Effects of Opting Out from Public Markets: The Case of Türkiye

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Abstract: This study analyzes how delisting companies' short-run and long-run stock returns are determined using a sample of Turkish companies delisted between 2010 and 2022. First, we separate delisting companies into voluntary and compulsorily delisting. The positive buy-and-hold returns of voluntarily delisted companies outweigh the negative returns of compulsorily delisted companies. As a result, delistings positively impact the overall financial market in the long term. We show that audit opinions or going-concern modifications do not affect short- and long-run returns. Long-run returns of delisting companies depend on firms' internal liquidity and partially on firm size.

Keywords: Independent audit reports, delisted firms, audit opinions, going-concern modifications, buy-and-hold abnormal returns.

Subject classification codes: G33, G34, M42

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1. Introduction

This study examines the long-run market reactions to voluntary and compulsory delistings and the determinants of voluntary delistings in Borsa Istanbul (BIST). Delisting terminates a listed company's relationship with the stock exchange (Martinez & Serve, 2017). Failure to adequately compensate investors during the opting-out process may result in financial loss for the investors. Thus, delisting from an exchange market is perceived as an adverse event and is intimidating for many investors. This negative feeling does not mislead investors, as previous literature shows there is no legal protection for investors in compulsory delisting (Daniswara & Purwanto, 2022).

The type of delisting — voluntary or compulsory —determines the consequences of delisting. Voluntary delisting refers to a company's initiative to be removed from the stock exchange and is often called a "going private transaction" (Martinez & Serve, 2017). Compulsory or involuntary delisting refers to a firm being disqualified from the stock exchange by regulators due to a breach of regulations (Kashefi Pour & Lasfer, 2013) or during the bankruptcy or liquidation process (Macey et al., 2008; Martinez & Serve, 2017).

Since the long-run market reaction occurs before the news of opting out, we examine the factors most prominently related to it. Following the earlier literature, we examined the relationship between short-term returns and delisting to determine if our dataset yielded similar results. We then tested whether corporate-level financial variables, audit announcements, and going-concern modifications impact long-term returns. Our findings reveal that only financial ratios effectively determine this relationship.

This study makes several contributions to the infrequent literature on delistings. First, the market reacts positively to voluntary delistings in the long run. Firms that voluntarily delist have financial performance that outperforms their industry peers, and their annual returns are

higher. This is a new finding, as earlier literature documents that their returns deteriorate before delisting (Bajo et al., 2013; Kashefi Pour & Lasfer, 2013; Leuz et al., 2008; Marosi & Massoud, 2007; Renneboog et al., 2007; Weir et al., 2008). Our findings suggest that these companies will perform better when privately held. Moreover, the overall market reaction is positive when we combine the effects of voluntarily and compulsorily delisted companies. This finding suggests that delistings may enhance market efficiency by eliminating redundant costs associated with being public. Taking some companies private can create a more efficient market.

Second, we extend the information content of market reaction to company news to all delisting companies. The information content of companies compulsorily delisted differs from that of companies voluntarily delisted. Investors react differently, and as a result, short-term market returns differ between voluntarily and compulsorily delisted firms. We demonstrate that the short-run stock returns of voluntarily delisted companies increase around other corporate announcements, such as block stock sales, dividend distributions, and earnings announcements. In contrast, the stock returns of compulsorily delisted companies decline in the vicinity of other corporate announcements. Neither type of delisting firm reacts to audit report announcements and going-concern modifications. This study verifies that investors of compulsorily and voluntarily delisted companies are aware of the company prospects much earlier than the audit report is announced; as a result, the audit report attests to what investors already know about the company.

Third, we demonstrate that long-term market reactions follow the same trajectory as short-term reactions. The long-run market performance of delisting companies depends on the firm's financial performance. News about audit reports and going-concern modifications is unimportant, whereas company fundamental ratios determine the long-term returns of delisted

companies. The most important determinant of long-run returns is the liquidity of delisting firms.

Fourth, this study contributes to the literature on the stock market in emerging markets by providing information about delistings in Türkiye. Delistings are rare in Türkiye and typically occur in specific years. The average ratio of delisted companies to listed companies is less than two percent, and the number of IPOs to delisted firms is higher than seven for the analysis period. As a result, the stock market grows steadily. The delisting of companies helps improve market efficiency.

We drive our results from a sample of delisted companies from Borsa Istanbul (BIST) between 2010 and 2022. We show that the voluntarily delisted companies' financial performance for the last two years is at the topmost. The market reaction to these stocks is very positive, so the abnormal stock returns are expected to outperform those of publicly traded peers. Investors earn more than 870% two-year buy-and-hold abnormal returns when they invest in these companies, while publicly traded industry peers earn 721% for the same holding period. These companies typically make stock repurchases before delisting, and nearly all of these repurchases are profitable for investors.

On the other hand, compulsorily delisted firms deliver negative returns, with a -89% return for the two-year buy-and-hold period. In the same period, their publicly traded industry peers earned 649%. Some companies perform stock repurchases so that their investors may recover some losses. However, this is not a widespread practice because of these companies' dire financial conditions.

The second step of the analysis involves multiple regressions to understand the factors driving lower abnormal returns for voluntarily delisted companies. The results indicate that the company's liquidity is significantly related to its long-run returns; size may also be a related

factor. When financial ratios are considered, a spurious positive relationship between audit opinions and long-run returns disappears. A likely reason behind the spurious correlations is that audit opinions and the financial soundness of companies are often parallel, as audit reports convey duplicate information content as financial variables.

The remainder of the paper is organized as follows. The second section reviews related literature on delisting, announcements of audit reports, and going-concern modifications of audit reports worldwide and in Türkiye and introduces the hypotheses. The third section describes the data, and the fourth presents the methodologies used in the analyses. The fifth section provides the empirical results of the study. The last section is the conclusion.

2. Literature Review and Hypotheses Development

Compulsory delisting refers to the enforcement of exchange markets on listed companies to leave the market due to regulatory requirements, such as delinquency in listing requirements (Kashefi Pour & Lasfer, 2013) or financial distress, bankruptcy, financial restructuring, or liquidation of the firm (Macey *et al.,* 2008). In this sense, the corporation's management cannot help with the situation, but the delisting is likely a consequence of a series of managerial decisions (Macey *et al.,* 2008). Evidence indicates that the probability of delisting is related to the characteristics of the board of management and the firm’s financial conditions (Charitou et al., 2007).

Voluntary delisting can have various reasons. A widespread cause is mergers and acquisitions. Other strategic reasons, such as increased savings through downsizing or avoiding stock market fees and avoiding disclosures, can cause firms to opt out of the stock market willingly. Similar to firms having a tradeoff between the costs and benefits of going public in the first place, the firms considering an opt-out face a reverse tradeoff (Bharath & Dittmar, 2010). Firms decide to go private when the costs of being public exceed their benefits. This

type of delisting is referred to as “delisting” (Martinez & Serve, 2017). "Going dark" refers to the process of delisting when companies buy back shares and trade on over-the-counter markets instead of going private (Leuz *et al.,* 2008).

The ownership structure of the delisted company becomes more concentrated after delisting, and owners no longer prefer being listed in a “going private transaction.” The literature examines two types of going private transactions. If a private equity company is involved in the takeover process and borrowed funds provide the funding, the transaction is referred to as a leveraged buyout (LBO) transaction. If the company has concentrated ownership and the controlling shareholder initiates the delisting, this going-private transaction is referred to as a minority freeze-out (DeAngelo *et al.*, 1984). Sometimes, dominant shareholders increase the number of their shares through a public takeover bid before the freeze-out to ensure they have a sufficient number of shares for a delisting decision, known as a management buy-out (MBO) (Martinez & Serve, 2017).

There are three streams of empirical research on delisting (Fidanza, 2022). The first one examines the decision to go private and its determinants. Several studies find that the decision to go private is linked to companies' financial structure and performance characteristics, and various financial ratios are linked to the decision to go private in different jurisdictions, such as the U.S. (Bharath & Dittmar, 2010; Kim & Lyn, 1991; Lehn & Poulsen, 1989), the U.K. (Aslan & Kumar, 2011), Germany (Michelsen & Klein, 2011), Brazil (Bortolon & Junior, 2015), and in Türkiye (Avci, 2024). These studies usually use probabilistic models to determine the factors affecting going private. Avci (2024) finds that high financial investments, leverage, tangibility, size, and low R&D expenses are common characteristics of firms going private in Türkiye.

The second stream analyzes the reasons behind compulsory delisting (Charitou et al., 2007; Eisdorfer, 2008; Gao et al., 2017; Griffin & Lemmon, 2002; Harris et al., 2008; Kwashie

& Kim, 2020; Algebaly et al., 2014; Malik et al., 2014; Panchapagesan & Werner, 2004; Park et al., 2014; Park et al., 2018; Sanger & Peterson, 1990). These studies usually focus on short-term cumulative abnormal returns, and they all find negative abnormal returns around the delisting announcement.

The third stream examines the effects of voluntary delistings on firm value (Andres et al., 2007; Bajo et al., 2013; Boubaker et al., 2014; Croci & Giudice, 2014; Geranio & Zanotti, 2012; Kaplan, 1989a, 1989b; Leuz et al., 2008; Marosi & Massoud, 2007; Renneboog et al., 2007). These studies usually focus on the cumulative abnormal returns around delisting announcements, usually finding positive returns, and they search for the determinants of positive abnormal returns.

2.1.Regulations about Delisting in Türkiye

The Declaration of Capital Markets Board of Türkiye II-16.1 regulates delisting in Türkiye. The declaration classifies reasons to delist under five categories, which can be summarized as follows: a) shareholders want to delist because the costs of being public exceed benefits, b) the company will be a party in a merger or acquisition transaction, c) the company will downsize, d) the company has less than 5% float rate, e) the company has financial problems so that it cannot continue operations, cannot pay debts, or go bankrupt. A general assembly decision is required for all reasons to delist, except for the fourth one (d): If the float rate of the stocks is less than 5%, the company can voluntarily delist with the board of directors' approval.

The reasons for delisting in Türkiye can also be categorized as voluntary and compulsory. We refer to the first four categories as "strategic reasons" because the company has a strategy to improve its current condition. The corporation typically aims to increase

efficiency and profitability by adopting a new approach. The last reason, financial distress, differs from the others: It is not a strategy but rather a forced condition that the company wants to avoid. A majority of financially distressed firms are delisted compulsorily. Some of them are delinquent in audited financial statements, and most go bankrupt around the time they are delisted.

2.2.Performance of Delisted Companies

The long-run market performance of compulsorily delisted companies is expected to be low because the long-run returns of financially distressed companies tend to decline (Gao et al., 2017; Griffin & Lemmon, 2002). The case of voluntarily delisting companies is more complicated. Management can provide discretionary protection to investors of voluntarily delisted companies through compensation. Nevertheless, there is evidence that the long-run returns of voluntarily delisted companies deteriorate approximately one year before the delisting (Bajo et al., 2013; Kashefi Pour & Lasfer, 2013; Leuz et al., 2008; Marosi & Massoud, 2007; Renneboog et al., 2007; Weir et al., 2008). There are adverse effects, primarily on minority shareholders, of voluntary delisting (Khort, 2014). These firms do not benefit from being listed and should not have come to the market in the first place (Kashefi Pour & Lasfer, 2013). However, if delisted companies are traded on over-the-counter markets, their losses are limited (Li et al., 2024).

The literature provides evidence that mid-run returns (up to 12 months) of financially distressed companies drop significantly before the delisting (Gao et al., 2017; Griffin & Lemmon, 2002; Park et al., 2014). This effect remains consistent, even though the stock prices of financially distressed companies are overpriced in the short term (Gao *et al.*, 2017). The mid-run returns of these companies fluctuate, especially around earnings announcements (Griffin &

Lemmon, 2002). The buyers of compulsorily delisted companies are typically domestic individuals, while the sellers are often foreign individuals and domestic institutional investors in the Korean Stock market. This shows a wealth transfer from individual investors to large shareholders (Park *et al.*, 2014). While compulsory delisting is disruptive in Japan, insiders do not leave the firm before delisting (Park et al., 2018).

Using these studies as a background, we hypothesize that the long-term financial performance of compulsorily delisted companies in Türkiye drops significantly. We also expect the long-run financial performance of voluntarily delisted companies to decline shortly before they are delisted. The price drop for voluntarily delisted companies will be less than that for compulsorily delisted companies.

H1: The long-run financial performance of all delisting companies drops.

H2: The long-term financial performance of voluntarily delisted companies is superior to that of compulsorily delisted companies.

2.3.Information Content of Audit Reports

This section reviews related studies investigating the information content of audit reports. First, we want to recap that there are four audit opinions under the International Auditing and Assurance Standards Boards (IAASB): Unqualified opinion, qualified opinion, adverse opinion, and disclaimer of opinion. If an audit report has an unqualified opinion, financial statements are presented fairly and free of material misstatements. A qualified opinion refers to a material but not a pervasive problem. The problem can originate from a deviation from the generally accepted accounting standards or scope limitations. Thus, it is not possible to collect direct audit evidence. If pervasive deviations from the generally accepted accounting standards exist, the auditor provides an adverse opinion. Last, a disclaimer of opinion is presented if the

auditor cannot obtain sufficient and appropriate audit evidence to base the opinion on or if there are undetected misstatements in financial statements that represent pervasive scope limitations.

The information content of audit reports has been studied in the literature for a long time. Holt and Moizer (1990) provide a structured research classification to outline this part of the literature. Their classification clusters studies into two groups: reaction and interpretation research. Interpretation research assumes that audit reports are essential for decision-makers. The authors focus on the meaning of messages in audit reports for various parties, including financial analysts, bankers, auditors, accountants, and shareholders. The employment of various methodologies and parties makes it impossible to compare the findings of different studies.

Reaction studies examine readers' reactions to the announcements of audit reports or opinions. In these studies, auditor opinions are categorized as either unmodified (positive) or modified (negative). Unmodified opinions are unqualified audit reports, while qualified, adverse, or disclaimer opinions are classified as modified opinions.[2] The effect of these differing opinions on the respondents' decisions and stock returns is investigated. Literature qualitatively inserts a positive relationship between modified audit reports and delistings (Raza et al., 2019). Reaction studies are partitioned into two sub-groups: market-based and experiment-based research. Market-based reaction studies employ an event-study analysis to examine stock price movements surrounding the announcements of independent audit reports (Ittonen, 2012). The findings of these studies provide ambiguous evidence. Some articles found that the announcements of audit reports or special disclosures do not have a significant impact on stock returns (Al-Thuneibat et al., 2008; Ameen et al., 1994; Baskin, 1972; Chow & Rice, 1982; Czernkowski et al., 2010; Martínez et al., 2004; Ogneva & Subramanyam, 2007; Shevlin & Whittred, 1984; Tahinakis et al., 2010; Wang & Campbell, 2010). On the other hand, other

[2] This classification is used in the literature but is not defined in the International Auditing Standards 570 (Revised)-Going Concern.

studies show that modifications of opinion in the independent audit report have adverse and significant effects on the stock price (Chen et al., 2009; Dodd et al., 1984; Dopuch et al., 1987; Firth, 1978; Ianniello & Galloppo, 2015; Loudder et al., 1992; Pei & Hamill, 2013; Soltani, 2000; Taffler et al., 2004).

Most studies conducted on BIST fall into the market-based reaction studies group. Akin to the international evidence, findings are ambiguous. Aygören & Uyar (2007) investigate the impact of audit reports on Borsa Istanbul stock returns. To test their hypothesis, the authors obtained audit reports of 101 randomly selected companies traded from 2004 to 2005. Using an event-study analysis, they find that investors obtain abnormal returns around the announcements of audit reports. Their results indicate that investors experience significantly negative abnormal returns following the announcement of qualified audit opinions and obtain both positive and negative returns following unqualified audit opinions. Kara (2015) analyzes the effect of audit opinions on stock returns of 88 non-financial companies listed on BIST during the sample period of 2009-2014. The results show that investors can earn abnormal returns from companies with unqualified audit opinions. Abnormal returns to companies with qualified audit opinions are negative. On the contrary, Kelten & Sarıtaş (2020) find that investors can earn positive and significant abnormal returns from qualified and unqualified audit opinions. They test whether the announcement of audit reports affects the stock returns of companies traded on the BIST100 from 2014 to 2018. The results indicate that investors can earn abnormal returns both before and after the announcement of audit reports. Last, Sağım and Reis (2020) investigated the effect of audit reports on the stock returns of 17 companies listed on the BIST from 2009 to 2018. They test if stock prices change around the announcements of 612 audit reports. Their results indicate that audit reports do not significantly impact stock returns.

Based on the studies above, we expect that going concern modifications mitigate the stock prices of delisted companies. Thus, we hypothesize that:

H3: The stock market's reaction to going concern modifications is adverse.

The second sub-group, experiment-based reaction studies, employs survey-based analysis to measure the effect of independent audit reports on investment or credit valuation decisions. For this purpose, decision-makers are asked hypothetical questions requiring independent audit reports, such as evaluating the company's credit exposures or whether they would keep their investments. The findings of these studies are also ambiguous. Some studies find that a qualified opinion is not significantly crucial for decision-makers (Bailey, 1981; Houghton, 1983; Lin et al., 2003). On the contrary, some studies have found significant adverse effects on financial decisions (Duréndez Gómez-Guillamón, 2003; Gul, 1990; Holt & Moizer, 1990; Libby, 1979; Sormunen, 2014). Managers usually emphasize the importance of audit reports in these studies. However, some managers believe that the information content of audit reports is absorbed before the reports are made available to the public.

One experiment-based research study was conducted on the Turkish market. Karkacıer & Ertaş (2017) investigate the impact of audit opinions on the decisions of institutional investors. They apply a questionnaire to the managers of 118 banks, brokerage houses, and investment companies to examine whether their choices are affected by any independent audit practices and results. The questionnaire findings reveal that, although this is not the case for all institutional investors, audit reports are helpful when evaluated together with the audited financial statements and thereby influence the decisions of institutional investors.

Several factors are essential in survey-based reaction studies. Examples include the relationship between decision-makers and the firm, the characteristics of the audit company, whether the audit report is a summary or a detailed report, or how decision-makers are affected

by different reporting styles (Hatherly *et al.,* 1991). The type of decision to be made impacts the participants: a decision to grant credit or buy company stock is unequally affected by a modification in the audit report. The same participant would easily grant a credit; in contrast, they avoid purchasing company stock for their portfolio because they believe the modified report would not affect the company's credibility, and it would likely shrink stock prices. Another factor affecting the decisions is the company's long-run financial situation. Participants are less sensitive to the audit opinion if the company is in financial distress for an extended period. However, if the company's financial situation is sound, a modification in the audit opinion would likely have a negative impact on the decision (Bessell *et al.*, 2003). Last, the change in direction in the audit opinion also affects the decision-makers. If the audit opinion abates, it hurts the decisions. If the audit opinion improves, its effect is insignificant (Fleak & Wilson, 1994).

3. Dataset

This study examines the valuation effects of audit reports on firms' common stocks using a sample of delisted companies from BIST between 2010 and 2022. Delisted companies were hand-collected from the Capital Markets Board of Türkiye and Public Disclosure Platform websites and merged. The final list has 88 delisted firms in the 13-year analysis period.

Next, we manually categorize the BIST announcements of the sample firms based on the reasons for delisting. We searched firms and news websites online if the announcements did not state the reasons for delisting. At the end of this analysis, we identified 44 compulsorily delisted and 44 voluntarily delisted companies. 26 voluntarily delisted companies were parties to a merger, and the others were delisted for other strategic reasons.

We compare the number of firms delisted and those newly entering the stock exchange to understand the dynamics of entrance and exit. The first vertical axis of Figure 1 presents the

total number of IPOs and delisted firms each year in the analysis period. The total number of firms delisted is less than the number of IPOs in many years. However, the number of firms delisted exceeds the number of IPOs for 2015-2017 and 2020. This finding contradicts the findings in other emerging economies, as many of these economies experienced a wave of delisting between 2008 and 2014 (Liao, 2020). The number of IPOs exceeded 30 in the last two years. The secondary vertical axis of Figure 1 displays the net number of firms traded in BIST each year. The number increases yearly because the total number of entrances exceeds the total number of exits in the analysis period.

[Please insert Figure 1 here]

Figure 1 illustrates a negative correlation between the number of IPOs and delistings: the number of IPOs declines as there is a trend of increasing delistings. During the sample period, the average number of IPOs to the total number of shares traded was 4.80%, while the number of delisted firms to the total number of shares traded was 1.83%. The number of firms traded increased from 268 to 462 in this period. The total number of shares traded was obtained from EquityRT, and the number of IPOs was obtained from the Capital Markets Board of Türkiye's website.

Figure 2 illustrates the number of companies delisted annually. The blue bars represent the total number of delisted firms, while the red bars represent the number of compulsorily delisted companies. Compulsory delisting equals half of the sample for the entire analysis period and concentrates (constitutes more than half of the total delisted companies) in 2013 and 2016-2018. No firms were delisted in 2010 and 2022, and delistings increased after 2013. There was a declining trend after 2016; however, delistings peaked in 2020.

[Please insert Figure 2 here]

Figure 3 categorizes the number of firms delisted per company age. Age is computed as the difference between the year of delisting and the year of foundation. Most delisted companies are relatively young. A majority of delistings are realized by companies younger than 30 years. Similarly, younger companies are more frequently subject to compulsory delisting. Compulsorily delisted companies constitute over half of the companies younger than 40. The total number of companies delisted, and the total number of compulsorily delisted companies mitigate the effect of older company age. No companies older than 80 years are compulsorily delisted.

[Please insert Figure 3 here]

Figure 4 categorizes the firms delisted by the years they were listed on the Stock Exchange. Borsa Istanbul was founded in 1986. As a result, companies are listed at most 35 years as of 2022. Most companies were delisted before they spent 30 years on the Stock Exchange. Only ten companies stayed for more than 30 years, and all of these companies were voluntarily delisted. We observe a negative relationship between the number of voluntarily and compulsorily delisted companies in years. The number of compulsorily delisted companies reduces, whereas the number of voluntarily delisted companies increases as they spend more time quoted to the stock exchange.

[Please insert Figure 4 here]

Figure 5 displays the number of delisted companies per sector. Most of the delisted companies operate in the financial industry. The financial companies in our sample consisted of four banks, fifteen holdings, three insurance companies, four investment trusts, two real estate companies, and one venture capital firm. The food, construction, transportation, and telecommunication sectors were the only sectors compulsorily delisted, in addition to one bank, one real estate company, one venture capital company, and twelve holdings. Education, health

services, and non-metallic mineral products companies were only voluntarily delisted. More than half of the companies in chemicals, petroleum and plastics, financial institutions, and textiles are compulsorily delisted.

[Please insert Figure 5 here]

Financial data, including daily closing prices for each company and the BIST100 index prices, are obtained from EquityRT. Using the daily prices, we computed abnormal buy-and-hold returns (BHARs) around the delisting dates and cumulative abnormal returns (CARs) around the announcement dates of the audit reports. We obtained audit reports and their announcement dates on the Public Disclosure Platform.[3]

The financial data include total assets, total debt, net income, property, plant and equipment, inventory, short-term debt, and each company's market capitalization at the end of each year. Using the financial data available one year before the delisting, we computed the leverage ratio (*LEV*), return on assets (*ROA*), liquidity ratio (*LIQ*), and tangibility ratio (*TANG*) as control variables in the regression analysis. We also employ market capitalization (*MARCAP*) as a control variable. *LEV* is the company's leverage ratio, calculated as total liabilities divided by total assets. *ROA* is the return on assets calculated by dividing net income by total assets. *LIQ* is the liquidity ratio calculated by subtracting total assets and inventory from short-term liabilities. *TANG* is the tangibility ratio calculated by dividing property, plant, and equipment by total assets. *MARCAP* is the natural logarithm of the market capitalization as of the last trading day of the year before the delisting.

Table 1 summarizes the control variables used in the regression analysis. Panels A and B present the summary of control variables for the financially distressed companies and their

[3] https://www.kap.org.tr/en/bildirim-sorgu.

publicly traded peers. Public peers of financially distressed companies have remarkably better financial values. Their market value, return on assets, tangibility, and especially liquidity have higher ratios than those of financially distressed companies. Financially distressed companies typically exhibit negative returns on assets and a high leverage ratio, indicating operational and financial difficulties. Panels C and D present the summary of control variables for the companies delisted voluntarily and their publicly traded peers. The mean values are not significantly different, while voluntarily delisted firms have slightly better ratios than their publicly listed peers.

[Please insert Table 1 here]

4. Methodology

This study compares the financial performances of voluntarily and compulsorily delisted companies. To apply econometric tests, we calculate the daily adjusted returns of each share and the BIST 100 index using Equation (1).

$$R_{i,t} = \frac{P_{i,t} + DIV_{i,t}}{P_{i,t-1}} - 1 \qquad (1)$$

$R_{i,t}$ represents the adjusted daily return of stock *i* or BIST100 index on day *t*. $P_{i,t}$ is the closing price of stock *i* or the BIST100 index on day t, and $P_{i,t-1}$ represents the daily closing price of stock *i* or the BIST100 index on a previous trading day. $DIV_{i,t}$ represents the dividends, stock splits, capital increases, and other mechanical factors affecting daily prices from the price in firm i on day t.

To compare the long-run performance, we compute buy-and-hold abnormal returns (BHARs) following Barber & Lyon (1997) and Conrad & Kaul (1993). BHARs are calculated using the following equations:

$$BHAR_{i,t} = \prod_{t=1}^{n}(1 + R_{i,t}) - \prod_{t=1}^{n}(1 + R_{i,t} - \alpha - \beta . R_{M,t}) \quad (2)$$

$$BHAR = \sum_{i=1}^{n} BHAR_{i,t} \quad (3)$$

$BHAR_{i,t}$ is the buy-and-hold returns for stock *i* on day *t*. $R_{M,t}$ is the buy-and-hold return for the BIST100 index on day *t.* Equation (2) computes BHARs for every trading day in the holding period, and equation (3) cumulates these abnormal returns. We compute BHARs for the last two years preceding the delisting days (-500, 0). In addition, we also compute BHARs for the last five years preceding the delisting days (-1250, 0) and the last year preceding the delisting days (-250, 0) to demonstrate the robustness of long-run returns. The estimation periods are days (-751,-501), days(-1501,-1251), and days(-501,-251), respectively, for these event windows. We use a standard cross-sectional t-test and the Wilcoxon signed-rank Z-test to compute the statistical significance of the mean and median BHAR values, respectively.

Audit opinions of the voluntarily and compulsorily delisted companies are compared to those of their public peers. Peers are companies operating in the same industry, were public by the time of the delisting, and are still public as of 2022 year-end. If more than one peer is available, the one with the most similar total assets value to the delisted company is chosen.

Last, we use cross-section and nested regression analyses to determine the affective factors on the long-run abnormal returns. Audit opinions are revealed several weeks after the financial ratios; as a result, we expect that the audit opinions contain information from the financial ratios. A nested model helps to remove this effect from the audit opinions. We quantify the audit opinions by creating a new variable, *Audit_Note*. We assigned cardinal numbers to audit opinions: 2 is assigned to unqualified opinions, 1 is assigned to qualified opinions, and 0 is assigned to adverse opinions, disclaimer of opinions, and absence of audit reports. The exact value, 0, is assigned to the last group of going concern modifications because they are equivalently important; they all indicate material and pervasive misstatements. We run

the following cross-sectional regression in Equation (4) and the cross-sectional nested regression in Equations (5) and (6). These two models are used alternatively for various specifications.

$$BHAR_i = \alpha + \beta i.\ Audit\_Note + \theta_i.\ X_i + \gamma_i.\ Mod_i + \tau.\ FinDis_i + \rho.\ P_i + \varepsilon_i \quad (4)$$

$$Audit\_Note_i = \lambda + \theta_i.\ X_i + \delta_i + \sigma_t + \omega_i \quad (5)$$

$$BHAR_i = \alpha + \beta i.\ \omega_i + \gamma_i.\ Mod_i + \tau.\ FinDis_i + \rho.\ P_i + \varepsilon_i \quad (6)$$

$BHAR_i$ is the 2-year BHAR of each company. $Audit\_Note_i$ is the ultimate year audit note, where i represents each stock. X_{t-1} represents the values of control variables available one year before the delisting. The *Mod* is a dummy variable that equals 1 if the going concern modifications occurred within the last two years before delisting; 0 otherwise. *FinDis* is a dummy variable that equals 1 if the firm delisted due to financial reasons and 0 otherwise. *P* is a dummy variable that equals 1 if the firm is a peer and 0 if the firm is a delisted company. δ and σ represent industry and year dummies, and ω is the regression residuals in the first step of the nested regression.

5. Empirical Findings

There is a substantial body of literature on market reactions to corporate announcements. The studies in this literature demonstrate that the stock market responds to significant company news, including earnings announcements, block sales, and dividend distributions (Ball & Brown, 1968; Beaver, 1968). To begin our study, we examined whether the stock market reaction diverges for two different types of delisting firms. Our tests verified this hypothesis. The details are explained in Appendix A.1. Our findings indicate that compulsorily delisted firms negatively react to all announcements. Voluntarily delisted firms exhibit positive reactions to earnings announcements and weak adverse reactions to other announcements.

Delisting firms do not typically react to going-concern modifications or the release of the penultimate audit report. They react negatively to releasing the ultimate audit report ten days after the announcement (late reaction). Based on these findings, we expect long-term returns will not react to audit opinions or going-concern modifications.

The following subsection compares the long-run stock returns of voluntarily and compulsorily delisted firms. The second subsection searches for the relationship between long-run abnormal stock returns and company fundamentals.

5.1.Long-Run Stock Returns Before Delisting

Table 2 compares the two-year buy-and-hold abnormal returns (BHARs) of compulsorily delisted companies, voluntarily delisted companies, and their publicly traded industry peers. Two-year BHARs of voluntarily delisted companies have a mean and median of 871% and 508%, respectively. Both values are significant at the 1% level. Firms that are compulsorily delisted have a mean of -89%, which is insignificant at conventional statistical levels. With a median value of -268 %, compulsorily delisted companies have remarkably lower BHARs than voluntarily delisted companies.

[Please insert Table 2 here]

A return gap exists between the compulsorily delisted companies and their public peers. The mean and median values of the BHARs of compulsorily delisted companies' public peers are 649% and 176%, respectively, which are significant at the 5% level. This difference shows that compulsorily delisted companies' financial conditions are significantly worse than their industry peers. The mean and median BHARs of voluntarily delisted companies (871% and 508%, respectively) are higher than their peers (721% and 324%, respectively). Additionally,

public peers of voluntarily delisted firms perform slightly better than those of compulsorily delisted firms, maybe due to weak inter-sectoral effects in both groups (Avci, 2021).

The indented rows under compulsorily delisted firms in Table 2 present the distribution of compulsorily delisted companies based on their penultimate annual audit opinions. Five companies with unqualified and 16 with qualified audit opinions were detected. The long-term returns of companies with unqualified and qualified audit opinions are not statistically different from zero. We have three companies with adverse opinions and 12 with disclaimers. These companies' mean and median BHARs are negative, large, and significant. Six companies did not disclose audited annual financial statements in their penultimate year. The mean and median BHARs of these stocks are negative but insignificant. These values indicate that the market is not sensitive to qualified and unqualified auditor opinions, as well as the absence of audit reports; however, it is negatively sensitive to adverse opinions and disclaimers of opinions.

Given that the mean and median BHARs of all delisted firms are positive and statistically significant, we can infer that delistings positively impact the financial system. The gain in the returns of voluntarily delisted companies outweighs the loss in the long-run returns of compulsorily delisted companies.

Figure 6 illustrates the buy-and-hold-noncumulative abnormal returns (ARs) of compulsorily-delisted stocks, voluntarily-delisted stocks, and their peers on a daily frequency. The difference between the long-run returns of different company groups is visible in this figure: The abnormal returns of compulsorily delisted companies are lower than those of all other companies.

[Please insert Figure 6 here]

We also compute five-year ARs and one-year ARs to provide longer-term and shorter-term visuals of abnormal stock returns. Figure A.2 in the appendix displays the ARs of compulsorily-delisted stocks versus voluntarily-delisted stocks and their public peers for the last five years before the delisting. The five-year difference in ARs is minor but still visible among the groups of stocks. However, the gap has enlarged in the last two years (between days -500 and 0). As a result, we focused our investigations on the previous two years. The jumps in ARs of compulsorily-delisted firms in the last months (between days 120 and 0) can be attributable to their earlier efforts to increase stock price through stock repurchases for a compulsory de-quotation by the stock exchange. However, it is noticeable that the returns of voluntarily delisted firms increase during this period, while the returns of the public peers of compulsorily delisted companies are very volatile.

Figure A.3 in the appendix illustrates the difference between one-year ARs of compulsorily-delisted firms and voluntarily-delisted firms along with their public peers. The difference is significant and monotonic in the last year. Moreover, there are more volatile movements in the prices of public peers of compulsorily delisted companies. The findings in Table 2, Figures 6, A.2, and A.3 support hypothesis 1 but not hypothesis 2: The long-run market performance of compulsorily delisted companies is significantly worse than that of voluntarily delisted companies. On the other hand, overall abnormal returns of delisting companies are positive because the increase in the abnormal returns of voluntarily delisting companies outweighs the low performance of compulsorily delisting companies. Thus, delisting has a value-increasing effect on the overall market.

5.2.Determinants of Delisting Firms' Long-Run Stock Returns

This section examines the determinants of long-run stock returns for delisted firms. Our analysis in Appendix A.1 shows that company announcements related to financial news impact short-

term abnormal returns. Announcements of audit reports, audit opinions, or going-concern modifications do not affect short-term stock returns. We ask if these factors influence long-term stock returns.

Before running a parametric test, we want to see the relationship between long-run stock returns and audit opinions. To achieve this, we conducted a hand search of independent audit reports for delisted companies over the last two years and categorized the audit opinions. Table 3 presents independent auditors' opinions of the delisted companies and their listed peers. Panel A of Table 3 presents the number of compulsorily delisted firms and their peers in each auditor opinion category. The first column shows the number of firms in the penultimate audit report. Only 15 firms are granted an unqualified opinion. 17 firms have qualified opinions, eight have disclaimers, and three have adverse opinions. Also, one firm abstains from disclosing the auditor's opinion. This column signposts problems in these firms' financial statements. The second column displays the number of compulsorily delisted firms in each auditor opinion category as reported in the ultimate audit report. As expected, the average opinion has worsened over the last year. The number of companies with unqualified opinions declines to six, and the number of firms with qualified opinions and disclaimers increases to 16 and 12, respectively. Moreover, the number of firms that do not disclose auditors' opinions increased to seven. These numbers reflect the decline in the financial quality of the companies that were compulsorily delisted last year.

[Please insert Table 3 here]

The last two columns display the number of peer companies of compulsorily delisted firms in each auditor opinion category in the penultimate and the ultimate audit reports, respectively. Most of the peer firms have unqualified auditor opinions. In contrast, a few companies have issues: Five and six have qualified opinions in the penultimate and ultimate

audit reports, and one firm has a disclaimer of opinion in both reports. Although the number of modified reports is limited, more than a few exist, suggesting an inter-sectoral problem among delisting firms.

Panel B of Table 3 replicates Panel A for voluntarily delisted firms and their public peers. All of the auditor reports of voluntarily delisted firms declare unqualified opinions. This outcome is better than the opinions of peer companies, which have two qualified opinions: the reliability of voluntarily delisted companies' financial statements is higher than that of peers.

Overall, Table 3 indicates that the financial reliability of compulsorily delisted companies is already low in the penultimate year and is further mitigated in the ultimate year. Thus, the increasing number of going-concern modifications in audit reports reflects changes in the firm's financial soundness. However, these results are suggestive and do not establish a statistically significant relationship.

Next, we parametrically test the relationship between long-term returns, financial variables, and audit report variables. The regression results for delisted companies and their public peers are presented in Table 4. The first column displays the univariate regression coefficient of *Audit_Note.* It has a significantly positive relationship with long-run stock returns. The second column adds financial distress, mod, and peer dummies to the model. The Audit Note remains significant at the 5% level, while FinDis and P are significant at the 10% level. Being a peer and being a compulsorily-delisted company has a marginally positive effect on long-run returns in the last year before the delisting.

[Please insert Table 4 here]

The third and fourth columns replace *Audit_Note* with *Residuals* (nested model). Residuals have a positive and significant effect on the long-run abnormal returns in the

univariate analysis; however, adding dummy variables reduces most of this significant effect. The coefficient of the *Residuals* is significant only at the 10% level.

The fifth column employs only fundamental variables. *MARCAP* and *LIQ* have a positive and significant relation with the long-run abnormal returns. Other financial variables have adverse but insignificant effects on long-run returns. Columns 6 and 7 add *Audit_Note* and *Residuals* to the model, respectively. Neither *Audit_Note* nor *Residuals* is significant in these specifications. The only significant variable is *LIQ*. Liquidity is the only factor determining long-run stock returns among delisted companies and their publicly traded peers. *MARCAP* is insignificant in the sixth column but marginally significant in the last one, indicating a weaker role of size on the ex-ante stock returns before opting out.

Our findings in Table 4 suggest that Audit_Note is correlated with long-run stock returns but does not directly influence them. The residuals of the regression between financial variables and the audit opinion also do not affect long-run returns. Liquidity is the only factor affecting long-run abnormal returns among delisted companies and their publicly traded peers.

6. Conclusion

This study seeks to answer three questions posed by hypotheses regarding the delisting of companies. The first question asks if long-run stock prices of delisting companies drop before the delisting. The answer to this question depends on why companies exit the stock exchange. If the company exits for a strategic reason, the stock price increases, and investors may earn more through stock buybacks just before the delisting. If the company exists compulsorily due to financial distress, the stock price falls significantly, piling a burden on investors. These findings verify our second hypothesis, suggesting that the financial performance of voluntarily delisted companies is better than that of compulsorily delisted companies.

The long-run returns of the entire delisting sample increase since the positive long-run returns of voluntarily delisted companies outweigh the negative returns of compulsorily delisted companies. This finding contradicts the first hypothesis, which suggests that the long-term financial performance of all delisted companies is negative.

The third question inquires whether going-concern modifications are associated with long-term returns. Our findings suggest that going-concern modifications do not significantly impact long-run stock returns. We also find that audit opinions are correlated with the financial condition of companies; however, audit opinions do not significantly influence the formation of long-run stock returns. Our findings support the hypothesis that claims audit opinions serve as an attestation of current market information, even in the long term. Thus, we do not find supporting evidence for our last hypothesis that suggests an adverse market reaction to going-concern modifications of delisting companies. Our findings indicate that a company's financial condition significantly determines long-run stock returns. Financial fundamentals, specifically liquidity, are essential in determining long-run stock returns.

Our findings provide valuable insights for investors, firms, regulators, and audit companies. Audit opinions or going-concern modifications in audit reports do not affect long-run returns. Audit opinions reflect the truth about a company’s well-being, but it may be too late to act based on them. To make audit reports more useful, audited firms and audit companies may collaborate to expedite the audit process, thereby making the audit opinion more timely. Regulators can take necessary steps to accelerate the audit process. With the new information technologies, faster and more accurate auditing is possible. Investors must make investment decisions based on financial fundamentals and corporate news. Since liquidity is the ultimate significant factor in our analysis, a stock with rumors about delisting is a good investment if it is highly liquid.

Return dynamics and factors influencing delisting in various countries can vary. For example, buy-and-hold abnormal returns of voluntarily delisting companies increase in Türkiye but decrease in the U.S.A. and the U.K. (Kashefi Pour & Lasfer, 2013; Leuz et al., 2008; Marosi & Massoud, 2007; Renneboog et al., 2007; Weir et al., 2008). Liquidity is a significant factor related to long-run returns in Türkiye but other factors are important in different countries. Future research can investigate the determinants of compulsory delisting in developed and emerging economies, separately or in pools.

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Figures

Figure 1: Number of IPOs and Number of Delisted Companies in BIST per Year

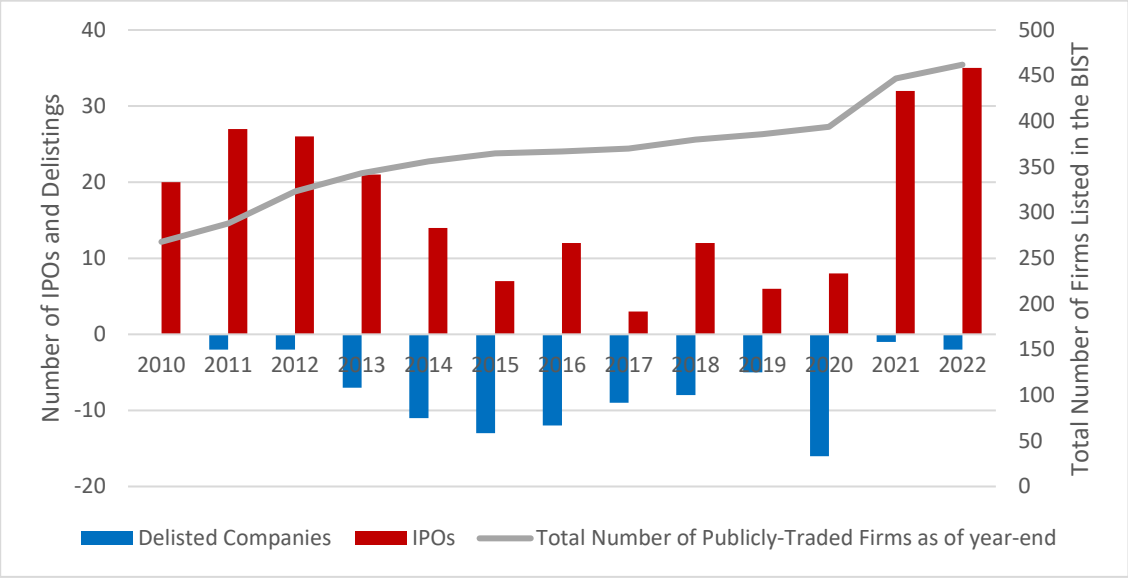


Figure 2: Number of Companies Delisted per Year

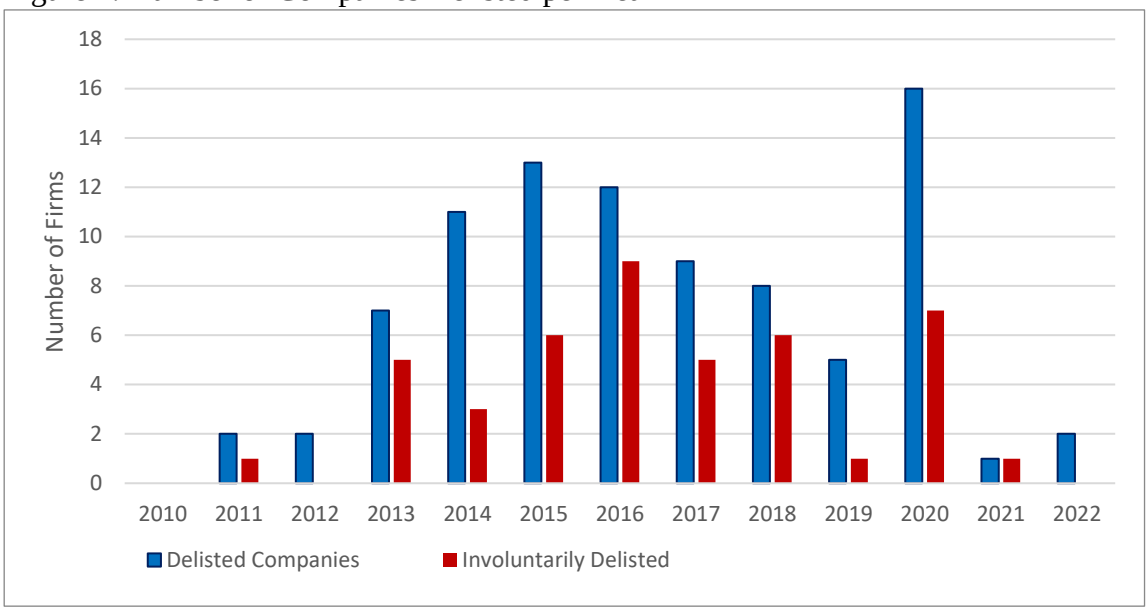


Figure 3: Number of Companies Delisted per Age

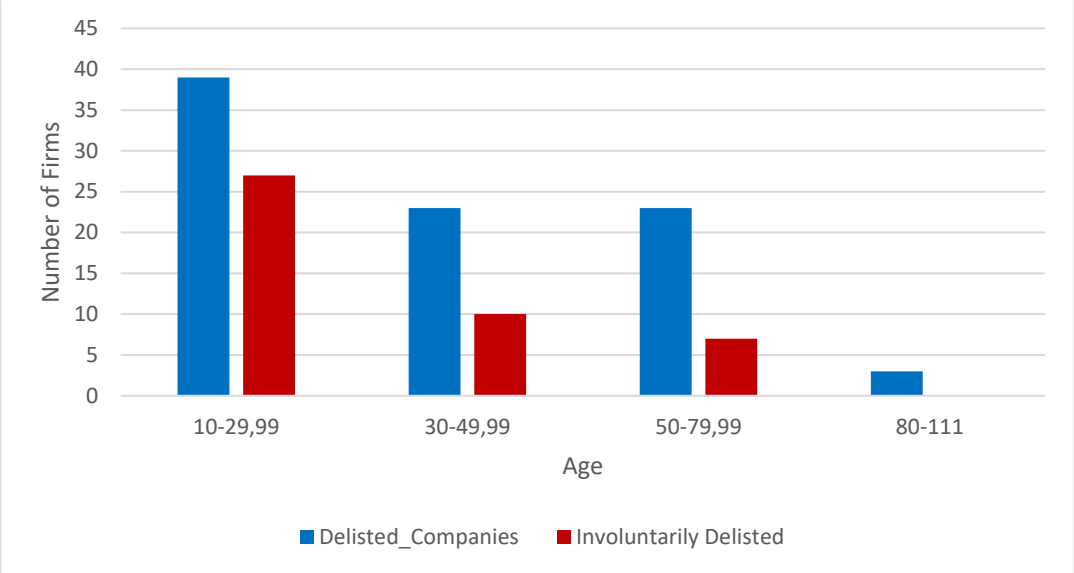


Figure 4: Number of Companies Delisted per Number of Years in the Stock Exchange

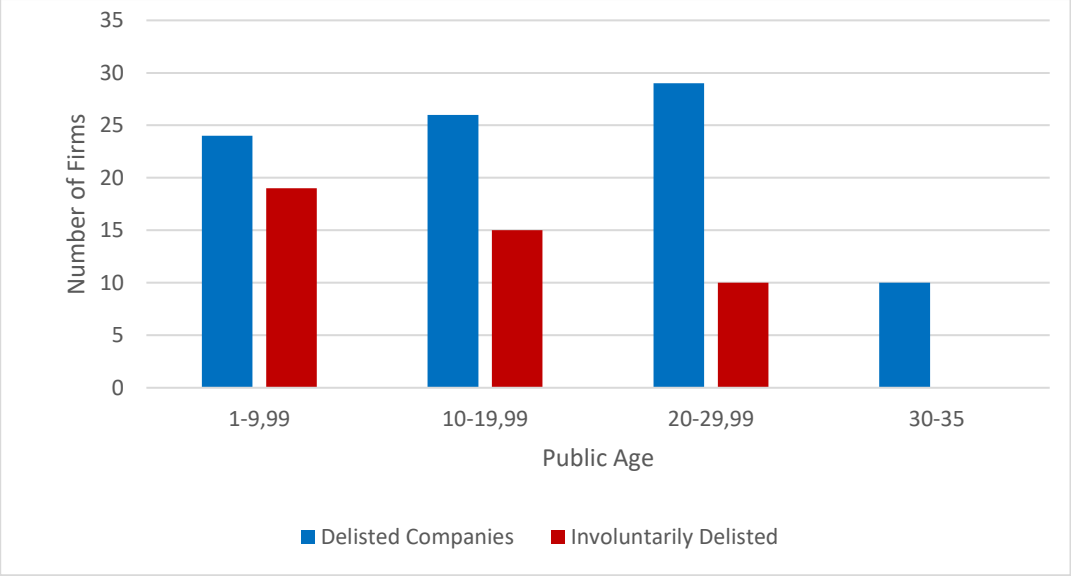


Figure 5: Number of Companies Delisted per Sector

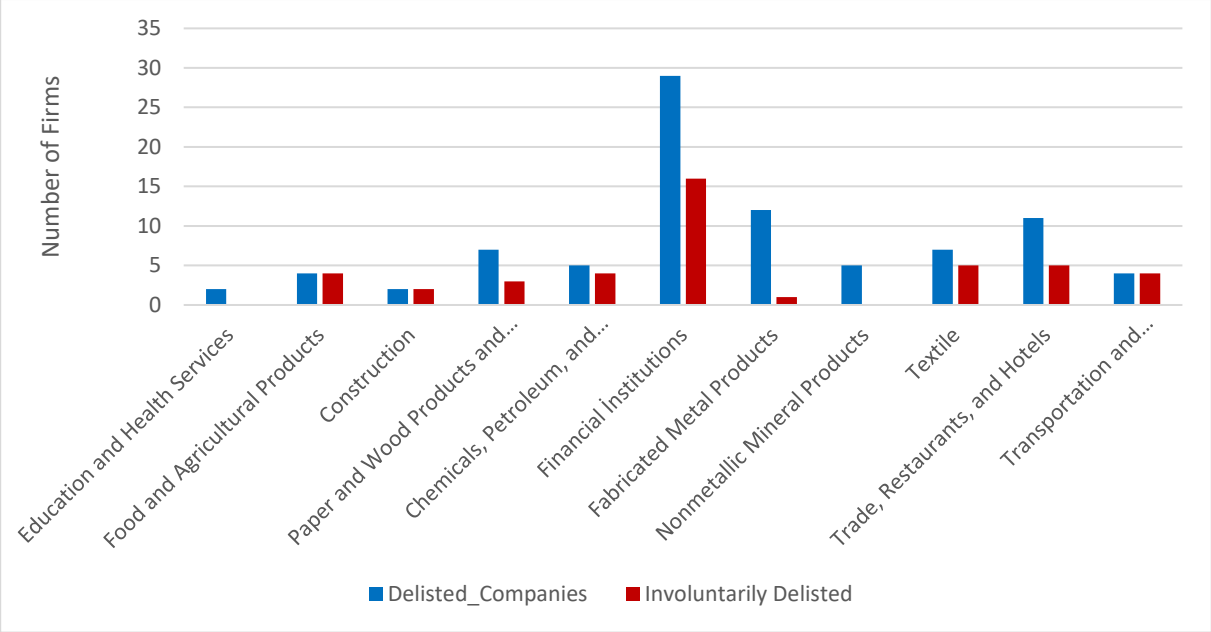
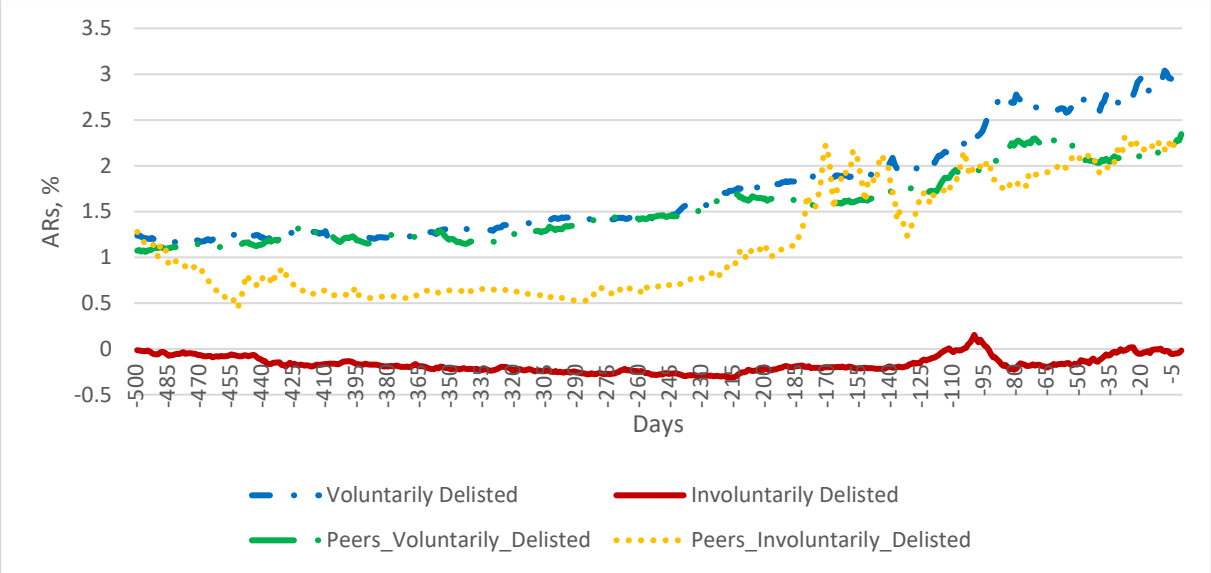


Figure 6: Two-Year Noncumulative Buy-and-Hold Abnormal Returns



Tables

Table 1: Cross-Sectional Descriptive Statistics of Control Variables

Variables	Obs	Mean	Std. Dev	Min.	Max.
Panel A: Financially Distressed Firms					
MARCAP	30	16.53	1.25	14.41	20.11
LEV	36	1.87	3.30	0.01	14.57
ROA	36	-0.32	0.95	-5.00	1.30
TANG	36	0.14	0.21	0.00	0.96
LIQ	36	6.21	20.26	0.07	123.00
Panel B: Public Peers of Financially Distressed Firms					
MARCAP	21	18.14	1.84	15.51	23.76
LEV	30	0.57	0.35	0.00	1.47
ROA	30	0.03	0.10	-0.15	0.23
TANG	30	0.26	0.26	0.00	0.76
LIQ	30	45.71	207.72	0.31	1142.58
Panel C: Firms Delisted due to Strategic Decisions					
MARCAP	36	20.33	1.67	16.96	24.87
LEV	33	0.52	0.30	0.00	1.06
ROA	33	0.01	0.07	-0.15	0.13
TANG	33	0.28	0.20	0.00	0.74
LIQ	33	30.17	106.21	0.62	597.33
Panel D: Public Peers of Firms Delisted due to Strategic Decisions					
MARCAP	32	19.96	1.91	16.33	23.35
LEV	33	0.49	0.30	0.00	0.98
ROA	33	0.03	0.09	-0.15	0.26
TANG	33	0.29	0.23	0.00	0.79
LIQ	33	26.54	55.95	0.82	216.83

This table presents summary statics of control variables for different company groups one year before the delistings. *MARCAP* is the natural logarithm of the market capitalization as of the last trading day of the year before the delisting. *LEV* is the company's leverage ratio, calculated as total liabilities divided by total assets. *ROA* is the return on assets calculated by net income divided by total assets. *TANG* is the tangibility ratio calculated by property, plant, and equipment divided by total assets. *LIQ* is the liquidity ratio calculated by the difference between total assets and inventory divided by short-term liabilities.

Table 2: Last Two-Year Buy-and-Hold Abnormal Returns of Delisted Companies

	N	Mean	Median	Std. Dev.	Min.	Max.
Voluntarily Delisted Firms	44	871.17***	508.40***	1082.71	-491.91	4166.56
		(5.34)	(4.81)			
Public Peers of Voluntarily Delisted Firms	38	721.44***	324.03***	1092.68	-406.52	4305.66
		(4.07)	(3.60)			
Involuntarily Delisted Firms	42	-89.03	-268.37***	474.04	-450.65	1601.91
		(-1.22)	(-2.83)			
Unqualified Opinion	5	157.86	-96.88	819.61	-352.10	1601.91
		(0.43)	(-0.67)			
Qualified Opinion	16	41.01	-206.58	542.34	-444.56	1597.08
		(0.30)	(-0.57)			
Adverse Opinion	3	-384.93***	-370.68*	59.88	-450.65	-333.47
		(-11.14)	(-1.60)			
Disclaimer of Opinion	12	-265.27***	-373.56***	216.08	-432.11	218.11
		(-4.25)	(-2.67)			
No Report	6	-141.16	-212.13	270.65	-400.62	198.78
		(-1.28)	(-1.15)			
Public Peers of Involuntarily Delisted Firms	32	648.75**	175.56**	1603.42	-465.96	6251.87
		(2.29)	(2.22)			
All Delisted Firms	86	402.23***	47.73**	966.70	-491.91	4166.56
		(3.86)	(2.19)			

This table presents the sample's last two-year buy-and-hold abnormal returns of delisted companies. Values in parenthesis are t-statistics and z-statistics for the mean and median values, respectively. *** p>0.01, ** p>0.05, * p>0.10.

Table 3: Independent Audit Opinions of Delisted Firms and Public Peers

Panel A: Involuntarily-Delisted Firms				
	Involuntarily-Delisted Firms		Industry Peers	
Independent Auditor's Opinion	Number of Firms with the Penultimate Audit Opinion	Number of Firms with the Ultimate Audit Opinion	Number of Firms with the Penultimate Audit Opinion	Number of Firms with the Ultimate Audit Opinion
Unqualified Opinion	15	6	38	37
Qualified Opinion	17	16	5	6
Disclaimer of Opinion	8	12	1	1
Adverse opinion	3	3	-	-
No Report Disclosed	1	7	-	-
	44	44	44	44
Panel B: Voluntarily-Delisted Firms				
	Voluntarily-Delisted Firms		Industry Peers	
Independent Auditor's Opinion	Number of Firms with the Penultimate Audit Opinion	Number of Firms with the Ultimate Audit Opinion	Number of Firms with the Penultimate Audit Opinion	Number of Firms with the Ultimate Audit Opinion
Unqualified Opinion	44	44	42	42
Qualified Opinion	-	-	2	2
Disclaimer of Opinion	-	-	-	-
Adverse opinion	-	-	-	-
No Report Disclosed	-	-	-	-
	44	44	44	44

This table presents the number of audit opinions of involuntarily-delisted firms, voluntarily-delisted firms, and publicly traded industry peers of these firms. The ultimate audit opinion is the last audit opinion before the delisting, and the penultimate audit opinion is the one before the last audit opinion.

Table 4: Determinants of Long-run Buy-and-Hold Abnormal Returns

VARIABLES	(1) BHAR	(2) BHAR	(3) BHAR	(4) BHAR	(5) BHAR	(6) BHAR	(7) BHAR
Audit_Note	426.04***	290.78**				165.37	
	(3.63)	(2.11)				(0.85)	
Residuals			569.45***	440.27*			98.13
			(2.88)	(1.87)			(0.38)
LEV					-48.98	-22.93	-28.47
					(-0.34)	(-0.15)	(-0.18)
ROA					-135.11	-230.29	-225.70
					(-0.61)	(-0.96)	(-0.94)
TANG					-417.45	-369.12	-398.92
					(-0.87)	(-0.74)	(-0.79)
MARCAP					192.00***	120.60	131.88*
					(3.59)	(1.66)	(1.70)
LIQ					1.83***	1.76***	1.77***
					(5.12)	(4.81)	(4.82)
Mod		-328.34		-432.60		-386.48	-335.27
		(-1.02)		(-1.10)		(-1.00)	(-0.86)
FinDis		515.83*		333.62		239.37	270.93
		(1.82)		(0.87)		(0.64)	(0.71)
P		417.28*		253.24		121.19	129.98
		(1.79)		(0.79)		(0.39)	(0.41)
Intercept	-197.12	-291.94	-464.12	-410.83	-3,027.73***	-2,092.92*	-2,199.14*
	(-0.99)	(-1.34)	(-1.36)	(-1.16)	(-3.10)	(-1.83)	(-1.88)
Observations	154	154	103	103	103	103	103
R2	0.08	0.13	0.08	0.11	0.29	0.31	0.31
Adjusted R2	0.07	0.11	0.07	0.08	0.25	0.24	0.24
F_statistics	13.15	5.63	8.32	3.13	7.89	4.63	4.54
Prob > F	0.00	0.00	0.00	0.02	0.00	165.37	0.00

This table presents the cross-section and the second step of nested regression coefficients defined in equations (4, 5, and 6) of all delisted companies and their public peers. The dependent variable is the two-year buy-and-hold abnormal returns (BHARs). *Audit_Note* is a cardinal variable that has the value of 2 if the auditor opinion is “unqualified," 1 if the auditor opinion is "qualified," and 0 if the auditor disclaims an opinion, provides an "adverse opinion," or if the company does not disclose an

independent audit report. *Residuals* represent the residual values of the regression in equation (5). All control variables belong to the penultimate year before delisting. *LEV* is the company's leverage ratio, calculated as total liabilities divided by total assets. *ROA* is the return on assets calculated by net income divided by total assets. *TANG* is the tangibility ratio calculated by property, plant, and equipment divided by total assets. *MARCAP* is the natural logarithm of the market capitalization as of the last trading day of the year before the delisting. *LIQ* is the liquidity ratio calculated by the difference between total assets and inventory divided by short-term liabilities. The *Mod* is a dummy variable that equals 1 if the going concern modifications occurred within the last two years before delisting; otherwise, 0. *FinDis* is a dummy variable that equals 1 if the firm delisted involuntarily; otherwise, it is 0. *P* is a dummy variable that equals 1 if the firm is a public peer of a delisting company; otherwise, 0. Values in parenthesis are t-statistics. *** p>0.01, ** p>0.05, * p>0.10.

Appendix 1: Short-Term Market Reaction of Delisting Companies to Important Corporate News

Earlier literature shows that the stock market reacts to corporate announcements such as earnings announcements and dividend distributions (Ball & Brown, 1968; Beaver, 1968). On the other hand, there is no consensus on how the stock market reacts to the information content of audit reports and going-concern modifications. Some studies find that audit report announcements do not have any effect on the stock price (Dodd et al., 1984); some find a positive impact (Guo et al., 2024; Sağlar & Gizer, 2023), while some find an adverse effect (Ianniello & Galloppo, 2015; Soltani, 2000). Some studies find that the stock market does not react to going concern modifications (Dodd et al., 1984; Herbohn et al., 2007) or reacts positively (Weber & Willenborg, 2003; Willenborg & McKeown, 2000). The time period of the analysis and the sample, especially the choice of the country, provide various results in these regards.

Using event study analysis, we test how the stock market reacts to corporate announcements of delisting firms. We compute cumulative abnormal returns (CARs) around the announcement dates following (Ball & Brown, 1968). CARs are calculated using the following equations:

$$R_{i,t} = \alpha + \beta . R_{M,t} + \varepsilon_{i,t} \quad (7)$$

$$CAR_{i,j} = \sum_{T_0}^{T_1} R_{i,t} - \alpha - \beta . R_{M,t} \quad (8)$$

$R_{M,t}$ represents the daily BIST100 index return as a proxy for market return on day t. T_0 is the start of the event period; T_1 is the last day of the event period. The event date is assumed to be the day(0), the announcement date of the audit report or other corporate news. Cumulative abnormal returns are computed on 3, 5, 11, and 21-day event windows. Event

windows are (-1,1) for three days, (-2,2) for five days, (-5,5) for 11 days, and (-10,10) for 21 days. The estimation window is 120 (days between -151 and -30) days. We use a standard cross-sectional t-test to compute the statistical significance of the null hypothesis of zero mean CAR values.

Dividend distribution news and block stock sales have a price-reducing effect on company stocks. The impact of earnings announcements on stock prices depends on what information they convey vis-à-vis what the market expects from these statements. If the information content of the financial statements is better than the expectations, stock prices should increase; otherwise, stock prices should decline. In the case of compulsorily-delisted companies, we expect stock prices to decline; for other companies, we expect an increase in stock prices.

Table A.1 presents the cumulative abnormal returns (CARs) of delisting companies around the important announcement and audit report dates. The Table presents CARs for three (-1,1), five (-2,2), eleven (-5,5), and 21 (-10,10) days around the stock events.

[Please insert Table A.1 here]

Panel A of Table A.1 displays CARs of delisting companies around dividend distributions, block sales, and earnings announcements. We expect a negative effect on the cumulative abnormal returns of stocks around these announcements. Panel A suggests that compulsorily delisted companies are negatively impacted by these announcements. The effects are significant up to five days, CAR(-2,2), around the announcements. For voluntarily delisted firms, the effect is not different from zero; voluntarily delisted companies are not affected by these news releases.

Voluntarily delisted companies may have insignificant CARs around news announcement dates because the positive market reaction to financial statements offsets the adverse market reaction to dividends and blocks sales reactions. To clarify this issue, Panel B of Table A.1 displays CARs around dividend distribution and block sales announcements only. The CARs of compulsorily-delisted firms are insignificant in this panel. Only CAR(-1,1) is significant at the 10% level and has a negative sign. On the other hand, CAR(-1,1) for the voluntarily-delisted companies is positive and significant at the 10% level. We conclude that earnings announcements are essential in determining short-term wealth effects: They are marginally negative for compulsorily-delisted companies and marginally positive for voluntarily-delisted companies for the three days around corporate announcements.

We compute CARs around the audit report release dates: Panel C of Table A.1 presents the CARs around the penultimate audit report. There is no market reaction to penultimate audit reports for the voluntarily-delisted and compulsorily-delisted firms; all coefficients are statistically insignificant for all event windows. Panel D presents the CARs around the ultimate audit report. Market reaction is adverse for the compulsorily delisted firms for all event periods. The reaction is significant only for the (-10,10) period. Similarly, market reaction to voluntarily delisted firms is insignificant for the concise term. CAR(-10,10) values are significant at the 1% level, indicating a late but strong adverse reaction to audit reports. Since audit reports of voluntarily-delisted companies have all unqualified opinions, this adverse effect in the last column can result from investor withdrawals because going private transactions are about to be realized.

Panel E presents the CARs around any going-concern modifications in the ultimate audit reports. This analysis is run only for compulsorily delisted companies since voluntarily delisted companies do not have modified audit opinions. Results show no market reaction to

the going concern modifications. Investors do not react when a financially distressed company has a new going-concern modification in the audit report.

The findings in this section show that corporate announcements cause stock market reactions in delisting companies. Block stock sales and dividend announcements cause adverse stock market reactions for all companies. Earnings announcements have positive stock market reactions for voluntarily delisted firms and negative reactions for compulsorily delisted firms. Since compulsorily delisting firms have bad financial prospects, the negative effect is not surprising.

There is no market reaction to the penultimate audit report release and going-concern modifications. There is a late and negative stock market reaction to the ultimate audit report for all delisting companies. Annual profits and dividends to be distributed are announced to the public weeks before the independent audit report. Even though the modifications are material, the stock price shrinks much earlier than the audit report date when the company announces negative news in the first place. This information about the company's financial situation is already informative and creates price movements. Explanations in the audit report do not make price movements because market participants know them in advance (Firth, 1978). This finding shows that the audit report is not the first party to reveal the company's deteriorating financial situation but confirms the situation (Herbohn *et al.*, 2007).

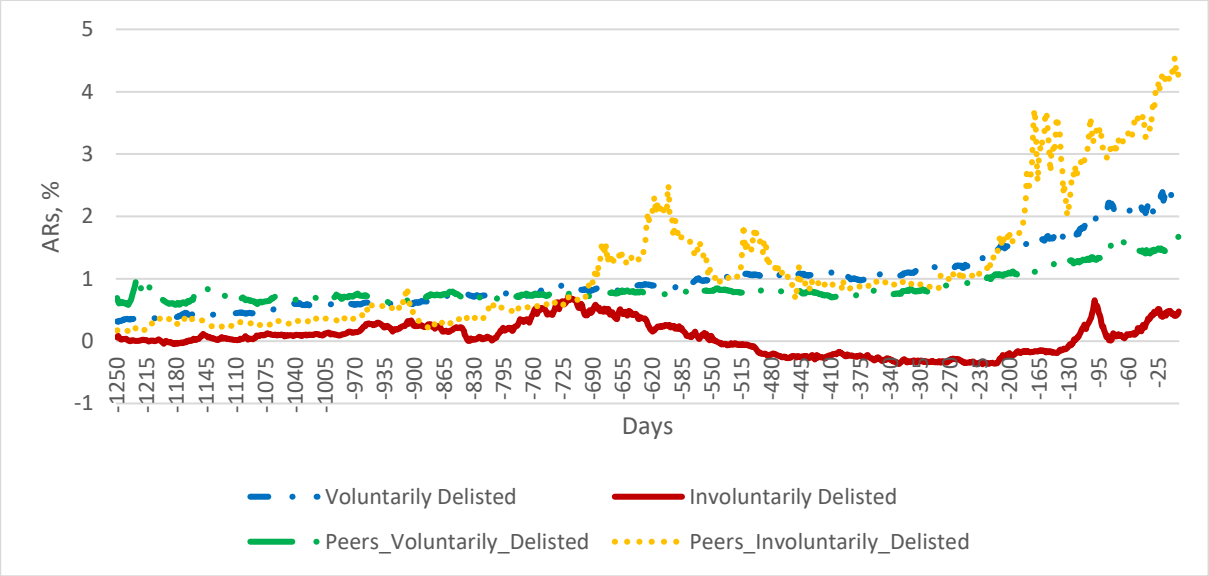
Table A.1: Cumulative Abnormal Returns around Important Events in Delisted Companies

	Compulsorily-Delisted Firms				Voluntarily-Delisted Firms			
	CAR(-1,1)	CAR(-2,2)	CAR(-5,5)	CAR(-10,10)	CAR(-1,1)	CAR(-2,2)	CAR(-5,5)	CAR(-10,10)
Panel A: Announcements of Dividend Distributions, Block Sales, and Earnings								
Number	172	172	172	172	257	257	257	257
Coefficient	-0.01**	-0.02**	-0.02	-0.03	0.00	0.00	-0.00	0.00
t-stat	(-2.52)	(-2.12)	(-1.27)	(-1.34)	(1.08)	(0.13)	(-0.19)	(0.35)
Panel B: Announcements of Dividend Distributions and Block Sales								
Number	62	62	62	62	115	115	115	115
Coefficient	-0.02*	-0.02	-0.03	-0.02	0.01*	0.00	0.00	0.00
t-stat	(-1.85)	(-1.41)	(-1.34)	(-0.63)	(1.65)	(0.06)	(0.42)	(0.18)
Panel C: Penultimate Audit Report								
Number	41	41	41	41	42	42	42	42
Coefficient	0.01	0.02	0.00	-0.01	0.01	0.03	0.01	0.00
t-stat	(0.53)	(0.91)	(-0.08)	(-0.31)	(0.90)	(1.29)	(0.36)	(0.05)
Panel D: Ultimate Audit Report								
Number	36	36	36	36	41	41	41	41
Coefficient	-0.01	-0.01	-0.05	-0.10***	0.01	0.00	-0.03	-0.05***
t-stat	(-0.63)	(-1.10)	(-1.64)	(-2.58)	(0.94)	(0.12)	(-1.63)	(-2.63)
Panel E: Opinion Abatement								
Number	36	36	36	36				
Coefficient	0.00	0.00	0.03	0.02				
t-stat	(-0.13)	(0.06)	(0.65)	(0.36)				

This table presents cumulative abnormal returns (CARs) around important corporate announcements of delisted companies. Panel A presents CARs around dividend distributions, block stock sales, and earnings announcements. Panel B presents CARs around dividend distributions and block stock sales only. Panels C and D present CARs around the release dates of the penultimate and ultimate audit report. Panel E presents CARs around going-concern modifications of audit reports.

Appendix 2: Five-Year Noncumulative BHARs

Figure A.2: Five-Year Noncumulative BHARs



Appendix 3: One-Year Noncumulative BHARs

Figure A.3: One-Year Noncumulative BHARs