVAL	7	PWC	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
FALABELLA	2	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
FASA	1	PWC	PWC	PWC	PWC	PWC	PWC	KPMG	KPMG	GRANT	GRANT	PWC	KPMG	KPMG	KPMG				
FORUS	2	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
FOSFOROS	1	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
GASNATURAL CHILE															EY	EY	EY	EY	EY
GASCO	2	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	EY	EY	EY	EY	EY	EY	EY	PWC	PWC
HABITAT	3	DELOITTE	DELOITTE	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG
HF						PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	KPMG	KPMG	KPMG	EY
HITES			PWC	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
IAM			DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
IANSA	3	EY	EY	KPMG	EY	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG
ILC										KPMG	KPMG	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG
INDISA	2	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG
INFORSA		PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC										
INTEROCEAN				EY	EY	EY	EY	EY	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
INVERCAP	10	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY
INVERMAR	3		EY	EY	EY	EY	EY	EY	EY	EY	KPMG	GRANT	GRANT	GRANT	GRANT	GRANT	GRANT	GRANT	
LA POLAR	1	EY	EY	EY	EY	PWC	PWC	PWC	PWC	EY	EY	EY	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG	KPMG
LAS CONDES	3	GRANT	GRANT	GRANT	GRANT	GRANT	GRANT	GRANT	GRANT	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	PWC	PWC	DELOITTE
LIPIGAS														PWC	PWC	PWC	PWC	PWC	PWC
LTM	10	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
MALL PLAZA								EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
MANQUEHUE												DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
MARINSA	3	PWC	PWC	PWC	PWC	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	DELOITTE	DELOITTE	KPMG	KPMG	KPMG
MASISA	6	PWC	PWC	PWC	PWC	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	DELOITTE	DELOITTE	DELOITTE
COMPANY	TENURE	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
MOLLER									EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG
MOLYMET	1	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
MULTIEXPORT			PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
NITRATOS										PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
NORTEGRANDE	14	EY	PWC	PWC	PWC	PWC	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
ORO BLANCO	15	EY	PWC	PWC	PWC	PWC	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
PARQUE ARAUCO	1	EY	EY	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
PASUR	2	KPMG	KPMG	KPMG	KPMG	PWC	PWC	PWC	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	KPMG	KPMG	KPMG	EY
PAZ			EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
PEHUENCHE	2	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	MAZARS
PILMAQUEN	2	EY	EY	EY	EY	EY	PWC	PWC	PWC	KPMG	KPMG	EY	EY	DELOITTE					
POLPAICO	1	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	DELOITTE	DELOITTE
PROVIDA	2	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
PUCOBRE	3	PWC	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
QUINENCO	2	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY	EY
RIPLEY			DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	PWC	PWC	PWC
SALFACORP			PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	DELOITTE	DELOITTE	PWC	PWC	PWC	PWC	PWC	PWC	PWC
SALMOCAM															PWC	PWC	EY	EY	EY
SCHWAGER	2	Valenzuela	MS	MS	HUMPHREYS	HUMPHREYS	HUMPHREYS	HUMPHREYS	HUMPHREYS	HUMPHREYS	UHY	UHY	UHY	HUB(UHY)	HUB(UHY)	HUB(UHY)	HUB(UHY)	HUB(UHY)	HUB(UHY)
SK			EY	EY	EY	EY	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
SMSAM									KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	PWC	PWC	PWC
SOCOVESA			DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	EY	EY	EY	EY	EY	EY	EY
SONDA			DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE
SOQUICOM	1	EY	EY	EY	EY	EY	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
SQM	11	EY	EY	EY	EY	EY	EY	EY	EY	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC	PWC
TATTERSALL	2	EY	EY	EY	EY	EY	EY	EY	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	DELOITTE	DELOITTE	DELOITTE	EY
VAPORES	3	PWC	PWC	PWC	PWC	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG
VSPT	8	PWC	PWC	PWC	PWC	PWC	KPMG	KPMG	KPMG	KPMG	KPMG	KPMG	PWC	PWC	KPMG	PWC	PWC	PWC	PWC
WMC	10	DELOITTE	DELOITTE	DELOITTE	DELOITTE	DELOITTE	KPMG	KPMG	KPMG	EY	EY	EY	EY	EY	EY				
ZOFRI	2	KPMG	PWC	PWC	PWC	KPMG	KPMG	KPMG	KPMG	EY	EY	KPMG	KPMG	DELOITTE	KPMG	KPMG	KPMG	DELOITTE	DELOITTE

Table 2 (continued)

TENURE: The number of years in the auditor-auditee relationship until 2003. DELOITTE: Deloitte Touche Tohmatsu Limited. EY: Ernst & Young Global Limited. PWC: PricewaterhouseCoopers International Limited. KPMG: KPMG International Limited. MAZARS: Mazars Auditores Consultores LTDA. GRANT: Grant Thornton Chile. JMA: JMA Auditores Consultores. BDO: BDO Chile. Valenzuela: Valenzuela y Asociados Ltda. Auditores. HUMPHREYS: Humphreys Clasificadora de Riesgo.

Table 3 Descriptive statistics: firm-auditor relationships 2004–2019

	Unique	Observations	Min Obs	Max Obs
Firms	96	1,275	1	16
Auditors	11	1,275	2	388
Firm-auditor	202	1,275	1	16
	Mean	Median	Min	Max
Auditor tenure with the firm	7.37	5.00	1	46

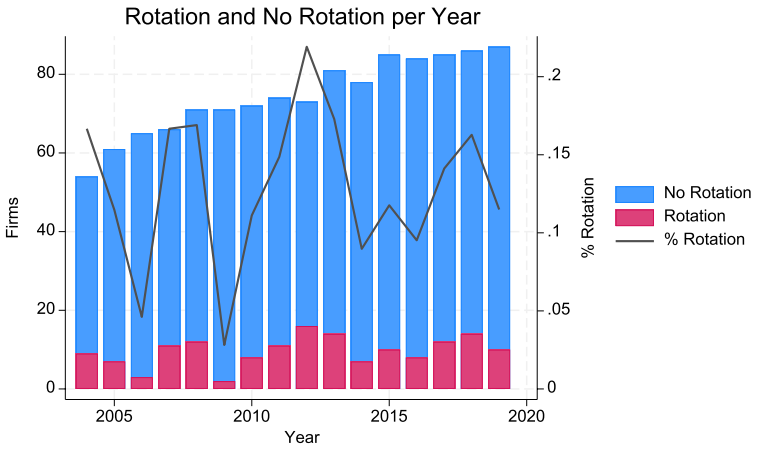

Fig. 1 Number of rotations per year

same result that we found in the [0;1] window.[42] That is, while cumulated abnormal returns for retentions were significantly positive, cumulative abnormal returns for rotations were not statistically significant.

To stress the point that, during the entire period, reactions towards retentions seem to have been more positive than reactions towards rotations, we introduce Fig. 2. The figure presents cumulative abnormal returns for companies that changed their auditors and companies that kept them during a window of time of two days

[42] These results suggest that the positive returns obtained by the firms which did not rotate auditors following the event were not compensated by negative returns that took place before the event. The most important change in the week following the event, is the gradual adjustment of the prices that are not traded regularly.

Table 4 Cumulative abnormal returns

Return Window	Cumulative abnormal return				
	Rotation (1)		No rotation (2)		(2)—(1)
	CAR	T-test	CAR	T-test	CAR
Panel A: Full sample (2004 –2019)					
[−10; −7]	9.88	0.29	14.50	1.25	4.62
[−6; −3]	−7.37	−0.15	10.56	0.93	17.94
[−2; −1]	−8.00	−0.56	−2.24	−0.29	5.76
[0; 1]	3.65	0.12	22.99***	3.02	19.34
[2; 6]	51.60	1.57	42.63***	3.66	-8.98
[7; 10]	−8.78	−0.41	8.06	0.82	16.83
[−1; 1]	11.07	0.34	21.53**	2.27	10.46
[−6; 6]	39.88	0.73	73.93***	3.82	34.05
[−10; 10]	40.99	0.50	96.48***	3.90	55.49
Panel B: Scandal period (2009 –2012)					
[−10; −7]	−10.34	-0.26	38.69	1.49	49.03
[−6; −3]	8.53	0.14	43.12	1.64	34.59
[−2; −1]	−12.07	−0.36	−8.99	−0.58	3.08
[0; 1]	112.67***	4.73	33.72**	2.42	−78.95**
[2; 6]	26.39	0.46	44.49*	1.92	18.10
[7; 10]	−32.15	−0.90	15.41	0.87	47.56
[−1; 1]	84.9***	2.84	29.42*	1.74	−55.47
[−6; 6]	135.52	1.27	112.34***	2.98	−23.18
[−10; 10]	93.03	0.85	166.44***	3.13	73.41
Panel C: No Scandal period (2004 – 2008; 2013–2019)					
[−10; −7]	15.66	0.36	6.58	0.52	-9.08
[−6; −3]	-11.92	−0.19	-0.07	-0.01	11.84
[−2; −1]	-6.84	−0.43	-0.04	0.00	6.80
[0; 1]	-27.50	−0.75	19.48**	2.16	46.98*
[2; 6]	58.81	1.51	42.02***	3.11	-16.79
[7; 10]	-2.10	-0.08	5.66	0.49	7.76
[−1; 1]	-10.03	−0.24	18.95*	1.68	28.97
[−6; 6]	12.56	0.20	61.38***	2.73	48.83
[−10; 10]	26.12	0.26	73.62***	2.64	47.50

This table presents the cumulative abnormal returns in event time in the windows around the announcement of an audit company rotation or retention (no rotation). The abnormal returns are estimated with a market model relative to the main local stock market index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

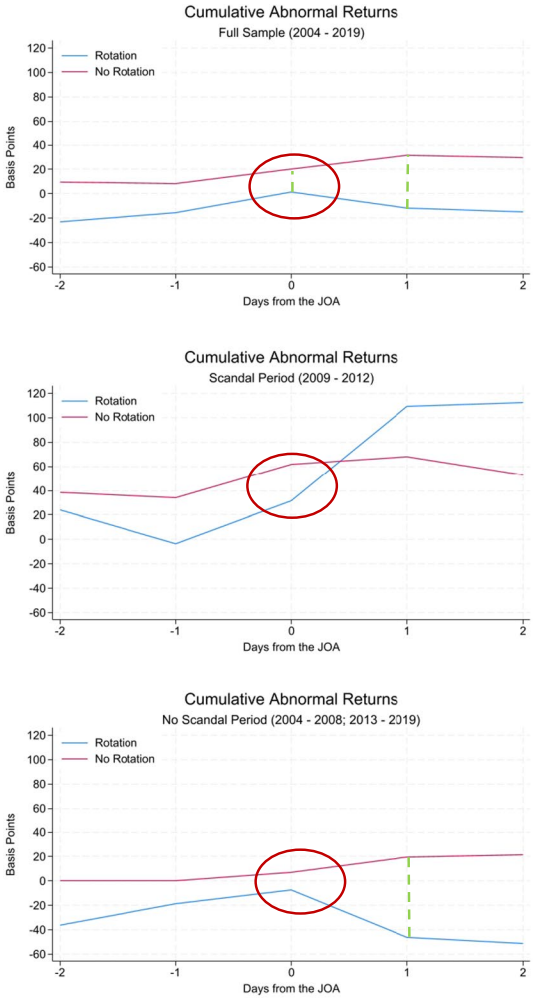

Fig. 2 Cumulative abnormal returns in the event window

around the event.[43] We consider the behaviour of the full sample of observations (from 2004 to 2019).

The first graph shows (enclosed in red) that the trend around day 0 was *upward* for companies that retained their auditor, but it was *downward* for companies that rotated their auditor. Furthermore, the difference between the cumulative returns with and without rotation oscillates from a minimum of 20 bps to a maximum of 40 bps (marked with the discontinuous green lines).[44]

[43] We evidently count days only when the market is open.

[44] We also calculated the abnormal returns for retentions and rotations in each period. Not only the effects for the firms that kept their auditors are significant at the 95% up to six days after the event took place but in addition the differences between the groups tend to disappear with time (financially and statistically) as it is expected in a robust event study.

Despite of all these suggestions that markets react stronger to an auditor retention than to an auditor rotation, a test of means reveals no statistical difference between retentions and rotations for the whole period (see the last column in Table 4). We corroborate this finding in section 8.1 when we incorporate additional controls to our analysis. Next, we dig deeper to uncover when markets do react differently to VAFREs and VAFROs.

6.2 Market reactions when we distinguish between periods with scandals (2009–2012) and periods without scandals (before 2009 and after 2012)

Unlike in the previous section, now we focus on Panels B and C in Table 4 as well as on the evolution of the cumulative abnormal returns when markets were, and were not, affected by corporate scandals. We find a different set of results than the ones we found when we were discussing the entire period.

Panel B (scandals) tells us that, during the period that came after the event, markets reacted significantly only in the two-day window that followed the announcement. Furthermore, the market reaction towards a rotation was greater than the same reaction towards a retention. Although markets reacted positively to both announcements, the per-day market reaction towards a rotation was almost 40 bps greater than the reaction towards a retention. This same result can be appreciated, more neatly, in Fig. 2 that covers the scandal period. The part enclosed in red shows that the trend around day 0 was *positive* for both types of companies, those that retained and rotated their auditors, nevertheless the slope was steeper in the later than in the former.

On the other hand, Panel C (no scandals) tells us that markets reacted significantly only when firms announced a retention. The market never reacted towards an auditor's rotation. Panels A and C are similar, but the reactions were stronger during the period without scandals than during the entire period. In the [0;1] window within Panel C, the per-day market reaction towards a retention was 23 bps more positive than the same reaction towards a rotation. Figure 2 strengthens the argument of a stronger positive reaction towards retentions because it shows that the trend in cumulative returns associated with a rotation around day 0 (enclosed in red) was more negative than the same trend in the full sample. Furthermore, the maximum difference between the cumulative returns with and without rotation surpasses 60 bps (marked with the discontinuous green line). In the full sample, this value was only 40 bps.

We are aware that the omission of other issues that could generate market reactions during the period under study could weaken the robustness of our results, indeed this concern can never be fully eliminated. That said, in Sect. 8 we discuss the robustness of our results after we consider other possible causes for market reactions. For instance, in Sect. 8 we mention (see the Appendix, Table 12) that the presented results do not materially change after we isolate the effects of local scandals from the effects of the global financial crisis (GFC). To show this, we recalculate Table 4 after we exclude the years in which local and international scandals

overlapped, that is, 2008 and 2009. Results in Table 12 are not significantly different from results in Table 4.

Summarizing, for Chilean markets, the responses to the questions we formulated in Sect. 4 are clear. While the answers to *Q1, Q1S* and *Q1N* are the same, markets reacted positively to retention announcements, the answers to *Q2, Q2S* and *Q2N* are not the same. Markets did not react to rotation announcements, unless markets were affected by major corporate scandals. Indeed, markets impacted by scandals not only reacted positively to a rotation announcement, but they did it more than to a retention announcement.

7 Testing for individual effects

In the previous section we revealed that, at least in Chile, market reactions to VAFREs and VAFROs depend on market stability. Here we provide some evidence that this result can be partially explained by markets' reactions to the costs and benefits generated by auditors' retentions and rotations. Sometimes the benefits of an auditor retention (improvement of quality and/or efficiency) dominate the costs of the same (reduction in independence).[45] Some other times the costs dominate the benefits.

Before moving into details, it is important to keep in mind that our methodology relies on the separation of the data in subsamples where specific attributes, such as quality or independence, take high or low values. Although the results of these comparative exercises are consistent with our hypotheses, we do not to derive strong conclusions about causality.

We first test three hypotheses linked to expected market reactions to VAFROs' and VAFREs' costs and benefits. Afterwards we develop these hypotheses further and uncover some evidence that market reactions became more extreme during periods with (or without) corporate scandals.

7.1 Market reactions to changes in costs and benefits

Changes in quality

Markets should react more positively (negatively) to the retention (rotation) of a better-quality auditor than a lesser quality one, *ceteris paribus*. As we mentioned in the literature review many authors (Chi et al., 2009; Geiger & Raghunandan, 2002; Myers et al., 2003), while studying VAFROs, have found evidence in this direction. From there we state our first pair of hypotheses:

[45] If markets are sufficiently efficient then, expected returns should already internalize the probability distribution of auditor's change. That is consistent with the fact that the expected return for firms that keep their auditors is larger than the ones that do not and cannot be interpreted as a spot market reaction, what matters is the difference between the two groups. All that said, an alternative hypothesis is that there is a positive market reaction to shareholders meetings (e.g. Wang & Hefner, 2014 or Brickley, 1986) and announcement of an auditor's change would mean to eliminate that positive reaction. However, even under this hypothesis, markets react differently when they face a retention and a rotation, once more what matters is the difference.

Table 5 Cumulative abnormal returns by auditor's quality

Return Window	Lower restatement rank (1)		Higher restatement rank (2)		(2)—(1)
	CAR	T-test	CAR	T-test	CAR
Panel A: Full sample (2004 – 2019)					
Rotation					
[-6; -3]	-26.68	-0.83	-6.25	-0.07	20.42
[-2; -1]	-3.40	-0.15	6.67	0.32	10.06
[0; 1]	76.03***	3.50	8.00	0.31	-68.04*
[2; 6]	68.41*	2.01	10.46	0.36	-57.95
[-6; 6]	114.38*	1.79	18.87	0.22	-95.50
No Rotation					
[-6; -3]	7.93	0.50	32.51**	2.09	24.59
[-2; -1]	13.97	0.93	-6.51	-0.74	-20.48
[0; 1]	24.38**	2.56	16.22*	1.78	-8.16
[2; 6]	36.79**	2.39	70.37***	4.43	33.58
[-6; 6]	83.06***	2.66	112.59***	4.42	29.53
Panel B: Scandal period (2009 – 2012)					
Rotation					
[-6; -3]	2.65	0.05	36.42	0.39	33.77
[-2; -1]	-32.70	-0.90	24.45	0.46	57.15
[0; 1]	111.14***	4.06	113.7***	2.96	2.56
[2; 6]	10.48	0.12	45.58	0.52	35.10
[-6; 6]	91.57	0.63	220.15	1.40	128.58
No Rotation					
[-6; -3]	-4.26	-0.14	54.91*	1.68	59.17
[-2; -1]	-1.49	-0.06	-5.31	-0.29	-3.82
[0; 1]	23.41	1.29	30.73*	1.75	7.32
[2; 6]	26.32	0.81	62.79**	2.05	36.46
[-6; 6]	43.99	0.94	143.12***	2.77	99.14
Panel C: No Scandal period (2004 – 2008; 2013—2019)					
Rotation					
[-6; -3]	-40.29	-1.03	-18.55	-0.17	21.74
[-2; -1]	10.21	0.35	1.54	0.07	-8.66
[0; 1]	59.74**	2.07	-22.46	-0.74	-82.2
[2; 6]	95.31***	3.18	0.34	0.01	-94.97
[-6; 6]	124.97*	1.86	-39.12	-0.38	-164.09
No Rotation					
[-6; -3]	11.31	0.61	22.70	1.32	11.39
[-2; -1]	18.27	1.01	-7.03	-0.72	-25.30
[0; 1]	24.65**	2.22	9.87	0.93	-14.78
[2; 6]	39.7**	2.27	73.68***	3.98	33.99
[-6; 6]	93.93**	2.49	99.22***	3.44	5.30

This table presents the cumulativ e abnormal returns in event time in the windows around the announcement of an audit company rotation

Table 5 (continued)

or retention (no rotation). Auditor quality is proxied by the relative ranking in yearly restatements from financial statements audited by each audit company. Each year, we rank the audit companies on the fraction of subsequent restatements of their audited companies. In the case of rotations, the sample is then split into rotation towards lower (low % of restatement) and higher (high % of restatement) audit companies. At the same time, in the case of no rotation, we split the sample into keeping a low restatement auditor or keeping a high restatement auditor. The abnormal returns are estimated with a market model relative to the main local stock market index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

H1a: Announced retentions of high-quality auditors should generate more positive market reactions than announced retentions of low-quality auditors.

H1b: Announced rotations of high-quality auditors should generate more negative market reactions than announced rotations of low-quality auditors.

To test these hypotheses, we use financial restatements as proxy for auditors' quality. We build an annual index that ranks auditors in terms of the average number of restatements they received in the previous year. Then we split the full sample in high-quality (index below median 2.5) and low-quality (index above the median 2.5) auditors. The results presented in Panel A of Table 5 suggest that markets reacted *more positively to retentions of high-quality auditors* (8 bps in the [0;1] window) and markets reacted *significantly more positive to rotations into high-quality auditors* (68 bps in the [0;1] window). These results do not contradict our hypothesis regarding market reactions towards changes in auditors' quality.

To strengthen our last point, we use tenure as another proxy for quality. Given that in the Appendix we show that quality increases with tenure, we apply event studies in which we separate high-quality (tenure above the median of 5 years) from low-quality auditors (tenure below 5 years). Table 6 uncovers evidence that, in the [0;1] window, markets would react more favourably to retentions of high-quality than low-quality auditors.

Changes in independence 'in fact' and independence 'in appearance'

Markets should react more positively to the rotation (retention) of less (more) independent auditors, *ceteris paribus*. As previously mentioned, the literature has emphasized the relevance of auditor's independence at improving auditing services. De Angelo (1981), Olazabal and Almer (2001), Fearnley and Beattie (2004) have suggested that low independence can harm the objectivity with which auditors approach their clients. Keeping in mind the distinction between independence 'in fact' and independence 'in appearance', we first state our next pair of hypotheses about independence 'in fact':

H2a: Announced retentions of high independence-in-fact auditors should generate more positive market reactions than announced retentions of low independence-in-fact auditors.

H2b: Announced rotations of high independence-in-fact auditors should generate more negative market reactions than announced rotations of low independence-in-fact auditors.

To test these hypotheses, we use the percentage of auditors' auditing income over the total auditors' income as a proxy for the auditor's level of independence 'in fact'. Due to data restrictions, we only study the period from 2004 to 2014. We split the sample in two. Auditors that earned high levels of income coming from auditing services (high level of independence 'in fact') and auditors that earned low levels of income coming from auditing services (low level of independence 'in fact').[46] The results presented in Table 7 suggest that markets would have reacted more positively (36 bps in the [0;1] window) towards retentions of more independent auditors.[47]

We end by stating our hypotheses about independence 'in appearance':

H3a: Announced retentions of high independence-in-appearance auditors should generate more positive market reactions than announced retentions of low independence-in-appearance auditors.

H3b: Announced rotations of high independence-in-appearance auditors should generate more negative market reactions than announced rotations of low independence-in-appearance auditors.

To test this third set of hypotheses, we focus on auditor-auditee relationships with tenures longer than 7 years. Although extensive literature has opted for using tenure as a proxy for auditors' quality, some authors (Chu et al., 2012) have argued that this instrumentalization is conditional on tenure being shorter than a certain threshold. Beyond that temporal threshold, auditing quality does not change, and tenure becomes a proxy for independence 'in appearance'. According to the restatement analysis we present in the Appendix, for Chile, this threshold would be 7 years.

Table 8 presents the results of our estimations focused on relationships with extended tenures. We find that markets did not react differently to VAFROs and VAFREs when auditors had high levels (tenure shorter than the median of 11 years) or low levels of independence 'in appearance' (tenure longer than the median).

7.2 Market reactions to changes in costs and benefits during periods with scandals

Our results are consistent with the idea that Chilean markets react to VAFREs and/or VAFROs because of the implicit changes in the auditors' quality and/or independence. As a final set of tests to verify markets' rationality we study reactions to VAFREs and VAFROs during periods with scandals and compare them to reactions during periods without scandals. Because markets should react more strongly to independence (quality) concerns during periods convulsed (not convulsed) by scandals we state:

[46] The median in the distribution in the percentage of non-audit services was 94%.

[47] Instead, there were no significant differences in the rotation decisions.

Table 6 Cumulative abnormal returns by auditor's tenure

Return Window	Tenure < 5 years (1)		Tenure > = 5 years (2)		(2)—(1)
	CAR	T-test	CAR	T-test	CAR
Rotation					
[-6; -3]	− 14.04	-0.13	30.43	0.82	44.47
[-2; -1]	14.87	0.58	− 14.48	-0.85	− 29.35
[0; 1]	32.47	1.14	33.08	1.57	0.62
[2; 6]	22.14	0.67	17.37	0.58	− 4.78
[-6; 6]	55.44	0.52	66.40	1.15	10.96
No Rotation					
[− 6; − 3]	− 0.67	-0.04	20.43	1.31	21.10
[− 2; − 1]	13.10	1.08	− 15.72	− 1.61	− 28.81*
[0; 1]	17.41	1.36	27.88***	3.17	10.47
[2; 6]	41.26**	2.44	43.82***	2.72	2.56
[-6; 6]	71.1**	2.49	76.42***	2.91	5.31

This table presents the cumulative abnormal returns in event time in the windows around the announcement of an audit company rotation or retention (no rotation). The abnormal returns are estimated with a market model relative to the main local stock market index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

H1c: Announced retentions of high-quality auditors during periods without corporate scandals should generate more positive market reactions than announced retentions of high-quality auditors during periods with corporate scandals.

H1d: Announced rotations of high-quality auditors during periods without corporate scandals should generate more negative market reactions than announced rotations of high-quality auditors during periods with corporate scandals.

H2c: Announced retentions of high independence-in-fact auditors during periods with corporate scandals should generate more positive market reactions than announced retentions of low independence-in-fact auditors during periods without corporate scandals.

H2d: Announced rotations of high independence-in-fact auditors during periods with corporate scandals should generate more negative market reactions than announced rotations of low independence-in-fact auditors during periods without corporate scandals.

While Panels B and C in Table 5 are consistent with hypotheses H1c and H1d, Panels B and C in Table 6 do the same for hypotheses H2c and H2d. The positive reaction towards the retention of high-quality auditors was significantly stronger during the period without scandals than during the period with scandals (the effect changed from 25 bps to insignificant). Likewise, the positive reaction towards the rotation of less-independent auditors was significantly stronger during the period with scandals than during the period without scandals (the effect changed from 123 bps to insignificant).

Table 7 Cumulative abnormal returns by auditor's independence 'in fact'

Return Window	Audit Fee % < median (1)		Audit Fee % > = median (2)		(2)—(1)
	CAR	T-test	CAR	T-test	CAR
Panel A: Full sample (2004 – 2014)					
Rotation					
[−6; −3]	71.72	1.14	82.06	1.23	10.34
[−2; −1]	1.87	0.06	21.32	0.63	19.45
[0; 1]	37.16	1.07	42.6*	1.71	5.44
[2; 6]	-0.62	−0.01	54.56	1.18	55.18
[−6; 6]	110.13	1.23	200.54**	2.08	90.41
No Rotation					
[−6; −3]	22.64	1.03	21.61	1.03	−1.03
[−2; −1]	−2.76	−0.19	−13.54	−1.02	−10.78
[0; 1]	−2.85	−0.24	32.7***	2.81	35.55**
[2; 6]	78***	3.31	30.96	1.51	−47.04
[−6; 6]	95.04**	2.53	71.74**	2.03	−23.30
Panel B: Scandal period (2009 – 2012)					
Rotation					
[−6; −3]	13.78	0.20	45.56	0.37	31.79
[−2; −1]	−38.79	−0.95	36.51	0.54	75.30
[0; 1]	123.13***	4.18	110.04**	2.80	−13.09
[2; 6]	−31.65	−0.38	95.08	0.98	126.73
[−6; 6]	66.46	0.47	287.19	1.42	220.73
No Rotation					
[−6; −3]	73.69**	1.99	12.14	0.32	−61.56
[−2; −1]	7.43	0.29	-25.27	−1.31	−32.71
[0; 1]	2.65	0.15	56.37***	2.81	53.72**
[2; 6]	61.69*	1.84	32.56	0.89	−29.13
[−6; 6]	145.47***	2.63	75.79	1.25	−69.68
Panel C: No Scandal period (2004 – 2008; 2013—2014)					
Rotation					
[−6; −3]	116.49	1.19	105.11	1.34	−11.39
[−2; −1]	33.29	0.75	11.73	0.31	−21.56
[0; 1]	−29.27	−0.55	0.01	0.00	29.28
[2; 6]	23.36	0.35	28.97	0.63	5.62
[−6; 6]	143.87	1.23	145.82	1.54	1.95
No Rotation					
[−6; −3]	−20.72	-0.82	28.45	1.20	49.17
[−2; −1]	−11.41	−0.71	−5.07	−0.28	6.34
[0; 1]	−7.51	-0.47	15.61	1.14	23.12
[2; 6]	91.85***	2.78	29.81	1.27	−62.04
[−6; 6]	52.21	1.03	68.81	1.63	16.60

This table presents the cumulative abnormal returns in event time in the windows around the announcement of an audit company rotation or retention (no rotation). Data on audit fees is only available up to 2014. The abnormal returns are estimated with a market model relative to the main local stock market

Table 7 (continued)

index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

Table 8 Cumulative abnormal returns by auditor's independence 'in appearance'

Return window	Tenure < 11 years (1)		Tenure > = 11 years (2)		(2)–(1)
	CAR	*T*-test	CAR	*T*-test	CAR
Rotation					
[−6; −3]	72.66	0.95	30.71	0.59	−41.96
[−2; −1]	-18.97	−0.65	−42.41	−1.34	−23.43
[0; 1]	33.02	1.18	−21.70	−0.37	−54.72
[2; 6]	-34.19	−0.61	39.13	0.61	73.31
[−6; 6]	52.52	0.42	5.73	0.09	−46.80
No Rotation					
[−6; −3]	28.51	0.97	13.65	0.62	−14.86
[−2; −1]	−27.9*	−1.71	−12.71	−0.90	15.18
[0; 1]	14.85	1.16	28.59*	1.92	13.75
[2; 6]	46.89*	1.84	27.02	1.23	−19.87
[−6; 6]	62.36	1.46	56.55	1.47	-5.81

This table presents the cumulative abnormal returns in event time in the windows around the announcement of an audit company rotation or retention (no rotation). The sample only considers firms whose incumbent auditor had a current tenure of 7 or more years with the firm. The restricted sample is then further split at its median (tenure of 11 years). The abnormal returns are estimated with a market model relative to the main local stock market index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

8 Discussion

8.1 Robustness

Important concerns about our econometrical estimations are biases due to omitted variables. To address some of these concerns, we re-estimate market reactions to VAFREs and VAFROs utilizing OLS specifications that include at least four types of controlling variables. First, we consider other non-anticipated decisions that might have been made at the ordinary shareholders meetings that revealed material information. More specifically we build variable DIV_{it} that takes value 1 if at the shareholders meeting of period t, company i announced a change in the company's dividend policy and 0 otherwise. In addition, we build variable $BOARD_{it}$ that takes value 1 if at the shareholders meeting during period t, company i announced a change in its board composition and 0 otherwise.[48]

To the previous variables we add variable ESM_{it} that takes value 1 if during period t company i had an extraordinary shareholders meeting and 0 otherwise. As

[48] Both variables were built from companies' annual reports as well as shareholders' meeting reports.

previously explained, extraordinary meetings operate as proxies for unusual material events.[49]

We also test for two other issues that may be of concern. Because our time series crosses the global financial crisis, we separately include year fixed effects and later replicate our estimations after we exclude years 2008 and 2009.[50] Additionally, because changes in control enhance specific costs and benefits in VAFREs and VAFROs, we redo our estimations after eliminating from our sample all firms that changed controller.[51]

Table 9 summarizes the results of our OLS estimations. It presents the estimations of CARs in the [0,1] window as a function of the retention and rotation announcements, distinguishing by periods in which scandals took and did not take place. While model [1] replicates the estimations that generate the results presented in Panels B and C of Table 4, model [2] adds the ordinary and extraordinary meetings controls. Model [3] adds year effects to the previously mentioned corrections. Finally, model [4] excludes the few observations in which firms were involved in changes of corporate control. Two main results emerge that corroborate our main findings from Sect. 6. First, market reactions still favour rotations during periods with scandals, however the effect becomes stronger (Scandal: Change vs No Change moves from 79 to 96 bps) and second, market reactions still favour retentions during periods without scandals, however the effect becomes weaker (No Scandal: Change vs No Change moves from − 47 to − 17 bps).[52]

Because of concerns about the effects of the GFC on our estimations, in the Appendix we present the results of our base model after we exclude years 2008 and 2009. As it is shown in Table 12, they are not materially different from the results we present in Table 4.

8.2 Implications for firms and regulators

Our main findings have important implications both for firms and regulators. Next, we briefly discuss them.

[49] Even when in the shareholders meetings, shareholders discuss transactions with related parties (i.e. transactions in which there could exist conflicts of interests among shareholders) that information always becomes public before the meeting, either with the revelation of financial statements or the list "of material events" that companies are obliged to disclose at the time of the event. Even more, after checking all the material events that took place during 2004 and 2019, we found that no transaction with potential conflicts of interest took place in a window of time of 20 days around the day of the event.

[50] Indeed Fig. 1 shows a peak in the percentage of auditors' rotations in 2008.

[51] Auditing services' efficiency in conglomerates or multinationals, benefit from having the same auditor in all its subsidiaries. First, consolidations are simpler when all the subsidiaries use the same accounting system. Second, many countries make the auditor of the controlling company legally responsible for the audit of all the companies conforming the holding. In our database we do not have enough changes in control to test these predictions. However, we test if our results hold after we eliminate those changes in control from the sample.

[52] It is true that the significance in the test of differences within the no scandal period becomes very small but that is a common phenomenon in these types of tests when we the sample is very unbalanced. That is exactly our case given that rotations represent close to 10% of the sample (see for example Wooldridge, 2019).

Firms

Our results have at least two straightforward implications for firms that trade in countries without mandatory audit firm rotation systems. First, firms should be aware about market reactions towards their announcements to retain auditors. Although there can exist a natural temptation to believe that this decision is non-informative, and ergo, rather irrelevant, our research shows that markets can react, positively in the Chilean case, to that announcement. That would be particularly relevant during times of relative market stability.

Second, firms that consider necessary to rotate their auditors with certain frequency, should strategically condition the timing of those events on other material decisions that involve financial securities. When possible, firms should strategically rotate auditors during periods in which markets are rather convulsed. The market premium is not negligible.

Regulators

Our findings can also be useful for regulators to design more efficient rules tailored to specific issues. For instance, regulations should facilitate the capacity of firms to rotate their auditors during times in which markets have been affected by significant corporate scandals. In addition, Chilean regulators should pay more attention at measuring independence 'in fact' than independence 'in appearance' as markets seem to be sensitive to the first but not the later.

Finally, our results nurture the prolific discussion surrounding the convenience of mandatory audit firm rotations. The discussion has been split between those who think that mandatory rotations help correct the harm that a too long tenure might generate upon auditors' independence (e.g., Copley & Doucet, 1993; Geiger & Raghunandan, 2002; Johnson et al., 2002),[53] and those who think that mandatory rotations harm the quality and efficiency of the service provided by more experienced auditors (e.g., Cameran et al., 2005; Gietzmann & Sen, 2002; Arruñada & Paz-Ares, 1997; Gerakos & Syverson, 2013; Ruiz-Barbadillo & Gomez-Aguilar, 2006).[54]

Chile considered adopting a mandatory rule in the aftermath of FASA and La Polar, but regulators decided not to do it. Our findings support the adequacy of that decision through subtle reasoning. It is true that our results cannot be directly extrapolated to a mandatory rotation system.[55] However, much of the discussion regarding

[53] These authors refer to the potential negative effect of tenure over auditors' independence.

[54] Gietzmann and Sen (2002) find that a mandatory rule of rotation would be negative in a developed market in which there is no market power in the supply or demand for financial audits. These authors also find that a mandatory rule of rotation could provide deadweight gains in other conditions (i.e. a concentrated audit market and a market where the demand for auditing is equally concentrated). In the same line of excessively burdening firms with numerous changes in auditors, Gerakos and Syverson (2013) find that implementing a 10-year mandatory rotation rule would generate aggregate losses in the USA that would range between US$ 2.4 billion and US$ 3.6 billion, and between US$ 4.3 billion and US$ 5.5 billion if the rotation was every 4 years.

[55] The literature (e.g., Lennox et al., 2014) has emphasized that the issues surrounding voluntary rotations are different from the issues surrounding mandatory rotations. For instance, Lennox et al. (2014) show that auditing quality during the last and first years of mandated periods will be substantially different than auditing quality in the rest of the period, an effect that is not present in voluntary rotation decisions where quality is driven by tenure, learning and specific investment effects. We thank an anonymous referee for emphasizing this point.

Table 9 CAR in the event window

Dependent Variable: CAR[0; 1]	[1]	[2]	[3]	[4]
Rotation, No Scandal [omitted]				
Rotation, scandal	140.17***	119.03***	181.01***	178.09***
	(3.21)	(3.44)	(3.17)	(3.08)
No Rotation, no scandal	46.98	15.37	17.36	16.91
	(1.40)	(0.63)	(0.68)	(0.66)
No Rotation, scandal	61.22	25.68	84.84*	81.53
	(1.54)	(1.11)	(1.73)	(1.65)
Constant	-27.50	−1.64	−63.53	−60.39
	(-0.84)	(−0.08)	(−1.37)	(−1.28)
R2	0.01	0.01	0.02	0.02
Observations	1,147	899	899	893
Firms	95	84	84	84
JOA control variables	No	Yes	Yes	Yes
Board percentage change	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
Excludes majority ownership changes	No	No	No	Yes
Tests for differences in CAR:				
Rotation: Scandal versus no scandal	140.17***	119.03***	181.01***	178.09***
	(3.21)	(3.44)	(3.17)	(3.08)
No Rotation: Scandal versus no scandal	14.24	10.31	67.48	64.62
	(0.79)	(0.59)	(1.40)	(1.32)
No Scandal: rotation versus no rotation	−46.98	−15.37	−17.36	−16.91
	(−1.40)	(−0.63)	(−0.68)	(-0.66)
Scandal: rotation versus no rotation	78.95***	93.35***	96.17***	96.56***
	(2.96)	(3.18)	(3.32)	(3.34)

This table presents the output of OLS regressions of the cumulative abnormal returns in days 0 to 1, CAR[0; 1], around the announcement of an audit company rotation or retention (no rotation). The independent variables indicate whether the auditor announcement was a change of auditor or no change of auditor and whether this announcement occurred during the scandals period between 2009 and 2012. JOA controls include an indicator for the joint occurrence of an extraordinary shareholders' meeting on the day of the ordinary shareholders' meeting, the year-over-year change in the dividend payout ratio, and the percentage change in board composition. The cumulative abnormal returns are estimated with a market model relative to the main local stock market index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. Standard errors are clustered at the firm level. The lower panel presents the results of coefficient restriction tests measuring the difference in CAR across different pairs of auditor decisions and periods. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

the desirability of mandatory rotation is based on the trade-off between quality and independence with respect to tenure. We show that this trade-off can be substantially affected by market stability. If that result holds under a mandatory rotation system, then a compelled rotation after a fixed number of periods most likely is suboptimal because the optimal number of periods after which rotations should happen is contingent on the condition of the markets.

8.3 Limitations

We finish by mentioning some of the limitations of our work. First, because we do not have that information, in our empirical analysis we do not track changes in auditors' partners, in the Chilean system firms are mandated to rotate auditor's partners every 5 years.[56] In addition, again due to restrictions in access to data, we focused our analysis on large non-financial firms.[57] Furthermore, we do not distinguish whether our tests provide different results when we separate by type of auditor (Big-4 versus not Big-4). Finally, although FASA and La Polar structurally changed Chilean markets and regulations we don't know the magnitudes, for example in market fall or value destruction, that are required to trigger a reversal in market reactions towards VAFREs and VAFROs. Implicit in this consideration is the risk that some of our results critically depend on Chilean idiosyncrasies.

9 Conclusion

This paper presented evidence that investors react differently towards firms' decisions to retain or rotate their external auditors when these changes happen during periods in which markets are stable or convulsed. During stable periods, markets respond more positively towards retentions compared to rotations, however, the opposite happens during periods in which markets have been affected by major corporate scandals.

When markets are affected by major corporate scandals, the reduction in auditor's quality and efficiency that follow an auditor change, dominates the improvement in auditor's independence that also follows the rotation. We find evidence that is consistent with that Chilean markets react to an improvement in the auditor's level of independence 'in fact', however, they do not react to changes in the auditor's level of independence 'in appearance'.

Additional research on market reactions to voluntary audit firm retentions and structural differences with audit firm rotations is needed, both at the empirical and the theoretical level. Although there have been commendable attempts at modelling the forces that are at play behind mandatory rotations, similar efforts could be allocated to identifying optimal voluntary retention policies. At the same time, further research could help identify the thresholds at which markets behave differently when corporate scandals occur. Overall, we hope that our research contributes to the literature that studies optimal retention and rotation decisions as well as the regulations that encourage those decisions.

[56] Article 243, Law 18.045. Anecdotic evidence suggests that in Chile, partner rotation is rather innocuous within the client-auditor relationship (source: Deloitte Chile), nevertheless that would need further study.

[57] We excluded financial institutions from our sample because the nature of the auditor–client relationship is very different when the client is a financial or a non-financial institution (e.g. leverage and specific regulation).

Appendix

Re-statement analysis

As summarized by Fig. 3, a restatement system works as follows: A company issues its financial statements, which may or may not contain errors (intentional or otherwise). The statements are received by the auditor which checks for potential mistakes. Finally, the statements are reviewed again, but this time by an external party (EP) which establishes a re-statement if it finds a mistake, in all the other cases there is no re-statement.

If the statements do not contain errors, they are approved by the auditor. Notice that we do not know whether the auditor has done a proper job, or the original statements do not contain errors but in any case, the EP does not find errors nor issues a re-statement.[58]

Instead, if the company issues statements with an error, the auditor detects it and then corrects it (together with the company), the EP does not issue a re-statement. However, if the auditor does not find the error but the EP does it, a restatement is issued.

We formulate a linear probability model in which the dependent variable takes value 1 if the EP issues a restatement and 0 if not. As independents variables we include the length of the auditor-auditee relationship, split into three levels: short [0 to 2 years]; medium [3 to 6 years]; and long [7 years or more]. In addition, we consider several control variables.

"Assets" refer to the total assets for the period (end of year) in real terms.[59] "Net income" is the end of the year net utility. "Losses" is a dummy that takes value 1 if the company had a loss in any of the three years preceding the current year, and 0 if not. "Net Income (%)", "Assets (%)" and "Receivables (%)" refer to the percentual differences between the current and the previous years for each of these 3 accounts respectively. A fixed effect for the audited firm is included in models (1), (2) and (3). A fixed effect for time is added to model (2), while a fixed effect for the auditor is added to model (3).

Auditing and consultancy fees were obtained from the S.V.S. (C.M.F.), information which is contained in letter N° 327, General Regulation N°275 and official notice N° 1368.[60]

Table 10 describes the data used in the study (separating the companies that had restatements and those that did not).

On average, the two samples are very similar, especially in terms of the length of the auditor-auditee relationship. By conducting a test of means, only the difference

[58] It might had been the case that initially the statements were not approved but then there was a discussion with the auditor and the company made the required changes to get the auditors approval.

[59] Divided by the *Unidad de Fomento*, an indexed unit of account linked to changes in inflation.

[60] Abrogated.

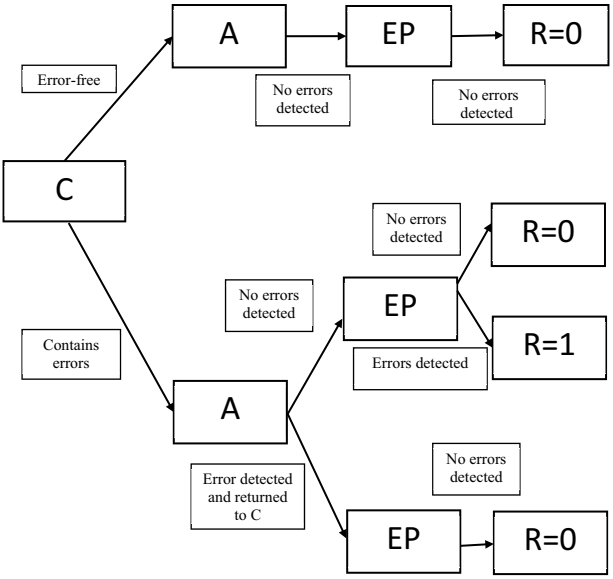

Fig. 3 Re-statements

in assets is significant (to 1%). The median suggests a convergence between the two samples.

Table 11 summarizes the results of the statistical analysis. The main finding is that the probability of a restatement of the financial statements decreases with the length of the auditor-auditee relationship. After 2 years, the probability of a restatement drops between 3% and 6.6%. That effect disappears after year 6. It is true that the significance in the result is not strong, but it is aligned with the literature's finding that auditor's knowledge and expertise increase over time thanks to a learning effect as well as a specific investment effect.

Global financial crisis (GFC)

During part of the time in which Chilean scandals happened, markets around the world were also suffering the impact of the global financial crisis (GFC). To isolate the local scandals from the potential effects of the GFC on the market reaction to auditor changes we estimate our model excluding the years in which local and international scandals overlapped, that is, 2008-2009. As it is shown in Table 12, with its corresponding Panels covering the full period and the scandals/no-scandals periods, this sample restriction does not materially change the results we reported in Table 4.

No rotation is on average received with a small but statistically significant abnormal return in the full sample, but during the scandal period it is the rotation the one that is received with a significantly positive abnormal return that is much larger than the abnormal return on retention (79 extra basis points). In the no scandal and no GFC period, the retention of the auditor is received with a significantly positive

Table 10 Data descriptive restatements

	Restated (n = 280)					Not Restated (n = 615)					
Variable	Mean	Median	Std. Dev	Max	Min	Mean	Median	Std. Dev	Max	Min	p-val diff
Tenure	7.85	5.00	8.23	46.00	1.00	7.99	6.00	7.69	38.00	1.00	0.800
Net Income	3,033	1,523	4,236	29,941	1	3,472	2,020	4,166	23,115	3	0.149
Assets	79,380	26,904	159,547	1,664,919	429	118,089	39,854	211,263	1,399,655	506	0.003
Losses	0.15	0.00	0.36	1.00	0.00	0.15	0.00	0.35	1.00	0.00	0.756
Net Income (% change)	0.07	0.02	3.69	41.30	−39.14	−0.06	-0.03	2.79	16.55	-36.84	0.624
Assets	0.20	0.05	2.34	57.10	-0.55	0.08	0.04	0.22	1.91	-0.40	0.382
Receivables (% change)	2.74	0.06	48.36	1168.84	-0.96	0.24	0.04	1.53	22.60	-1.00	0.387

This table presents summary statistics of financial characteristics and the firm-auditor relationship for the restatement analysis sample. Tenure is the number of continuous years of the firm-auditor relationship at the time of the financial statements. Net Income is the CPI-indexed net income; assets are the CPI-indexed total assets; losses is a dummy variable for whether the firm reported losses in any of the past three years; and receivables are the CPI-indexed receivables

Table 11 Relationship between auditor tenure and restatements

Dependent variable: ***1****(Restatement)*	[1]	[2]	[3]
Tenure 3–6	−0.0661*	−0.0370	−0.0304
	(−1.71)	(−1.03)	(−0.83)
Tenure 7 +	0.0091	0.0154	0.0198
	(0.17)	(0.32)	(0.41)
Net income (log)	0.0011	0.0142	0.0137
	(0.05)	(0.65)	(0.62)
Assets (log)	0.1187***	−0.0103	−0.0108
	(3.60)	(−0.25)	(−0.27)
Losses	0.0729	0.0470	0.0394
	(1.11)	(0.78)	(0.63)
Net income (% change)	−0.0018	−0.0033	−0.0035
	(−0.43)	(−0.82)	(−0.86)
Assets (% change)	−0.0066*	0.0006	0.0007
	(−1.68)	(0.15)	(0.19)
Receivables (% change)	−0.0002	−0.0005***	−0.0004***
	(−1.28)	(−5.28)	(−5.00)
Constant	−0.9186**	0.0198	0.0324
	(−2.52)	(0.05)	(0.08)
Firm fixed effect	Yes	Yes	Yes
Year fixed effect	No	Yes	Yes
Auditor fixed effect	No	No	Yes
R2	0.02	0.17	0.17
Observations	895	895	895
Firms	88	88	88

This table presents the output of OLS regressions of the occurrence of a financial statement restatement, **1**(Restatement), on a piecewise linear auditor tenure specification and a set of firm and firm-auditor controls. The independent variables indicate whether the financial statements of a given year were subsequently restated. Tenure 3–6 is a dummy variable that takes a value of 1 if the auditor had a tenure of between 3 and 6 years at the time of the corresponding financial statements; Tenure 7 + indicates the auditor had a tenure of 7 or more years at the time of the financial statements. Net Income is the CPI-indexed net income; Assets is the CPI-indexed total assets; Losses is a dummy variable for whether the firm reported losses in any of the past three years; Receivables is the CPI-indexed receivables. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

abnormal return, while the rotation is received with an insignificant and negative average abnormal return.

Table 12 Cumulative abnormal returns – Ex GFC

Cumulative abnormal return					
Return window	Rotation (1)		No rotation (2)		(2)—(1)
	CAR	T-test	CAR	T-test	CAR
Panel A: Full sample ex GFC (2004 – 2007; 2010–2019)					
[−10; −7]	−10.46	-0.29	5.17	0.45	15.63
[−6; −3]	−7.21	-0.13	−10.47	−0.97	−3.26
[−2; −1]	−13.70	-0.90	−3.92	−0.49	9.78
[0; 1]	5.02	0.15	19.78**	2.43	14.76
[2; 6]	45.03	1.28	30.5**	2.53	−14.53
[7; 10]	−4.63	−0.21	2.92	0.28	7.55
[−1; 1]	13.44	0.37	16.84*	1.66	3.39
[−6; 6]	29.14	0.50	35.88*	1.82	6.74
[−10; 10]	14.05	0.16	43.97*	1.77	29.92
Panel B: Scandal period ex GFC (2010 –2012)					
[−10; −7]	−20.29	−0.53	14.90	0.65	35.18
[-6; −3]	20.08	0.33	−19.66	−1.01	−39.74
[-2; -1]	−8.92	−0.25	−17.15	−1.21	−8.23
[0; 1]	108.4***	4.48	29.22**	2.06	−79.18**
[2; 6]	-5.57	−0.11	−2.67	−0.11	2.90
[7; 10]	-41.38	−1.11	−18.72	−1.18	22.67
[−1; 1]	82.61**	2.62	17.49	1.04	−65.11
[−6; 6]	113.98	1.04	−10.27	−0.29	−124.25
[−10; 10]	52.31	0.48	−14.09	−0.31	-66.40
Panel C: No Scandal period ex GFC (2004 – 2007; 2013–2019)					
[−10; −7]	−7.51	−0.16	2.70	0.20	10.21
[−6; −3]	−15.40	−0.22	−8.14	−0.64	7.25
[−2; −1]	−15.13	−0.91	−0.57	−0.06	14.56
[0; 1]	−25.99	−0.63	17.39*	1.82	43.39
[2; 6]	60.21	1.40	38.91***	2.83	-21.31
[7; 10]	6.40	0.24	8.41	0.69	2.01
[−1; 1]	−7.30	−0.16	16.67	1.40	23.98
[−6; 6]	3.69	0.05	47.59**	2.06	43.90
[−10; 10]	2.58	0.02	58.69**	2.03	56.12

This table presents the cumulative abnormal returns in event time in the windows around the announcement of an audit company rotation or retention (no rotation). The abnormal returns are estimated with a market model relative to the main local stock market index (IPSA) estimated in trading days -250 up to -10 before the annual shareholders' meeting. Standard errors are clustered at the firm level. ***, **, and * denote statistical significance at the 99%, 95% and 90% respectively

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References

Arioglu, E., & Tuan, K. (2015). Auditor rotation at Borsa İstanbul firms: an event study. *Journal of Economics Finance and Accounting*, *2*(3), 397–408.

Arruñada, B., & Paz-Ares, C. (1997). Mandatory rotation of company auditors: A critical examination. *International Review of Law and Economics, 17*(1), 31–61.

Barbadillo, E. R., Aguilar, N. G., & Carrera, N. (2006). Evidencia empírica sobre el efecto de la duración del contrato en la calidad de la auditoría: Análisis de las medidas de retención y rotación obligatoria de auditores. *Investigaciones Económicas, 30*(2), 283–316.

Beattie, V., & Fearnley, S. (2002). *Auditor independence and non-audit services: A literature review*.

Beneish, M. D., Hopkins, P. E., Jansen, I. P., & Martin, R. D. (2005). Do auditor resignations reduce uncertainty about the quality of firms' financial reporting? *Journal of Accounting and Public Policy, 24*(5), 357–390.

Brickley, J. A. (1986). Interpreting common stock returns around proxy statement disclosures and annual shareholders meetings. *Journal of Financial and Quantitative Analysis, 21*(03), 343–349.

Bustos, Á. E., Walker, E., & Veoriza, D., *From corporate scandals to legal reforms: Forces that shape the market for corporate directors* (January 17, 2023). SSRN: https://ssrn.com/abstract=4204039 or https://doi.org/10.2139/ssrn.4204039

Cameran, M., Merlotti, E., & Di Vincenzo, D. (2005). The audit firm rotation rule: a review of the literature. *SDA Bocconi Research Paper*.

Canning, M., & Gwilliam, D. (1999). Non-audit services and auditor independence: Some evidence from Ireland. *European Accounting Review, 8*(3), 401–419.

Carcello, J. V., & Nagy, A. L. (2004). Audit firm tenure and fraudulent financial reporting. *Auditing: A Journal of Practice & Theory, 23*(2), 55–69.

Carey, P., & Simnett, R. (2006). Audit partner tenure and audit quality. *The Accounting Review, 81*(3), 653–676.

Chang, H., Cheng, C. A., & Reichelt, K. J. (2010). Market reaction to auditor switching from Big 4 to third-tier small accounting firms. *Auditing: a Journal of Practice & Theory, 29*(2), 83–114.

Chen, C. Y., Lin, C. J., & Lin, Y. C. (2008). Audit partner tenure, audit firm tenure, and discretionary accruals: Does long auditor tenure impair earnings quality? *Contemporary Accounting Research, 25*(2), 415–445.

Chi, W., Huang, H., Liao, Y., & Xie, H. (2009). Mandatory audit partner rotation, audit quality, and market perception: Evidence from Taiwan. *Contemporary Accounting Research, 26*(2), 359–391.

Choi, S., Choi, Y. S., Gul, F. A., & Lee, W. J. (2015). The impact of mandatory versus voluntary auditor switches on stock liquidity: Some Korean evidence. *The British Accounting Review, 47*(1), 100–116.

Chu, L., Church, B. K. & Zhang, P. (2012). Does Long Tenure Erode Auditor Independence? CAAA Annual Conference 2012, Available at SSRN: https://ssrn.com/abstract=1982317 or https://doi.org/10.2139/ssrn.1982317

Copley, P. A., & Doucet, M. S. (1993). Auditor tenure, fixed fee contracts, and the supply of substandard single audits. *Public Budgeting & Finance*, *13*, 23–35

DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics, 3*(3), 183–199.

DeFond, M., Ettredge, M., & Smith, D. B. (1997). An investigation of auditor resignations. *Research in Accounting Regulation, 11*, 25–46.

Defond, M. L., & Jiambalvo, J. (1993). Factors related to auditor-client disagreements over income-increasing accounting methods. *Contemporary Accounting Research, 9*(2), 415–431.

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics, 58*(2–3), 275–326.

DeZoort, F. T., Hermanson, D. R., Archambeault, D. S., & Reed, S. A. (2002). Audit committee effectiveness: A synthesis of the empirical audit committee literature. *Journal of Accounting Literature, 21*, 38–74.

Dhaliwal, D. S., Schatzberg, J. W., & Trombley, M. A. (1993). An analysis of the economic factors related to auditor-client disagreements preceding auditor changes. *Auditing: A Journal of Practice & Theory, 12*(2), 22–38.

Dimitrov, V., & Jain, P. C. (2011). It's showtime: Do managers' report better news before annual shareholder meetings? *Journal of Accounting Research, 49*, 1193–1221.

Dordzhieva, A. (2022). Disciplining role of auditor tenure and mandatory auditor rotation. *The Accounting Review, 97*(2), 161–182.

Dunn, J., Hillier, D., & Marshall, A. P. (1999). The market reaction to auditor resignations. *Accounting and Business Research, 29*(2), 95–108.

Ebimobowei, A., & Keretu, O. J. (2011). Mandatory rotation of auditors on audit quality, costs and independence in South-South. *Nigeria, International Business Management, 5*(3), 166–172.

Eichenseher, J. W., Hagigi, M., & Shields, D. (1989). Market reaction to auditor changes by OTC companies. *Auditing: A Journal of Practice & Theory*, *9*(1), 29–40.

Ettredge, M. L., Scholz, S., & Li, C. (2007). Audit fees and auditor dismissals in the Sarbanes-Oxley era. *Accounting Horizons, 21*(4), 371–386.

Ewelt-Knauer, C., Gold, A., & Pott, C. (2013). Mandatory audit firm rotation: A review of stakeholder perspectives and prior research. *Accounting in Europe, 10*(1), 27–41.

Fargher, N., Lee, H. Y., & Mande, V. (2008). The effect of audit partner tenure on client managers' accounting discretion. *Managerial Auditing Journal, 23*(2), 161–186.

Fearnley, S., & Beattie, V. (2004). The reform of the UK's auditor independence framework after the enron collapse: An example of evidence-based policy making. *International Journal of Auditing, 8*(2), 117–138.

Florio, C. (2024). A structured literature review of empirical research on mandatory auditor rotation. *Journal of International Accounting, Auditing and Taxation*, *55*, 100623.

Fried, D., & Schiff, A. (1981). CPA switches and associated market reactions. *Accounting Review*, 326–341

Gates, S. K., Lowe, D. J., & Reckers, P. M. J. (2007). Restoring public confidence in capital markets through auditor rotation. *Managerial Auditing Journal, 22*(1), 5–18.

Geiger, M. A., & Raghunandan, K. (2002). Auditor tenure and audit reporting failure. *Auditing: A Journal of Practice & Theory, 21*(1), 67–78.

Gerakos, J. J., & Syverson, C. (2013). *Competition in the Audit Market: Policy Implications* (No. w19251). National Bureau of Economic Research.

Gietzmann, M. B., & Sen, P. K. (2002). Improving auditor independence through selective mandatory rotation. *International Journal of Auditing, 6*(2), 183–210.

Ho, J. L., & Wang, J. (2006). Examination of audit fee premiums and auditor switching pre and post the demise of Arthur Andersen and the enactment of Sarbanes-Oxley Act. Working Paper, University of California.

Johnson, V. E., Khurana, I. K., & Reynolds, J. K. (2002). Audit-firm tenure and the quality of financial reports. *Contemporary Accounting Research, 19*(4), 637–660.

Johnson, W. B., & Lys, T. (1990). The market for audit services: Evidence from voluntary auditor changes. *Journal of Accounting and Economics, 12*(1–3), 281–308.

Johnstone, K. M., Warfield, T. D., & Sutton, M. H. (2001). Antecedents and consequences of independence risk: Framework for analysis. *Accounting Horizons, 15*(1), 1–18.

Kamath, R., Huang, T. C., & Moroney, R. A. (2018). Auditor rotation and perceived competence and independence: The effect of fees and industry specialization. *Journal of International Accounting Research, 17*(3), 153–175.

Kaplan, S. E., & Mauldin, E. G. (2008). Auditor rotation and the appearance of independence: Evidence from non-professional investors. *Journal of Accounting and Public Policy, 27*(2), 177–192.

Klein, B. (1998). The hold-up problem. In P. Newman (ed.), *The new Palgrave dictionary of economics and the law*. Macmillan Reference Limited.

Knechel, W. R., Naiker, V., & Pacheco, G. (2007). Does auditor industry specialization matter? Evidence from market reaction to auditor switches. *Auditing: A Journal of Practice & Theory, 26*(1), 19–45.

Krishnan, J., & Krishnan, J. (1997). Litigation risk and auditor resignations. *Accounting Review*, *72*(4), 539–560.

Larraín, B., & UrzúaI, F. (2016). Do business groups change with market development? *Journal of Economics & Management Strategy, 25*(3), 750–784.

Lee, K. Y. (2022). Stock price crashes and auditors' client-retention decisions. *Journal of Accounting, Auditing & Finance, 37*(2), 493–517.

Lennox, C. S., & Pittman, J. A. (2011). Voluntary audits versus mandatory audits. *The Accounting Review, 86*(5), 1655–1678.

Lennox, C. S., Wu, X., & Zhang, T. (2014). Does mandatory rotation of audit partners improve audit quality? *The Accounting Review, 89*(5), 1775–1803.

Linck, J. S., Netter, J. M., & Yang, T. (2009). The effects and unintended consequences of the Sarbanes-Oxley act on the supply and demand for directors. *The Review of Financial Studies, 22*(8), 3287–3328.

Louis, H. (2005). Acquirers' abnormal returns and the non-Big 4 auditor clientele effect. *Journal of Accounting and Economics, 40*(1–3), 75–99.

MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature, 35*, 13–39.

Manry, D. L., Mock, T. J., & Turner, J. L. (2008). Does increased audit partner tenure reduce audit quality? *Journal of Accounting, Auditing & Finance, 23*(4), 553–572.

Moody, M., Pany, K. J., & Reckers, P. M. J. (2006). Strong corporate governance and audit firm rotation: Effects on judges' litigation judgments. *Accounting Horizons, 20*(3), 253–270.

Moore, D. A., Tetlock, P. E., Tanlu, L., & Bazerman, M. H. (2006). Conflict of interest and the case of auditor independence: Moral seduction and strategic issue cycling. *Academy of Management Review, 31*(1), 10–29.

Myers, J. N., Myers, L. A., & Omer, T. C. (2003). Exploring the term of the auditor-client relationship and the quality of earnings: A case for mandatory auditor rotation? *The Accounting Review, 78*(3), 779–799.

Nawangsari, F. Y., & Iswajuni, I. (2019). The effects of auditor switching towards abnormal return in manufacturing company. *Asian Journal of Accounting Research, 4*(1), 157–168.

Nelson, M. W. (2006). Ameliorating conflicts of interest in auditing: Effects of recent reforms on auditors and their clients. *Academy of Management Review, 31*(1), 30–42.

Nichols, D. R., & Smith, D. B. (1983). Auditor credibility and auditor changes. *Journal of Accounting Research, 21*, 534–544.

Colegio de contadores de Chile, (2010). Normas de auditoría generalmente aceptadas en Chile.

Olazabal, A. M., & Almer, E. D. (2001). Independence and public perception: Why we need to care. *Journal of Accountancy, 191*(4), 69.

Patterson, E. R., Smith, J. R., & Tiras, S. L. (2019). The effects of auditor tenure on fraud and its detection. *The Accounting Review, 94*(5), 297–318.

Raiborn, C., Schorg, C. A., & Massoud, M. (2006). Should auditor rotation be mandatory? *Journal of Corporate Accounting & Finance, 17*(4), 37–49.

Reynolds, J. K., & Francis, J. R. (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal of Accounting and Economics, 30*(3), 375–400.

Sankaraguruswamy, S., & Whisenant, J. S. (2004). An empirical analysis of voluntarily supplied client-auditor realignment reasons. *Auditing: A Journal of Practice & Theory, 23*(1), 107–121.

Sayyar, H., Basiruddin, R., Rasid, S. Z., & Elhabib, M. A. (2015). The impact of audit quality on firm performance: Evidence from Malaysia. *Journal of Advanced Review on Scientific Research, 10*(1), 1–19.

Shu, S. Z. (2000). Auditor resignations: Clientele effects and legal liability. *Journal of Accounting and Economics, 29*(2), 173–205.

Smith, D. B. (1988). An investigation of securities and exchange commission regulation of auditor change disclosures: The case of accounting series release No. 165. *Journal of Accounting Research, 26*(1), 134–145.

Sori, Z., & Karbhari, Y. (2006). *Audit, non-audit services and auditor independence*. Universiti Putra Malaysia.

Wang, W., & Hefner, F. (2014). Clustering of shareholder annual meetings: a 'new anomaly' in stock returns. *Applied Financial Economics, 24*(16), 1103–1110.
Wang, K. J., & Tuttle, B. M. (2009). The impact of auditor rotation on auditor–client negotiation. *Accounting, Organizations and Society, 34*(2), 222–243.
Wells, D. W., & Loudder, M. L. (1997). The market effects of auditor resignations. *Auditing: A Journal of Practice & Theory*, *16*(1), 138–144.
Whisenant, J. S., Sankaraguruswamy, S., & Raghunandan, K. (2003). Market reactions to disclosure of reportable events. *Auditing: A Journal of Practice & Theory, 22*(1), 181–194.
Whisenant, W. S. (2006). An analysis of the information content of auditor change announcements: Grant Thornton LLP engagements. Grant Thornton Commentary Series, Volume 1, Number 1
Wooldridge, J. M. (2019). Correlated random effects models with unbalanced panels. *Journal of Econometrics, 211*(1), 137–150.