Impacts of financial distress on CEO turnover of listed firms in Vietnam pre and post COVID-19

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Abstract

Determinants of on CEO turnover has drawn attention of both practitioners and academics in corporate governance field. Among those, the impacts of financial distress on CEO turnover has been extensively explored, yet it controversial due to varying contextual factors and inconsistent findings. This study examine this relationship within the unique context of Vietnam, an emerging market, over the period from 2017 to 2022. Employing a logit model, we investigate whether financial distress heightens the CEO turnover among listed Vietnamese firms and whether this effect intensified following the COVID-19 pandemic. Our empirical findings indicate that financial distress is positively associated with CEO turnover. Furthermore, the impact of financial distress on CEO turnover has become more pronounced in the post-pandemic period. These insights provide valuable implications for corporate governance, enabling senior executives and policymakers to make informed decisions regarding leadership transitions, especially in the crisis period like COVID-19.

Keywords: Financial distress, CEO turnover, COVID-19, Corporate governance, Emerging markets

1. Introduction

Financial distress, characterized by a firm's inability to fulfill financial obligations due to liquidity constraints or revenue instability, frequently leads to strategic interventions, including executive transitions (Opler and Titman, 1994; Al Ali et al., 2024). Empirical evidence demonstrates that financial distress enhances the likelihood of CEO turnover, as boards seek to signal remedial action to improve firms' performance (Kaplan and Minton, 2012; Dallocchio et al., 2022). Previous research, such as in the United States and Europe, reveals a tendency for distressed firms to appoint external CEOs to spearhead transformative strategies, a phenomenon grounded in agency and signaling theories (Schepker et al., 2017; Weisbach, 1988). However, some studies suggest that replacing leaders during challenging periods could increase

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instability, depending on the governance structure and broader economic environment (Salvi et al., 2024). These differences highlight the necessity for context-specific investigation, particularly in emerging markets where institutional environments diverge markedly from those in developed settings (Claessens and Yurtoglu, 2013).

CEO turnover in the crisis time has been examined in prior studies. (Sch afer, 2025) finds that the turnover-performance relation is weaker the more often the board has observed the CEO in past crises, and crisis performance reduces future dismissal risks more than boom performance. (Paik et al., 2024) investigate the impacts of product harm crises in the US and recognize that firms are more likely to replace their CEOs after issuing product recalls, especially for recalls that are proactive and that offer extensive corrective actions. Furthermore, firms with poor performance and with limited financial flexibility are more likely to dismiss their CEOs after product recalls. (Bunkanwanicha et al., 2022) when exploiting the Troubled Asset Relief Program (TARP) of 2008 find that TARP funds temporarily decreased the likelihood of bank CEO turnover during the crisis (2008–2010) but significantly increased CEO changes afterwards in the US. (Tian and Zhao, 2025) find a marked decrease in CEO turnover during the pandemic, indicating a preference for stable leadership during economic uncertainty. The analysis in China highlights a trend towards appointing internal successors, reflecting a strategic focus on continuity. Previous papers examined CEO turnover in different crises such as financial crisis, product ham crisis, bank bailout or COVID 19 pandemic and mostly in developed countries like the US, Korea or big economy like China. However, there has been lack of studies of CEO turnover in crisis in developing countries.

In period of crisis, the impacts of financial distress on CEO turnover have been investigated. (Hryckiewicz et al., 2025) find that a high-quality institutional environment and with powerful governments, government ownership in distressed institutions has a positive effect, manifesting in activism that leads to more frequent CEO turnover. (Lin and Liu, 2004) reveal that CEO turnover in bankrupt firms is positively associated with debtor-in-possession financing and there is a significant increase in managerial quality post-turnover. Further, the predictive power of CEO turnover is stronger in bankruptcy cases with greater uncertainty. (Zhang et al., 2024) find that when responding to the market competition, in non-exporting firms, CEO turnover is confined to firms with weak governance, high leverage, and in financial distress while it is not the same for exporting firms. (Guo et al., 2022) find that distressed firms increase CEO turnover. (Srivastav et al., 2017) reveal that there is probability of a forced CEO turnover in large banks is positively associated with idiosyncratic tail risk, which is strengthened the greater the competition in the banking industry and when stakeholders have more to lose in the case of distress. (Marshall et al., 2014) find that there ís a stronger relation between cash flow performance and forced CEO turnover for firms issuing bank debt during the year of CEO turnover than for firms not issuing bank debt, and bank debt issuance increases the likelihood of external CEO succession. The previous findings show that the importance of financial distress on CEO turnover and it depends on the environment, which emphasize the research in context, especially in emerging context. This study examines the relationship between financial distress and CEO turnover in Vietnam, an emerging market, across the pre and post COVID-19 periods from 2017 to 2022. Despite

Vietnam's growing integration into global financial systems, its corporate governance remains relatively underexplored compared to Western counterparts. Prior research in Vietnam has explored related aspects of financial distress and CEO turnover, predominantly focusing on firm-level attributes such as governance structures and financial outcomes. For instance, an evaluation of Vietnam's two-tier board structure revealed its influence on performance-driven CEO turnover (Tran et al., 2016). Financial distress across Vietnamese industries has been investigated mostly with research on methods to define suitable variables to measure financial distress in Vietnam context such as accounting-based approaches (Vu et al., 2023), accounting based combining with market variables (Loan et al., 2019) or in COVID19 context (Vu et al., 2023; Dao et al., 2024) or suitable models (Nguyen et al., 2024) Factors influencing financial distress in Vietnam include cashflow (Phan et al., 2022), corporate governance (To, 2025; Truong, 2022), firm performance (To, 2025; Dao et al., 2024). However, prior studies have not examined the impacts of financial distress and CEO turnover in a global crisis like COVID19. Our research bridges this gap, offering a contribution by exploring this relationship in an emerging market context.

The COVID-19 pandemic provides an intersting context of crisis to investigate this relationship, having amplified financial vulnerabilities globally and in Vietnam. Vietnam has a GDP growth declining to 3.8% in early 2020 from a pre-crisis projection of 6.5%, alongside the suspension of approximately 55,000 firms and a spike in bankruptcies in 2021 (Nguyen and Bui, 2021), [1]. This economic disruption, underscores the urgency of elucidating how financial distress influences leadership transitions (Shehzad et al., 2020).

Our sample includes 340 listed firms from the Ho Chi Minh Stock Exchange (HoSE) and Hanoi Stock Exchange (HNX), from 2017 to 2022 with 1723 firm-year observations. Financial distress is measured by Z-Score model for bankruptcy prediction in emerging markets (Altman, 2005; Laitinen and Suvas, 2016). We employ a logit regression to examine the association between financial distress and CEO turnover and a Difference-in-Differences (DiD) analysis to assess the pandemic impact across pre-COVID (2017–2019) and post-COVID (2020–2022) periods.

The results show a significant positive association between financial distress and CEO turnover, with this effect becoming stronger following the COVID-19 pandemic. The findings highlight financial distress as a key driver of leadership changes, with the pandemic amplifying governance responses to economic challenges. These insights contribute to understanding corporate governance dynamics in emerging markets, particularly under the uncertainty like COVID19 pandemic.

The findings have significant practical implications for stakeholders within Vietnam's corporate ecosystem. It reflects the governance responses to extraordinary economic pressures. Therefore, policymakers should strengthen governance frameworks to support firms in financial distress, possibly through tighter regulatory oversight during crises so that it can support the stability of management (Claessens and Yurtoglu, 2013). Investors may leverage these insights to evaluate leadership stability as a critical risk indicator, refining investment strategies in distressed entities (Baek et al., 2024). For CEOs, the study highlights

[1] NATIONAL STATISTICS OFFICE website: Statistical Yearbook of 2021

turnover risks and emphasizes the importance of proactive financial management and succession planning. Firms and boards of directors (BODs) gain a clearer understanding of leadership transitions as a strategic tool for mitigating distress, emphasizing the need for resilient governance mechanisms to balance continuity and reform (Kaplan and Minton, 2012). Collectively, these insights offer a roadmap for enhancing organizational robustness and economic recovery in emerging markets amid global crises.

This paper is organized as follows: Section 2 reviews the literature, Section 3 describes Vietnam's institutional context, Section 4 discuss research hypotheses, Section 5 explains the methodology, Section 6 presents the empirical results, Section 7 conducts robustness analyses, and Section 8 concludes with key findings and policy implications.

2. Literature review

2.1. Financial distress

Financial distress happens when individuals or firms find it challenging to pay their bills because of high fixed expenses, low liquidity, or revenue sensitivity to economic fluctuations (Al Ali et al., 2024). If financial distress is not resolved, the company will suffer bankruptcy.

Financial distress has a considerable impact on both firms and the economy (Opler and Titman, 1994). This internal conflict increases stock volatility and risk (Baek et al., 2024). Financial distress requires banks to change their capital structures to preserve stability and provide continued financial assistance to non-financial enterprises (da Rosa M unchen, 2022). Previous researchs has shown the controversial consequences of financial distress on corporate decision-making, demonstrating both negative and positive impacts. Financial distress harms firm performance, investment patterns, and stakeholder confidence, showing that it often leads to underinvestment due to limited capital, forced asset sales at low prices, rising bankruptcy costs, and key staff leaving (Opler and Titman, 1994; Myers, 1977; Andrade and Kaplan, 1998; Shleifer and Vishny, 1992).

Determinants of financial distress can be macroeconomics factors. Macroeconomic factors such as interest rates, GDP growth rates, and inflation all play an important influence. Deteriorating macroeconomic conditions can raise capital prices and lower consumer demand, increasing enterprises' chances of insolvency (Ben Jabeur et al., 2021). At firm level, corporate governance characteristics are essential factors. Having a small and independent board with a high ratio of women directors reduces the likelihood of financial distress while CEO duality does not have a significant impact on the likelihood of financial distress (García and Herrero, 2021). Firms facing these challenges often have weakened governance structures and an increased likelihood of CEO turnover as boards strive to restore investor confidence (Gilson, 1989; Denis and Denis, 1995). Despite its negative perception, financial distress can sometimes drive organizational improvement by enforcing discipline, reducing agency costs, optimizing resources, and eliminating inefficiencies (Jensen, 1989). Empirical evidence shows that some firms recover from distress with stronger performance due to strategic realignment and improved governance (Hotchkiss, 1995).

2.2. *CEO turnover*

CEOs play a crucial role in a company's operations, making CEO turnover a significant corporate event (Burns et al., 2023). Various factors influence CEO turnover, including corporate culture (Fiordelisi and Ricci, 2014), air pollution (Hao et al., 2023), governance structures institutional investors (Helwege et al., 2012), and individual characteristicssuch as managerial competence (Wang and He, 2024).

CEO turnover affects financial policies, particularly in leverage decisions without really chang in operating performance (Cao and Chen, 2023). CEO change may decrease green innovation and favor M&A activities rather than R&D investment strategy (Yu et al., 2024). While leadership changes may improve governance and strategic direction, they can also change the governance in unexpected ways, such as reducing the percentage of independence directors to the threshold of Sarbane-Oxtley Act (Dah et al., 2014).

Previous studies have examined CEO turnover, providing evidence of both negative and positive effects on firms and stakeholders. On the negative side, CEO turnover, especially forced turnover, can lead to strategic instability, stock price volatility, and operational disruptions (Denis and Denis, 1995; Fee et al., 2013). Research suggests that sudden leadership changes may create uncertainty among investors and employees, resulting in lower firm value and weakened organizational performance in the short term (Huson et al., 2004; Jenter and Kanaan, 2015). Moreover, forced CEO dismissals are often associated with agency conflicts, There is a stronger association between prior performance and the probability of a resignation for companies with outsider-dominated boards than for companies with insider-dominated boards (Weisbach, 1988). Conversely, studies also highlight positive effects of CEO turnover, particularly when it leads to strategic renewal and performance improvement (Helmich and Brown, 1972). New leadership often brings fresh perspectives, better corporate governance, and improved decision-making, especially in firms experiencing financial distress. Empirical evidence suggests that externally hired CEOs tend to implement stronger corporate restructuring efforts, enhancing long-term profitability and shareholder value (Kaplan and Minton, 2012). The overall impact of CEO turnover thus depends on factors such as the reason for departure, firm-specific conditions, and the governance environment. Future research should continue exploring how leadership transitions interact with crisis management, innovation strategies, and institutional frameworks across different markets.

2.3. *Impacts of financial distress on change in CEO position and the impacts of the COVID-19 crisis*

CEO succession is affected by many performance indicators: financial leverage (debt-to-equity ratio, revenue), profitability ratios. CEO turnover is greatly increased by bad financial performance, and it is shown that companies with poor financial ratios and financial distress were more likely to replace their CEO (Gibson, 2003).

The COVID-19 outbreak brought a lot of challenges to businesses. It is showed that before the COVID-19 pandemic occurred, financial indicators associated with most businesses were at a stable level, but when the pandemic occurred, it led to a significant decline in revenue (Fairlie and Fossen, 2021) due to reduced consumer demand, low cashflow, high cost (Belitski et al., 2022), or supply chain disruptions (Meier and

Pinto, 2024). COVID-19 also seriously affects the firm's human resources (Manroop et al., 2025). Before COVID-19, employees worked offline at the company, but after the pandemic raged, many businesses choose to switch to online work and several small businesses had to lay off or temporarily lay off workers to minimize costs (Kolahchi et al., 2021).

COVID-19 pandemic has had a profound impact, particularly on financial distress and CEO turnover. Firstly, the pandemic has exacerbated financial distress among companies, particularly those that were already capital-constrained before COVID 19 occurred (Aljughaiman et al., 2023). The pandemic has caused unprecedented volatility to stock markets across the globe, and its volatility is not comparable to previous infectious disease outbreaks (Zhu et al., 2024). However, if the enterprise is large enough and has a strong corporate financial structure, such as having an abundant source of money, a low debt-to-capital ratio, or a low fixed cost, it will be easier to recover after the pandemic . The COVID-19 crisis increases risks in the banking sector by reducing the revenue of businesses and individuals, leading to difficulties in repaying debts and increasing the ratio of bad debts (Zhao et al., 2023). The rate of CEO turnover tends to be inversely related to a firm's financial performance (Murphy and Zimmerman, 1993; Kapelyushnikov and Demina, 2005; Jenter and Lewellen, 2021; Dallocchio et al., 2022).

3. Institutional background of Vietnam

3.1. The economic situation of Vietnam before and after COVID-19

Despite the pandemic's severe economic downturn, Vietnam's proactive measures to mitigate health and economic risks proved remarkably effective. A swift implementation of quick and strict strategies, coupled with aggressive contact tracking and testing, significantly reduced infection and mortality rates. These efforts, combined with timely policy interventions, minimized the need for extensive emergency spending. Notably, Vietnam's economy experienced a remarkable 2.9% growth in 2020, outperforming many nations. This achievement was fueled by a robust domestic recovery and a surge in high-tech exports, particularly electronics, driven in part by the global shift towards remote work [1].

However, preserving financial stability is essential for a long-term recovery. Vietnamese firms, especially small and medium-sized businesses that predominate in the most severely affected industries, came into the crisis with comparatively weak financial position. Through bank exposures, COVID-19 has worsened their liquidity and solvency positions, raising concerns about financial stability [1]. According to a survey by the Ministry of Planning and Investment in April 2020, approximately 86% of businesses were negatively affected by COVID-19, with nearly 58% experiencing significant reductions in product consumption markets. Among export-oriented enterprises, the percentage of non-exporting businesses was 56.9%, with large and medium-sized enterprises accounting for 46.2%, small enterprises at 40.7%, and micro-enterprises at 28%. The COVID-19 pandemic had a significant effect on enterprises that received foreign direct investment (FDI).

[1] IMF website: International Monetary Fund, 2021

Vietnam has also provided evidence confirming the effects of the COVID-19 pandemic on financial distress among firms across various Vietnamese industries (Tran et al., 2023). Many businesses, especially in sectors such as tourism, hospitality, and retail, have struggled significantly to maintain cash flow and meet debt obligations. According to a report by the State Bank of Vietnam, the ratio of bad debts in the banking system increased to approximately 4.93% by the end of 2021, indicating mounting financial pressure on enterprises [1].

3.2. Government's policies pre and post COVID-19

Pre-pandemic, Vietnam displayed strong economic fundamentals and reserves, despite persistent structural issues. Since its market-oriented reforms began in 1986, Vietnam has dramatically improved its economic standing, transitioning from one of the world's poorest countries to a lower middle-income economy. This transformation, fueled by foreign investment and a focus on inclusive growth, significantly raised living standards. Robust foreign investment and trade surpluses strengthened Vietnam's external position, while the banking system showed signs of improvement with higher profitability, liquidity, and reduced bad loans. Additionally, the country made significant strides in improving its public finances before the pandemic. These pre-pandemic fiscal, external, and financial buffers helped Vietnam a stable economic bankground to face with challenges and obstacles caused by COVID-19. However, despite these positive developments and ongoing reforms, there is still significant potential to increase productivity and further strengthen economic resilience [2].

3.3. Corporate governance characteristics in Vietnam and their impacts on CEO turnover

Previous empirical studies on corporate governance have focused on developed Western market economies, such as the United States, Japan, Germany, and the United Kingdom, where CEO turnover is predominantly driven by firm performance, shareholder pressure, or corporate governance regulations (Coughlan and Schmidt, 1985; Warner et al., 1988; Suchard et al., 2001; Fisman et al., 2014). In these markets, board independence and shareholder activism exert substantial influence over CEO succession decisions (Li and Tang, 2010). However, the corporate governance structures of Asian firms have recently addressed increased attention (Choe and Lee, 2003; Boubakri et al., 2004; Mak and Kusnadi, 2005). Prior research has highlighted the critical role of institutional environment, political dynamics, and corporate culture in shaping CEO turnover across different economies (Defond and Hung, 2004; Cao et al., 2017; Yin et al., 2022). In contrast to developed markets, in emerging economies—particularly those with strong state influence over enterprises—CEO turnover is often affected by non-financial factors, including political affiliations, concentrated ownership structures, and relationship-based business practices (Gibson, 2003; Alonso et al., 2025). This divergence is also evident when compared to East Asian economies like Japan and South Korea, where long-term internal succession planning and corporate stability reduce the frequency of CEO turnover,

[1] The State Bank of Vietnam website: State Bank of Vietnam 2022
[2] IMF website: International Monetary Fund, 2021

unless firms face severe market pressures (Yoshikawa and Phan, 2005). Asian business cultures emphasize relationship-oriented governance, hierarchical structures, and stakeholder loyalty, resulting in a more deliberate approach to CEO succession. In contrast, market-driven economies prioritize performance-driven executive transitions based on meritocratic principles.

In Vietnam, as the corporate governance framework exhibits distinct characteristics, significantly shaped by political and ownership structures (Pham and Tran, 2020). In state-owned enterprises (SOEs) or firms with significant state ownership, CEO turnover is often driven by policy changes and government-led restructuring rather than performance (Fan et al., 2007; Zhong et al., 2023). Although many large private enterprises grow successfully, the concentrated ownership structure and high power of major shareholders still lead to CEO turnover being dominated by personal relationships rather than market pressure (Blumentritt et al., 2007; Zhong et al., 2023). This stands in stark contrast to Western economies, where board independence and shareholder engagement play a significant role in CEO succession decisions (Li and Tang, 2010). Beyond political factors, corporate culture also plays an important role in shaping CEO turnover dynamics in Vietnam. Vietnam's business culture emphasizes relationship-based governance, hierarchical authority, and loyalty to key stakeholders, contributing to a more cautious and less abrupt approach to CEO succession. Consequently, in Vietnam, CEOs may retain their positions despite inefficient firm performance, provided they maintain strong political and shareholder ties (Nguyen et al., 2015).

In Vietnam, CEO turnover is closely linked to corporate governance structures. The two-tier board system creates ambiguity in oversight, making performance-based CEO turnover a key governance mechanism (Tran et al., 2016). The role of independent directors and state shareholders further complicates the relationship between financial performance and CEO turnover (Tran et al., 2016). External CEO appointments are often seen as a strategy to address financial distress and implement necessary restructuring (Fiordelisi and Ricci, 2014).

4. Hypothesis development

4.1. H1: Financial distress has a positive relationship with CEO turnover

Research on corporate governance has emphasized the relationship between financial distress and CEO turnover. This can be explained by agency theory, resource dependence theory, and stewardship theory (Arouri and Foulquier, 2012; Shaikh et al., 2023; Badru et al., 2024).

Agency theory (Meckling and Jensen, 1976) emphasizes the inherent conflict of interest between shareholders (principals) and management (agents). While shareholders aim to maximize their wealth, managers may prioritize their own interests, leading to agency problems. When a firm faces financial distress, the board of directors often replaces the CEO to signal a commitment to positive change and reassure stakeholders (Salvi et al., 2024). Shareholders may perceive the current CEO as ineffective in addressing financial challenges or safeguarding their interests. Consequently, they frequently advocate for leadership changes, particularly CEO turnover, to mitigate risks and restore firm performance. Empirical evidence supports

this, showing that CEO turnover rates tend to rise during financial crises as shareholders seek to improve organizational outcomes (Salvi et al., 2024).

Resource dependence theory (Pfeffer and Salancik, 2015) suggests that CEO replacement can be a strategic response to financial difficulties. This theory posits that firms in crisis require leaders who can efficiently manage and allocate resources to navigate challenges (Kusa et al., 2024). A new CEO with strong entrepreneurial orientation and information management skills can enhance firm performance. Additionally, the CEO's ability to deploy strategic resources effectively is critical for gaining a competitive advantage, especially during periods of international expansion or financial instability (Purkayastha et al., 2024). Thus, replacing the CEO during financial distress is often seen as a means to bring in fresh leadership capable of driving recovery.

Thirdly, stewardship theory (Davis et al., 1997) views CEOs as stewards who are expected to act in the best interests of shareholders and optimize company assets. During financial distress, firms face heightened scrutiny from stakeholders, including shareholders, creditors, and the board of directors. CEOs are expected to resolve financial challenges and restore stability. If they fail to meet these expectations, stakeholders may push for leadership changes to improve performance and rebuild trust (Desir et al., 2024). Research indicates that CEO turnover is a common strategy employed by financially troubled firms to realign management and enhance financial outcomes (Shepherd et al., 2021). This reinforces the positive association between financial distress and CEO turnover.

However, the relationship is not without complexity. While many studies demonstrate a positive link between financial difficulties and CEO turnover, others highlight potential drawbacks. For instance, CEO changes can sometimes exacerbate financial instability, leading to poorer performance and increased insolvency risk (Salvi et al., 2024). This suggests that the outcomes of CEO turnover during financial distress are context-dependent and may vary across firms. To mitigate negative consequences, boards should prioritize robust leadership pipelines and succession planning well in advance of potential crises. A structured leadership transition strategy can ensure smoother changes and minimize disruptions. Additionally, firms can enhance financial resilience by diversifying revenue streams and improving operational efficiency, thereby reducing the likelihood of leadership crises triggered by financial distress.

Considering the Vietnamese context with culture, political characteristics, we propose the following hypothesis:

H1: Financial distress has a positive relationship with CEO turnover

4.2. H2: The influence of financial distress on CEO turnover increases after the COVID-19 pandemic

In the post-COVID world, many businesses have been severely affected by reduced consumer demand, business closures, and supply chain disruptions, etc (Meier and Pinto, 2024). The impacts of financial distress on CEO turnover over the COVID 19 period can be explained by trade-off theory, agency theory and signaling theory.

Trade-off theory focuses on how firms can balance the benefits and the costs of debts to determine

the capital structure of a company during the post-pandemic crisis. Trade-off theory influences a firm's financial leverage, businesses with higher leverage ratios are more likely to encounter financial distress (Dierker et al., 2019). Moreover, businesses may have financial challenges when they are unable to pay their debts (Purnanandam, 2008).

Agency theory (Meckling and Jensen, 1976) focuses on conflicts of interest between shareholders and CEOs . When business face financial difficulties after the pandemic, supervisors under the pressure of this challenges have delayed disclosing unfavorable information to shareholders, which leads to the risk of further decline in stock prices, and thus agency theory has emphasized that bosses are in the interests of individuals rather than the interests of shareholders (Zhang et al., 2024). Moreover, there is evidence that some private equities have complex structure and in the event of financial difficulty, the CEO will put safeguarding their assets and investments first, even if it has a negative impact on the shareholders.

Signaling theory (Spence, 1978) argues that two parties could get around the problem of asymmetric information by having one party send a signal that would reveal some piece of relevant information to the other party. According to (Ross, 1977), signaling theory, managers can inform the markets about their production and business activities by using effective signals as a tool. Among the signals, there are financial signals like debt coefficient, profitability indicators, revenue growth rate, profit, etc. After the COVID-19 outbreak, firms have been affected by the decline in revenue and profitsseveral companies have used debt to send signals to investors in the context of financial distress.

Financial distress has an impact on CEO turnover after COVID-19 for the several reasons. Firstly, when the pandemic spreads, it affects the firm's finance, causing risks including stock return volatility, default risk, implied asset volatility (Dierker et al., 2019). Therefore, post-COVID, firms need to reconsider their financial structure to reduce risk, and this may lead to the CEO turnover to ensure that the companies will operate more efficiently. Secondly, after the crisis, there are more financial strains such as reduced revenue leading to higher debt ratios (Zhao et al., 2023) making the conflict of interests between shareholders and management become more serious, causing investors to call for a leadership transition to improve the financial situation. Thirdly, the pandemic significantly harmed the stock market (Tiwari et al., 2022). Firms changed CEOs to increase their stock price and company value, they need more experienced CEOs to address the challenges they have faced throughout the epidemic. To deal with this, boards should prioritize crisis management capabilities, provide strategic support to current leadership, and build long-term strategies to improve financial resilience. Firms that take preemptive efforts can lessen the demand for CEO change, especially in the face of rising financial constraints .

Previous empirical results indicate the impact of financial distress on CEO turnover after COVID-19. Studies tshow the market will react more positively to CEO turnover (Liu et al., 2023). Moreover, other research also emphasizes the importance of CEO turnover before the business goes bankrupt due to the economic conditions (Dallocchio et al., 2022). In addition, there is also evidence that CEO turnover leads to a higher likelihood of firms leveraging up from zero to positive (Cao and Chen, 2023). More specifically, the previous research demonstrates that the possibility of CEO replacement increases along with the poor

performance of companies (Lin and Liu, 2004). However, there is evidence that financial distress has little impact on CEO turnover. For example, there is a very minimal connection between CEO turnover and firm performance COVID-19 has affected the global business system and Vietnam is no exception. Previous study with the data in Vietnam also indicates that the likelihood of CEO turnover is significantly influenced by the performance of the firm (Tran et al., 2016). It demonstrates that when the pandemic strikes, the effect of financial distress will enable CEO turnover to assist firms to strengthen their financial position.

Hence, we propose the hypothesis as follows:

H2: The influence of financial distress on CEO turnover increases after the COVID-19 pandemic

5. Methodolody

5.1. Data source and sample

Our sample includes 340 non-financial enterprises listed in Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) for the period of 2017 – 2022. After excluding financial firms, the total sample includesf 1723 firm-year observationse in manufacturing, trade, services, and other non-financial industries. Financial data are derived from Vietstock [1], a leading platform for financial information in Vietnam. To enable comparison analysis, the research period was divided into two sub-periods: pre-COVID-19 (2017-2019) and post-COVID-19 (2020-2022).

5.2. Financial distress measure

Financial distress is measured by Z-Score, a model leveraging consistent financial variables to predict financial distress (Altman et al., 2017), particularly applicable to emerging markets such as Vietnam. The Z-Score has been proven to forecast corporate bankruptcy with up to 90% accuracy in seven European nations (Laitinen and Suvas, 2016) or, average accuracy of 80% (Kumar and Ravi, 2007). The impartiality and independence of the Z-Score method are two more important advantages. Objective financial information is included in the model to lessen the influence of the analyst's subjective opinions. It may also be utilized without having extensive qualitative information about the firm, which increases its usefulness. Z-Score approach is well suited to small and medium-sized businesses because information is sometimes scarce and difficult to get (Altman and Sabato, 2007). More complicated models also usually ask for specific data that small and medium-sized businesses might not be able to supply (Deakin, 1972).

This model includes 4 independent variables: WCTA, RETA, EBIT, MVBL. The Altman Z-Score was first formulated for listed companies (Altman, 1968). Subsequently, Altman (2005) expanded this framework by devising industry-specific Z-Score variants. Because firms in different industries will have different types of operation, financial structure and risks. We use data from listed businesses in Vietnam, an emerging market, to assess the impacts of market risk and financial risk on company performance. Z-Score is calculated as follows:

[1] Vietstock website: https://vietstock.vn/

$$Z = 3.25 + \alpha_1 WCTA + \alpha_2 RETA + \alpha_3 EBIT + \alpha_4 MVBL \tag{1}$$

where $\alpha_1 = 6.56$, $\alpha_2 = 3.26$, $\alpha_3 = 6.72$, $\alpha_4 = 1.05$.

WCTA is measured by the ratio of working capital divided by total assets, RETA is measured by the ratio of retained earnings divided by total assets. EBIT is measured by ratio of earnings before interest and taxed divided by total assets. MVBL is measured by the ratio of market value of equity divided by book value of total liabilities.

5.3. Model research

To investigate the impact of COVID-19 on the relationship between financial distress and CEO turnover, we estimate the logistic model in Eq.(2):

$$\Pr(turnover_{it} = 1) = \Lambda\left(\beta_0 + \beta_1 Z - Score_{it} + \sum_{k=1}^{K} \beta_k Control_{k,it} + \eta_s + \tau_t\right), \qquad \Lambda(x) = \frac{1}{1 + e^{-x}}. \tag{2}$$

where $turnover_{it}$ equals 1 if the CEO in firm i at year t differs from year t–1, and 0 otherwise. $Z-Score_{it}$ is the Altman Z-Score measure of financial distress. The control vector $\{Control_{k,it}\}_{k=1}^{K}$ includes firm performance (ROA, MTB), LEVERAGE, SIZE, and governance variables (CEO duality, board independence, CEO age). η_s and τ_t denote industry and year fixed effects, respectively.

6. Results

The descriptive statistics is presented in Table 1. According to the descriptive data, firm-level indicators were constant throughout this observation period. The descriptive statistics highlight significant shifts in financial and governance characteristics across the pre- and post-COVID-19 periods, with the full sample providing a comprehensive view. The sharp decline in Z-Score post-COVID-19 and increased variability, which aligns with prior studies documenting heightened financial distress during economic crises (Altman et al., 2017). The stable ROA but increased variability post-COVID-19 suggests uneven profitability impact. SIZE and MTB show greater volatility post-COVID-19, reflecting market uncertainty, while LEVERAGE remains relatively stable, indicating cautious debt management.

Governance trends are particularly notable. The increase in OUTSIDE DIRECTOR and sharp decline in DUALITY post-COVID-19 suggest firms adopted stronger governance practices, likely to enhance oversight and decision-making during economic uncertainty (Fama and Jensen, 1983). The reduction in CEO turnover but increase in EXTERNAL CEO turnover post-COVID-19 indicates a balance between leadership stability and the need for fresh perspectives.

Table 1: Descriptive statistics.

Panel 1: Before COVID-19 (2017–2019)						
Variable	N	Mean	Std	Min	Median	Max
Z-Score	843	6.212	2.315	1.003	5.896	16.889
ROA	843	0.074	0.117	-1.591	0.057	0.573
SIZE	843	27.502	1.632	23.441	27.345	32.254
MTB	843	1.137	1.011	0.051	0.853	11.154
LEVERAGE	843	0.472	0.224	0.001	0.488	0.922
OUTSIDE DIRECTOR	843	66.860	17.215	0	66.667	100
CEO Age	843	49.351	8.315	24	49	73
CEO Characteristics (Panel 1)						
	Yes (%)			No (%)		
CEO Turnover	18.98			81.02		
DUALITY	28.00			72.00		
EXTERNAL CEO Turnover	12.34			87.66		
Panel 2: After COVID-19 (2020–2022)						
Variable	N	Mean	Std	Min	Median	Max
Z-Score	880	1.989	9.740	-47.136	3.450	45.611
ROA	880	0.073	0.145	-1.868	0.068	0.456
SIZE	880	27.763	1.682	23.603	27.617	32.814
MTB	880	1.435	2.622	-2.247	1.028	67.556
LEVERAGE	880	0.463	0.222	0.013	0.468	1.168
OUTSIDE DIRECTOR	880	71.807	17.111	20	71.429	100
CEO Age	880	48.384	8.367	0	48	73
CEO Characteristics (Panel 2)						
	Yes (%)			No (%)		

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Variable	N	Mean	Std	Min	Median	Max
CEO Turnover		11.59			88.41	
DUALITY		2.73			97.27	
EXTERNAL CEO Turnover		21.93			78.07	

Panel 3: Full sample (2017–2022)

Variable	N	Mean	Std	Min	Median	Max
Z-Score	1723	4.055	7.450	-47.136	5.034	45.611
ROA	1723	0.074	0.132	-1.868	0.064	0.573
SIZE	1723	27.635	1.662	23.441	27.491	32.814
MTB	1723	1.289	2.008	-2.247	0.950	67.556
LEVERAGE	1723	0.467	0.223	0.001	0.474	1.168
OUTSIDE DIRECTOR	1723	69.387	17.334	0	71.429	100
CEO Age	1723	48.857	8.353	0	48	73

CEO Characteristics (Panel 3)

	Yes (%)	No (%)
CEO Turnover	15.21	84.79
DUALITY	15.09	84.91
EXTERNAL CEO Turnover	17.24	82.76

Notes: Table 1 presents descriptive statistics for a sample of 1723 firms from 2017 to 2022, divided into three panels: Panel 1 (pre-COVID-19: 2017–2019, N=843), Panel 2 (post-COVID-19: 2020–2022, N=880), and Panel 3 (full sample: 2017–2022, N=1723). The variables include financial performance variables (Z-Score, ROA, SIZE, MTB, LEVERAGE) and governance-related variables (OUTSIDE DIRECTOR, CEO Age, CEO TURNOVER, DUALITY, EXTERNAL CEO TURNOVER).

Table 6 shows that the corelation among the explanatory variables are statistically significant but relatively weak.

Table 2: Correlation Matrix

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
[1] CEO Turnover	1								
[2] Z-Score	0.076*	1							
[3] ROA	-0.019	0.197*	1						
[4] SIZE	-0.017	-0.146*	-0.004	1					
[5] MTB	0.002	0.097*	0.005	0.062*	1				
[6] LEVERAGE	-0.061*	-0.173*	-0.271*	0.333*	0.002	1			
[7] DUALITY	0.121*	0.107*	0.022	-0.067*	-0.060*	-0.027	1		
[8] OUTSIDE DIRECTOR	0.039	-0.065*	-0.009	0.056*	0.062*	-0.093*	-0.280*	1	
[9] CEO AGE	0.032	0.053*	0.077*	-0.035*	0.029	-0.042*	0.113*	-0.185*	1

Notes: Table 2 presents the correlation matrix of CEO turnover, Z-Score and control variables including ROA, SIZE, MTB, LEVERAGE, DUALITY, OUTSIDE DIRECTOR, and CEO AGE. *, **, *** represent significance at the 10%, 5%, and 1% levels, respectively.

We have conducted multicollinearity diagnostic tests, focusing on variance inflation factors (VIF). Our VIF results, ranging from 1.030420 (CEO turnover) to 1.259785 (LEVERAGE), are all below 3, indicating no significant multicollinearity concerns.

Table 3: Variance Inflation Factors (VIF)

Variable	**VIF**	**1/VIF**
CEO Turnover	1.030420	0.970478
zcore	1.102960	0.906651
ROA	1.129272	0.885526
SIZE	1.165432	0.858051
MTB	1.025028	0.975583
LEVERAGE	1.259785	0.793786
DUALITY	1.122168	0.891132
OUTSIDE DIRECTOR	1.147338	0.871583
CEO Age	1.050699	0.951747

Notes: All VIF values are well below the conventional thresholds (5 or 10), indicating no multicollinearity concerns (Kutner, 2005; Hair, 2009).

Table 4: Logit Estimates for the Effect of Financial Distress on CEO Turnover

	(1)	(2)	(3)	(4)	(5)
Panel 1: Pre-COVID (2017–2019)					
Z-Score	0.070	0.084	0.070	0.016	0.061
	(0.069)	(0.068)	(0.070)	(0.040)	(0.069)
ROA	-1.041	-1.053	-1.041		-0.843
	(0.744)	(0.738)	(0.744)		(0.737)
SIZE	0.082	0.086	0.082		0.082
	(0.061)	(0.059)	(0.061)		(0.060)
MTB	-0.242*	-0.270**	-0.242*		-0.228*
	(0.136)	(0.133)	(0.136)		(0.132)
LEVERAGE	-0.512	-0.334	-0.512		-0.700
	(0.613)	(0.574)	(0.613)		(0.603)
DUALITY	0.619***	0.628***	0.619***	0.644***	
	(0.205)	(0.204)	(0.205)	(0.202)	
OUTSIDE DIRECTOR	0.013**	0.013**	0.013**	0.014**	
	(0.006)	(0.006)	(0.006)	(0.006)	
CEO Age	0.022**	0.022**	0.022**	0.020*	
	(0.011)	(0.011)	(0.011)	(0.011)	
Industry fixed	Yes	No	Yes	Yes	Yes
Year fixed	No	Yes	Yes	Yes	Yes
χ^2	25.80	25.06	25.80	17.02	10.47
Prob > χ^2	0.00696	0.00152	0.00696	0.0173	0.2333
Intercept	-5.755***	-5.998***	-5.755***	-3.767***	-3.418**
	(1.882)	(1.858)	(1.882)	(0.868)	(1.715)
Pseudo R^2	0.031	0.031	0.031	0.021	0.013
N	843	843	843	843	843
OR(Z-Score)	1.073	1.088	1.073	1.016	1.063

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	(1)	(2)	(3)	(4)	(5)
Panel 2: Post-COVID (2020–2022)					
Z-Score	0.025**	0.024**	0.025**	0.027**	0.023**
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
ROA	-0.406	-0.652	-0.406		-0.543
	(0.663)	(0.650)	(0.663)		(0.623)
SIZE	-0.007	-0.019	-0.007		-0.012
	(0.072)	(0.068)	(0.072)		(0.072)
MTB	0.020	0.028	0.020		0.023
	(0.029)	(0.029)	(0.029)		(0.029)
LEVERAGE	-0.604	-0.875	-0.604		-0.781
	(0.549)	(0.534)	(0.549)		(0.540)
DUALITY	1.448***	1.352***	1.448***	1.511***	
	(0.495)	(0.482)	(0.495)	(0.489)	
OUTSIDE DIRECTOR	0.016**	0.016**	0.016**	0.017***	
	(0.007)	(0.007)	(0.007)	(0.007)	
CEO Age	-0.002	-0.003	-0.002	-0.002	
	(0.013)	(0.013)	(0.013)	(0.013)	
Industry fixed	Yes	No	Yes	Yes	Yes
Year fixed	No	Yes	Yes	Yes	Yes
χ^2	28.57	22.38	28.57	26.76	16.38
Prob > χ^2	0.00265	0.00426	0.00265	0.000368	0.03719
Intercept	-3.125	-2.259	-3.125	-3.630***	-1.765
	(2.085)	(2.008)	(2.085)	(0.997)	(1.889)
Pseudo R^2	0.045	0.035	0.045	0.042	0.026
N	880	880	880	880	880
OR(Z-Score)	1.025	1.024	1.025	1.027	1.024

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	(1)	(2)	(3)	(4)	(5)
Panel 3: Full Sample (2017–2022)					
Z-Score	0.032***	0.025**	0.026**	0.026**	0.024**
	(0.011)	(0.012)	(0.012)	(0.011)	(0.012)
ROA	-0.848*	-0.933**	-0.821*		-0.760
	(0.459)	(0.458)	(0.465)		(0.462)
SIZE	0.032	0.037	0.035		0.037
	(0.046)	(0.044)	(0.046)		(0.046)
MTB	-0.010	-0.001	-0.001		0.001
	(0.038)	(0.036)	(0.035)		(0.036)
LEVERAGE	-0.601*	-0.687**	-0.674*		-0.836**
	(0.356)	(0.344)	(0.358)		(0.351)
DUALITY	0.917***	0.770***	0.767***	0.778***	
	(0.176)	(0.185)	(0.186)	(0.185)	
OUTSIDE DIRECTOR	0.014***	0.015***	0.015***	0.015***	
	(0.004)	(0.004)	(0.004)	(0.004)	
CEO Age	0.011	0.010	0.011	0.010	
	(0.008)	(0.008)	(0.008)	(0.008)	
Industry fixed	Yes	No	Yes	Yes	Yes
Year fixed	No	Yes	Yes	Yes	Yes
χ^2	51.83	54.92	57.48	52.03	34.36
Prob > χ^2	2.923e-07	1.259e-08	6.477e-08	1.663e-08	7.721e-05
Intercept	-4.256***	-3.986***	-4.111***	-3.560***	-2.319*
	(1.324)	(1.305)	(1.325)	(0.638)	(1.195)
Pseudo R^2	0.035	0.037	0.039	0.035	0.023
N	1723	1723	1723	1723	1723
OR(Z-Score)	1.032	1.026	1.026	1.026	1.024

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	(1)	(2)	(3)	(4)	(5)

Notes: Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Column (1) includes only industry fixed effects with the full set of controls; Column (2) includes only year fixed effects with the full set of controls; Column (3) includes both industry and year fixed effects with the full set of controls; Column (4) includes industry and year fixed effects but restricts independent variables to governance-related factors only; Column (5) includes industry and year fixed effects but restricts independent variables to performance-related factors only.

Table 4 presents the regression results on the relationship between financial distress and CEO turnover, considering differences before and after the COVID-19 pandemic as well as across model specifications.

In the pre-COVID period, financial distress shows no clear association with CEO turnover. This suggests that, in relatively stable conditions, Vietnamese firms may rely on ownership concentration and relationship-based governance to buffer leadership changes, consistent with earlier findings in emerging markets (Nguyen et al., 2015; Tran et al., 2016). Instead, governance characteristics such as CEO duality and board independence appear to play a stronger role, indicating that internal board structures were more decisive in turnover decisions than financial distress per se.

Post-COVID, however, the pattern shifts. Financial distress emerges as a significant driver of CEO turnover, pointing to heightened sensitivity of boards and shareholders to performance pressures during economic shocks. The stronger influence of CEO duality in this period also suggests greater accountability demands on firms with concentrated executive power, while independent directors continued to facilitate leadership changes in response to distress. These results align with evidence from other markets showing that crises amplify governance responses and intensify turnover pressures (Shehzad et al., 2020; Dallocchio et al., 2022).

For the full sample, the findings confirm that financial distress overall increases the likelihood of CEO turnover, with the effect more pronounced in the post-COVID environment. Firm performance remains negatively linked to turnover risk, consistent with agency theory predictions (Fama and Jensen, 1983), while governance factors such as board independence and duality systematically shape leadership outcomes. Taken together, the results underscore that both external shocks and internal governance structures jointly condition the dynamics of CEO turnover in emerging market settings.

Table 5: Panel A. CEO Turnover at $t + 1$: Logit Estimates Using Alternative Z-Score Specifications (Full Sample)

	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Focal indicators					
$Z - score^{*}_{yr}$r	0.154**				
	(0.074)				
$Z - score^{*}_{w}$		0.439***	0.253**		
		(0.122)	(0.112)		
$Z - score^{*}$				0.439***	0.253**
				(0.122)	(0.112)
Controls					
CEO Age	-0.011	0.021	-0.012	0.021	-0.012
	(0.068)	(0.066)	(0.068)	(0.066)	(0.068)
DUALITY	0.086	-0.453**	0.091	-0.453**	0.091
	(0.186)	(0.178)	(0.186)	(0.178)	(0.186)
OUTSIDE DIRECTOR	0.143**	0.100	0.139*	0.100	0.139*
	(0.071)	(0.068)	(0.071)	(0.068)	(0.071)
LEVERAGE		-0.167**		-0.167**	
		(0.076)		(0.076)	
MTB		0.026		0.026	
		(0.077)		(0.077)	
ROA		0.080		0.080	
		(0.084)		(0.084)	
SIZE		0.069		0.069	
		(0.068)		(0.068)	
Industry FE	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
N	1668	1668	1668	1668	1668
Pseudo R^2	0.037	-0.025	0.038	-0.025	0.038

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	(1)	(2)	(3)	(4)	(5)
χ^2	52.240	0.000	53.770	0.000	53.770
Prob > χ^2	0.000	1.000	0.000	1.000	0.000
OR (focal D_zneg)	1.166	1.551	1.288	1.551	1.288
β (focal)	0.154	0.439	0.253	0.439	0.253
p (focal)	0.038	0.000	0.023	0.000	0.024

Notes: The dependent variable is CEO turnover at $t + 1$ (Y_{t+1}). Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Model specifications: (1) Industry and Year FE (Governance-related variables only); (2) Year FE (Full set of controls); (3) Industry and Year FE (Governance-related variables only); (4) Year FE (Full set of controls); (5) Industry and Year FE (Governance-related variables only).
Odds ratios (OR) for selected Z-score specifications are reported at the bottom of the table.

Table 6: Panel B. CEO Turnover at $t + 2$: Logit Estimates Using Alternative Z-Score Specifications (Full Sample)

	(1)	(2)	(3)	(4)
Focal indicators				
$Z - score^*_w$	0.412***	0.219**		
	(0.104)	(0.094)		
$Z - score^*$			0.412***	0.219**
			(0.104)	(0.094)
Controls				
CEO Age	0.068	0.043	0.068	0.043
	(0.068)	(0.072)	(0.068)	(0.072)
DUALITY	-0.763***	-0.233	-0.763***	-0.233
	(0.187)	(0.195)	(0.187)	(0.195)
OUTSIDE DIRECTOR	-0.082	-0.047	-0.082	-0.047
	(0.073)	(0.075)	(0.073)	(0.075)
LEVERAGE	-0.199**		-0.199**	

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	(1)	(2)	(3)	(4)
	(0.078)		(0.078)	
MTB	0.057		0.057	
	(0.074)		(0.074)	
ROA	0.040		0.040	
	(0.081)		(0.081)	
SIZE	0.082		0.082	
	(0.071)		(0.071)	
Industry FE	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
N	1614	1614	1614	1614
Pseudo R^2	-0.026	0.034	-0.026	0.034
χ^2	0.000	45.910	0.000	45.910
Prob > χ^2	1.000	0.000	1.000	0.000
OR (focal D_zneg)	1.509	1.245	1.509	1.245
β (focal)	0.412	0.219	0.412	0.219
p (focal)	0.000	0.020	0.000	0.020

Notes: The dependent variable is CEO turnover at $t + 2$ (Y_{t+2}). Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.
Model specifications: (1) Year FE (Full set of controls); (2) Industry and Year FE (Governance-related variables only); (3) Year FE (Full set of controls); (4) Industry and Year FE (Governance-related variables only).
Odds ratios (OR) for selected Z-score specifications are reported at the bottom of the table.

The results shown in Panels A and B provide compelling evidence that the association between financial distress and CEO turnover is both strong and persistent across different horizons. In Panel A (turnover at t+1), inverted Z-score measures (e.g., Z-score*, Z-score$^*_w$) are positively and significantly linked to CEO departures, even after controlling for board structure and firm size. Panel B (turnover at t+2) shows similarly robust effects, though with somewhat attenuated magnitudes—suggesting that while distress triggers turnover relatively quickly, its impact remains visible over longer periods.

These findings reinforce a core insight in the governance and performance literature: boards and stake-

holders appear responsive to distress signals, monitoring firm financial fragility closely when evaluating leadership continuity. This aligns with empirical evidence that poor firm health (as measured by Z-score or related financial distress metrics) increases CEO turnover risk even when alternative distress measures are used (Altman, 1968; Cao et al., 2017; Chang, 2022).

Importantly, the consistency of results across alternative Z-score specifications (raw, winsorized, and standardized) strengthens our confidence that the observed relationship is not an artefact of a particular distress metric. Such robustness is crucial because measurement choice is a common concern in financial distress and risk literature (Mohamad et al., 2021). Overall, the evidence supports the hypothesis that financial distress increases CEO turnover, both in the short run and over multi-year horizons.

Table 7: Panel A. CEO Turnover at t + 1: Logit Estimates Using Alternative Z-Score Specifications (2020-2022)

	(1)	**(2)**
Focal indicators		
$Z - score^*_w$	0.787***	
	(0.169)	
$Z - score^*$		0.783***
		(0.170)
Controls		
CEO Age	-0.037	-0.037
	(0.095)	(0.095)
DUALITY	-0.372	-0.377
	(0.606)	(0.606)
LEVERAGE	-0.076	-0.076
	(0.119)	(0.119)
MTB	0.230	0.229
	(0.119)	(0.119)
OUTSIDE DIRECTOR	0.232**	0.233**
	(0.100)	(0.100)
ROA	0.192*	0.191*
	(0.114)	(0.114)
SIZE	-0.083	-0.082

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	(1)	**(2)**
	(0.111)	(0.111)
Industry FE	No	No
Year FE	Yes	Yes
N	825	825
Pseudo R^2	-0.080	-0.081
χ^2	0.000	0.000
Prob > χ^2	1.000	1.000
OR (focal)	2.197	2.188
β (focal)	0.787	0.783
p (focal)	0.000	0.000

Notes: The dependent variable is CEO turnover at t+1 (Y_{t+1}). Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Model specifications: (1) Year FE (Full set of controls); (2) Year FE (Full set of controls).

Odds ratios (OR) for selected Z-score specifications are reported at the bottom of the table.

Table 8: Panel B. CEO Turnover at t + 2: Logit Estimates Using Alternative Z-Score Specifications (2020-2022)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Focal indicators								
$Z - score^{*}_{w}$	0.927***	0.313**	0.332***	0.318**				
	(0.173)	(0.136)	(0.127)	(0.133)				
$Z - score^{*}$					0.928***	0.313**	0.332***	0.319**
					(0.173)	(0.136)	(0.127)	(0.133)
Controls								
CEO Age	0.129	0.179	0.176	0.129	0.179	0.176	0.176	0.129
	(0.102)	(0.114)	(0.114)	(0.102)	(0.114)	(0.114)	(0.114)	(0.102)
DUALITY	-0.974	-0.051	-0.019	-0.975	-0.051	-0.019	-0.019	-0.975
	(0.658)	(0.701)	(0.673)	(0.657)	(0.701)	(0.673)	(0.673)	(0.657)
LEVERAGE	-0.159	-0.106		-0.096	-0.160	-0.106		-0.096
	(0.122)	(0.155)		(0.153)	(0.122)	(0.155)		(0.153)
MTB	0.105	-0.101		-0.081	0.105	-0.101		-0.081
	(0.112)	(0.148)		(0.144)	(0.112)	(0.148)		(0.144)
OUTSIDE DIRECTOR	0.012	-0.047	-0.032		0.012	-0.047	-0.032	
	(0.111)	(0.131)	(0.130)		(0.111)	(0.131)	(0.130)	
ROA	0.187	0.046		0.070	0.187	0.046		0.070
	(0.118)	(0.139)		(0.135)	(0.118)	(0.139)		(0.135)
SIZE	-0.008	0.155		0.142	-0.008	0.155		0.143

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	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	(0.107)	(0.125)		(0.125)	(0.107)	(0.125)		(0.125)
Industry FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	773	773	773	773	773	773	773	773
Pseudo R^2	-0.102	0.064	0.059	0.058	-0.102	0.064	0.059	0.058
χ^2	0.000	32.130	29.910	29.500	0.000	32.130	29.910	29.500
Prob > χ^2	1.000	0.001	0.000	0.001	1.000	0.001	0.000	0.001
OR (focal)	2.527	1.367	1.393	1.375	2.529	1.367	1.394	1.376
β (focal)	0.927	0.313	0.332	0.318	0.928	0.313	0.332	0.319
p (focal)	0.000	0.022	0.009	0.016	0.000	0.021	0.009	0.016

Notes: The dependent variable is CEO turnover at t+2 (Y_{t+2}). Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Model specifications: (1) Year FE (Full set of controls); (2) Industry + Year FE (Full set of controls); (3) Industry + Year FE (Governance-related variables only); (4) Industry + Year FE (Performance-related variables only); (5) Year FE (Full set of controls); (6) Industry + Year FE (Full set of controls) (7) Industry + Year FE (Governance-related variables only); (8) Industry + Year FE (Performance-related variables only).

Odds ratios (OR) for selected Z-score specifications are reported at the bottom of the table.

The results across Panels A,B provide consistent evidence that financial distress, as measured by alternative Z-score specifications, exerts a significant and positive effect on the likelihood of CEO turnover. In the short horizon (Panel A, t+1) in Table 7, the effect of financial distress is economically strong, with odds ratios exceeding 2, suggesting that firms experiencing heightened financial vulnerability are more than twice as likely to replace their CEOs compared to financially healthier firms. This aligns with prior studies documenting that boards react promptly to early warning signals of declining firm health (Fee and Hadlock, 2004; Quigley and Hambrick, 2015).

At the two-year horizon (Panel B, t+2) in Table 8, the coefficients remain statistically significant though their magnitudes attenuate in some specifications. This pattern suggests that financial distress continues to influence CEO turnover beyond the immediate year but the effect weakens over time, likely due to the interaction of other governance or market forces. Similar persistence of distress effects has been observed in the governance literature, where CEO succession decisions are shaped by both short-term shocks and medium-term performance trajectories.

Taken together, the consistency of results across short-, two-year horizons strengthens confidence in the conclusion that financial distress is a key determinant of CEO turnover. This supports the dynamic governance perspective that poor financial health accelerates leadership change, thereby serving as a disciplining mechanism in corporate control.

Table 9 provides consistent evidence that financial distress increased markedly following the COVID-19 outbreak. Panel A shows that the mean Altman Z-score declined by 4.22 points (large and highly significant), while its inverse measure Z-score* rose accordingly. Panel B indicates that the proportion of firms classified as distressed ($Z < 1.81$) jumped by nearly 37 percentage points, underscoring the sharp deterioration in corporate financial health. Panel C confirms these patterns in regression settings: the post-COVID dummy is associated with significantly higher distress, and the year-trend coefficients suggest a worsening trajectory over 2020–2022. Finally, Panel D reveals that the deterioration was concentrated in 2021–2022, with more than half of the sample falling below the distress threshold by 2022.

These findings are consistent with recent international evidence showing that the COVID-19 shock severely strained firm balance sheets, particularly among financially vulnerable firms. They also align with studies documenting that financial distress risk surged globally during the pandemic and that Altman-type indicators provided early warning signals of heightened bankruptcy risk. Overall, the results provide strong support for Hypothesis H2, reinforcing the view that COVID-19 had a persistent and adverse impact on corporate solvency conditions.

Table 9: Financial Distress Before and After COVID-19: Mean Differences, Proportions, and Regression Evidence

	Pre (2017–2019)	**Post (2020–2022)**	**Δ (Post–Pre)**	**Test stat.**	***p*-value**
Panel A. Difference in means					
Mean of $Z - score^*$	−6.212	−1.989	**+4.223**	$t = 12.50$	2.292×10^{-33}

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	Pre (2017–2019)	Post (2020–2022)	Δ (Post–Pre)	Test stat.	p-value
Mean Z-score	6.212	1.989	−4.223	$t = -12.50$	2.292×10^{-33}
Panel B. Difference in proportions of $1\{Z < 1.81\}$					
Share (%)	0.95	37.61	**+36.66 pp**	$z = 19.14$	1.239×10^{-81}

Notes: distress share ↑ **+36.66 pp** (very large z); mean Z ↓ **4.223** (very large $|t|$).

Panel C. Break & trend regressions (industry FE)

	OLS: $Z - score^*$		*Logit:* $1\{Z < 1.81\}$		
Variable / Measure	*Post (se)*	*Year trend (se)*	*Post (se)*	*Year trend (se)*	*OR(Post)*
	−2.175*** (0.346)	2.118*** (0.252)	0.110 (0.537)	1.495*** (0.0795)	1.116
R^2/Pseudo R^2	0.146		0.417		
N	1723		1723		

Panel D. Year-by-year descriptive (means and proportions)

Year	N	Mean Z	Mean $-Z$	Share $[Z < 1.81]$	Share bottom 20%
2017	283	6.3169	-6.3169	0.71%	20.14%
2018	289	6.2245	-6.2245	0.69%	20.07%
2019	271	6.0882	-6.0882	1.48%	20.30%
2020	298	6.6855	-6.6855	2.01%	20.13%
2021	282	0.4671	-0.4671	50.35%	20.21%
2022	300	-1.2456	1.2456	61.00%	20.00%

Notes: Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A reports mean differences for Z-score and its inverse Z-score* $= -Z$ (higher values of Z-score* indicate greater distress). Panel B reports differences in proportions of firms with $Z < 1.81$ using a two-sample z-test (pooled SE). Panel C reports break (Post = 2020–2022) and linear year-trend regressions with industry fixed effects: OLS for Z-score* and logit for the distress dummy $1\{Z < 1.81\}$. Panel D reports yearly descriptive means and proportions.

Table 10: Marginal and Economic Effects of Factors Influencing CEO turnover

Dependent variable: CEO turnover	(1) Marginal effects	(2) Economic effects
Z-Score	0.003933**	0.035647***
	(2.7719)	
ROA	-0.119967*	-0.019245
	(-2.1257)	
SIZE	0.004220	0.008533

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Dependent variable: CEO turnover	(1) Marginal effects	(2) Economic effects
	(0.7645)	
MTB	-0.001201	-0.002933
	(-0.2464)	
LEVERAGE	-0.077398	-0.021030
	(-1.8076)	
DUALITY	0.114934***	0.050063***
	(5.2885)	
OUTSIDE DIRECTOR	0.001793***	0.037815***
	(3.2989)	
CEO Age	0.001299	0.013205
	(1.2480)	
N	1723	1723

Notes: Marginal effects are calculated as the change in the probability of turnover resulting from a one-unit change in the explanatory variable, while holding other variables at their mean values. Economic effects are determined by multiplying coefficient estimates by the mean turnover density. Z-statistics are computed using the delta method (Ai and Norton, 2003). *, **, *** represent significance levels at 10%, 5%, and 1%, respectively.

Table 10 indicates that Z-Score exhibits a positive and highly statistically significant association with CEO turnover in both marginal and economic effects, suggesting that an increase in financial distress substantially heightens the probability of CEO turnover. ROA demonstrates a strong negative correlation and is statistically significant in the marginal effect, implying that improved company performance lowers the likelihood of CEO turnover. SIZE and CEO AGE show positive relationships but lack statistical significance in either effect. LEVERAGE and MTB both present negative associations across both effects. DUALITY and OUTSIDE DIRECTOR display positive relationships and are highly statistically significant in the marginal effect, indicating that the corporate governance structure exerts a notable influence on CEO turnover.

7. Robustness check

To further ensure the reliability of our findings, we conduct a series of robustness analyses in which alternative measures of firm profitability are introduced. Specifically, Table 11 re-estimates the baseline logit models of CEO turnover on financial distress, proxied by the Altman Z-Score, while replacing the profitability control variable (PROFIT) with return on assets (ROA), return on equity (ROE), and return on

sales (ROS). Across all model specifications, the Z-Score remains consistently positive and statistically significant, indicating that higher financial distress is associated with an increased likelihood of CEO turnover. This finding underscores the central role of financial health in shaping managerial career outcomes, in line with prior evidence suggesting that boards closely monitor firm performance and distress signals when making leadership decisions (Chen and Ebrahim, 2018; Wang and He, 2024).

The results further demonstrate that the estimated effect of financial distress is not driven by a particular profitability metric. While ROE and ROS provide alternative profitability dimensions to the commonly used ROA, the Z-Score effect is robust across all substitutions. This pattern enhances the credibility of our main findings and suggests that the impact of financial distress on CEO turnover is not sensitive to how firm profitability is operationalized. Such robustness contributes to the broader literature on governance and executive accountability by showing that financial constraints systematically increase CEO departure risk even after controlling for various firm fundamentals.

Table 11: CEO Turnover and Financial Distress: Robustness with Alternative Profitability Measures

Dependent Variable: CEO turnover	(1) ROA	(2) ROE	(3) ROS
Z-Score	0.031***	0.028**	0.027**
	(0.011)	(0.011)	(0.011)
PROFIT	-0.960**	-0.044	-0.093
	(0.453)	(0.105)	(0.093)
SIZE	0.034	0.025	0.029
	(0.044)	(0.044)	(0.044)
MTB	-0.010	-0.025	-0.011
	(0.039)	(0.054)	(0.042)
LEVERAGE	-0.619*	-0.494	-0.534
	(0.343)	(0.339)	(0.342)
DUALITY	0.919***	0.916***	0.925***
	(0.176)	(0.176)	(0.176)
OUTSIDE DIRECTOR	0.014***	0.014***	0.014***
	(0.004)	(0.004)	(0.004)
CEO AGE	0.010	0.009	0.009
	(0.008)	(0.008)	(0.008)
χ^2	49.28	45.37	46.25
Prob > χ^2	5.62e-08	3.13e-07	2.13e-07
Intercept	-4.124***	-3.932***	-4.023***
	(1.303)	(1.299)	(1.303)
Pseudo R^2	0.034	0.031	0.031
N	1723	1723	1723

Notes: This table reports robustness tests for Hypothesis 1,2. Logistic regressions of CEO turnover on financial distress (Altman Z-Score) are estimated using alternative profitability measures. Column (1) controls for return on assets (ROA), column (2) for return on equity (ROE), and column (3) for return on sales (ROS). Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The results in Table 12 provide strong evidence that the link between financial distress and CEO turnover is not dependent on the specific distress metric employed. Across all six widely used measures—including Altman's Z-Score (Altman, 1968), Shumway's S-SCORE (Shumway, 2001), Ohlson's O-SCORE (Ohlson, 1980), Campbell et al.'s X-SCORE (Campbell et al., 2008), Taffler's Z-Score (Taffler, 1983), and the governance-oriented G-SCORE (Gompers et al., 2003)—the financial distress indicator remains statistically significant in predicting CEO turnover. While the sign and magnitude vary somewhat across specifications (e.g., negative coefficients for O-SCORE and X-SCORE versus positive coefficients for Z-Score and G-SCORE), the overall pattern consistently shows that higher financial fragility increases the likelihood of

CEO departure.

These findings reinforce the robustness of our main results and align with the broader literature emphasizing that boards and shareholders closely monitor distress signals when making leadership decisions. Importantly, the use of multiple distress metrics addresses potential concerns of model dependency or measurement bias, thereby strengthening the validity of our conclusion that financial distress is a key driver of CEO turnover risk.

Table 12: Impacts of Financial Distress on CEO Turnover: Alternative Measures of Financial Distress

CEO turnover	Z-Score	S-SCORE	O-SCORE	X-SCORE	Z_Taffler	G-SCORE
Financial distress	0.1448***	0.1435*	-0.1004***	-0.2826***	0.0083*	0.4209***
	(0.0560)	(0.0742)	(0.0172)	(0.0669)	(0.0047)	(0.1436)
DUALITY	0.9184***	0.9183***	0.7094***	0.7980***	0.9384***	0.8876***
	(0.1757)	(0.1762)	(0.1783)	(0.1783)	(0.1758)	(0.1766)
OUTSIDE DIRECTOR	0.0146***	0.0139***	0.0162***	0.0150***	0.0136***	0.0143***
	(0.0044)	(0.0043)	(0.0044)	(0.0044)	(0.0043)	(0.0044)
CEO Age	0.0083	0.0097	0.0105	0.0102	0.0108	0.0101
	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0083)	(0.0083)
ROA	-0.9065**	-0.8955*	-0.8414*	-0.9055**	-0.7892*	-1.0344**
	(0.4516)	(0.4585)	(0.4721)	(0.4593)	(0.4528)	(0.4566)
SIZE	0.0471	0.0352	0.0086	0.0332	0.0265	0.0340
	(0.0454)	(0.0447)	(0.0447)	(0.0444)	(0.0442)	(0.0444)
MTB	0.0014	-0.0006	0.0160	-0.0015	0.0016	-0.0021
	(0.0327)	(0.0333)	(0.0296)	(0.0314)	(0.0318)	(0.0334)
LEVERAGE	-0.7500**	-0.5990*	-0.2791	0.5070	-0.4797	-0.3964
	(0.3379)	(0.3468)	(0.3535)	(0.4714)	(0.3718)	(0.3638)
χ^2	47.08	46.20	79.89	60.70	45.61	49.21
Prob > χ^2	1.48e-07	2.18e-07	5.15e-14	3.39e-10	2.82e-07	5.80e-08
Intercept	-4.3864***	-4.0911***	-4.3398***	-4.9157***	-3.8948***	-4.2574***
	(1.3307)	(1.3141)	(1.3024)	(1.3352)	(1.2991)	(1.3114)
N	1723	1723	1723	1723	1723	1723

Notes: This table reports logistic regression estimates of the relationship between financial distress and CEO turnover using six alternative distress measures: Altman Z-Score, Shumway's S-SCORE, Ohlson's O-SCORE, Campbell et al.'s X-SCORE, Taffler's Z-score, and G-SCORE. Robust standard errors are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

8. Conclusion and limitation

This study is the first to examine the impacts of financial distress on CEO turnover in Vietnam listed firms before and after COVID-19 pandemic using the sample of 340 listed firms listed in the HoSe and

HNX Stock Exchange during the period of 2017 to Using a Logit regression, our study reveals that financial distress has a positive correlation with CEO turnover, with this impact becoming more prominent in the post-COVID period.

Our empirical results support the initial hypothesis, indicating that firms facing financial difficulties are more likely to shift leadership, and this trend is exacerbated during COVID-19. These findings have significant implications for corporate governance and strategic decision-making in emerging countries such as Vietnam, since they highlight the necessity of proactive leadership changes in navigating financial upheaval efficiently. Furthermore, our study contributes to the existing literature by providing empirical evidence on the dynamics between financial distress and CEO turnover in an emerging market context, particularly highlighting the intensified effects post-COVID-19. These findings have significant implications for corporate governance and strategic decision-making in emerging countries such as Vietnam, since they highlight the necessity of proactive leadership changes in navigating financial upheaval efficiently.

Our research underscores the significant correlation between financial distress and CEO turnover. This finding offers valuable insights for senior executives, investors, and policymakers. For companies facing financial challenges, it is imperative to carefully consider the timing and rationale behind leadership changes. Policymakers can play a crucial role by promoting corporate governance practices that prioritize long-term sustainability and discourage impulsive CEO turnover. Investors, especially those with a long-term perspective, should scrutinize companies' leadership succession plans and governance structures to assess their resilience to potential disruptions. Firms facing financial distress can mitigate the negative impacts of CEO turnover by fostering a strong corporate culture, investing in talent development, and implementing robust succession planning processes. By adhering to these recommendations, stakeholders can make more informed decisions and enhance the overall stability and performance of companies during challenging times.

Data and code availability statement

Data will be made available on request

CRediT authorship contribution statement

Hanh Minh Thai: Conceptualization, Methodology, Data curation, Formal analysis, Writing – original draft.

Phong Nguyen The: Conceptualization, Methodology Software, Writing – original draft, Writing – review & editing, Project administration, Corresponding author.

Huong Pham Minh: Investigation, Validation, Visualization, Writing – review & editing.

Chien Pham Thi Minh: Resources, Validation, Visualization, Writing – review & editing.

Declaration of competing interest

The authors affirm that they are not aware of any financial involvements, commercial interests, or personal associations that might reasonably be perceived as having influenced, biased, or otherwise affected the research and findings presented in this manuscript.

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Appendix A. Abbreviations and Notations

Appendix 1. Variable definition

Table .13: Variable definitions

Variables	Measurement	Source
Dependent variables		
CEO turnover	Is equal to 1 if the firm replaces its CEO during the year and 0 otherwise	(Dardour et al., 2018)
Financial distress ratio		
Z-Score	Financial distress ratio	(Chen and Ebrahim, 2018; Wang and He, 2024)
$Z\text{-score}^{*}$	$-Z - Score$ (raw Altman Z-score)	
$Z\text{-score}^{*}_{w}$	$-Z - Score$ (winsorized at 1%)	
$Z\text{-score}^{*}_{yr}$	$-Z - Score$ (winsorized), standardized within year	
$I(Z < 1.81)$	Indicator: Z-score below Altman cut-off 1.81	
Control variables		
Firm performance		

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Table .13: Variable definitions

Variables	Measurement	Source
ROA	Return On Assets: Operating profit divided by total assets	(Jostarndt and Sautner, 2008; Chen and Ebrahim, 2018; Chulkov and Barron, 2023; Wang and He, 2024; Colak et al., 2024; Li et al., 2024)
MTB	Market-to-book value	(Chen and Ebrahim, 2018; Chulkov and Barron, 2023)
LEVERAGE	Total liabilities divided by total assets	(Jostarndt and Sautner, 2008; Cao et al., 2017; Chen and Ebrahim, 2018; Hu and Kim, 2019; Chen et al., 2019; Wang and He, 2024; Li et al., 2024; Desir et al., 2024)
SIZE	Log of total assets	(Cao et al., 2017; Chen and Ebrahim, 2018; Hu and Kim, 2019; Chulkov and Barron, 2023; Desir et al., 2024; Li et al., 2024; Colak et al., 2024; Wang and He, 2024)
Firm governance		
DUALITY	Is equal to 1 if the CEO is also the president of the board and 0 otherwise	(Cao et al., 2017; Chulkov and Barron, 2023; Wang and He, 2024)
OUTSIDE DIRECTOR	The percentage of outside directors on the board	(Iqbal and French, 2007; Jostarndt and Sautner, 2008; Cao et al., 2017; Chen and Ebrahim, 2018; Chen et al., 2019; Colak et al., 2024; Desir et al., 2024; Li et al., 2024)
CEO AGE	CEO age	(Iqbal and French, 2007; Cao et al., 2017; Chen et al., 2019; Colak et al., 2024; Wang and He, 2024; Li et al., 2024)
Industry and time dummies		

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Table .13: Variable definitions

Variables	**Measurement**	**Source**
Industry	Fixed effects constructed by collapsing ICB subsectors into four groups: *Manufacturing* (Basic Materials; Industrials; Technology Hardware & Equipment; Health-care goods; Consumer goods), *Trade* (Retailers; Food/Drug/Grocery), *Services* (Software & Computer Services; Consumer Digital; Telecom services; Media; Travel & Leisure; Health-care providers; Transportation/business support), *Other non-financial* (Energy; Utilities; Real Estate)	Authors' elaboration based on ICB [1]
Years	Year fixed effects (2017-2022). $Post_t$ (TIMEGROUP_20-22) = 1 for 2020–2022 to capture the COVID-19 shock and immediate aftermath, with 2017-2019 as the pre-shock baseline; under full year fixed effects, the main effect of $Post_t$ is not separately identified and only interactions (e.g., $Z - Score_{it} \times Post_t$) are estimated.	Authors' elaboration

[1] LSEG websites: Industry Classification Benchmark (ICB)