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The link between firm risk-taking and CEO power of listed firms on the Vietnamese stock market: the role of state ownership

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The link between firm risk-taking and CEO power of listed firms on the Vietnamese stock market: the role of state ownership

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ABSTRACT

The Chief Executive Officer (CEO) is pivotal in firm governance and is tasked with policy implementation and maximizing shareholder benefit. However, predicting CEO behaviour remains challenging, especially when considering CEO power (CEOP). Hence, this study explores the link between CEOP and firm risk-taking (FRT) in selected firms on the stock market in Vietnam from 2010 to 2020. Utilizing the Entropy weight methodology, a CEOP index combines structural, ownership, and expert power indicators. The SYS-GMM approach mitigates potential endogeneity issues, revealing a positive correlation between CEOP and FRT. Interestingly, CEO risk aversion increases in state-owned firms' participants, suggesting heightened supervision. Moreover, each characteristic of the CEOP index uniquely influences FRT. The findings offer theoretical and practical insights for enhancing governance and supervision mechanisms to optimize stakeholder benefits.

IMPACT STATEMENT

In business, avoiding all risks is impractical, and risk-taking endeavours can present growth opportunities. However, uncertainties from risks can impact financial performance, requiring corporations to demonstrate effective risk management. Decision-making and oversight of organizational activities are decided by the Chief Executive Officer (CEO). Hence, this study explores the interaction between CEO power and firm risk-taking in the context of Vietnam. Powerful CEOs tend to gravitate towards risks, but effective governance mechanisms and board independence can balance this tendency. The study recognizes the influential role of CEO power in shaping risk-taking behaviours and emphasizes the positive impact of state ownership. Balancing CEO empowerment with organizational supervision is crucial, and solutions include comprehensive risk assessments and clear operating frameworks. However, the study acknowledges limitations and recommends guidelines for a more comprehensive analysis in future research.

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1. Introduction

In firm contexts, hierarchical distinctions are widely recognized, wherein individuals are stratified based on their control over resources and capacity to dispense rewards or punishments (Keltner et al., 2003; Ting et al., 2017). Decision-making and oversight of organizational activities are undertaken by the Chief Executive Officer (CEO) (Adams et al., 2005). However, decision-making processes within firms exhibit variations, with some CEOs assuming sole authority over critical decisions, while others rely on the collective judgment of the board of directors (Haider & Fang, 2018). When considering CEOs' significant power, their decisions are pivotal in strategic resource allocation about investments, leverage,

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performance, and risk management (Crossland et al., 2014). It is considered to be the ability of individuals to assert their will and exert influence over others (Finkelstein, 1992); power can contribute to effective governance and diminish operational uncertainty within corporations when wielded by CEOs (Haider & Fang, 2018). Nonetheless, this power can also be susceptible to exploitation for personal gains, potentially compromising operational efficiency and oversight through both formal and informal means (Adams et al., 2005; Ting et al., 2017). This duality evokes concerns regarding the potential influence of CEO power (CEOP) on firm interests, as indicated by the literature, which suggests the existence of trade-offs in terms of the advantages and disadvantages associated with granting the CEO greater decision-making authority (Han et al., 2016).

Concurrently, risk-taking plays a pivotal role in a firm's performance and competitive edge within the industry (Cheng et al., 2020; Nguyen et al., 2020). Variation is exhibited in the debates surrounding the appropriate level of risk-taking and its impact on firm performance (Thi Pham & Thi Dao, 2022); nevertheless, risk-taking entails uncertainties that can emanate from various internal or external factors, exerting an influence on firm profitability and giving rise to fluctuations in financial performance (Jo & Na, 2012). Notably, prior investigations have underscored the pivotal role of robust firm governance with the central role of CEOs in enhancing firms' performance and managing their level of risk (Braga-Alves & Shastri, 2011; Faccio et al., 2016). CEOs assume responsibility for firm governance mechanisms as they administer crucial firm policies (Adams et al., 2005). When CEOs perceive power as a crucial aspect of their, they engage more risk-taking in contemplating the significance of the organizational change, gaining valuable insights into external opportunities, and decisively driving the development of business strategies, enabling them to make long-term decisions that align with the business interests and the advancement of the organization role (Anderson & Galinsky, 2006; Sassenberg et al., 2012). Thus, an elevated level of CEOP frequently correlates with increased potential for managing volatility and extraordinary firm performance (Han et al., 2016; Ting et al., 2017), heightened severity in earnings management (Le et al., 2022; Shiah-Hou, 2021), and a greater inclination towards risk-taking (Foong et al., 2021; Haider & Fang, 2018; Li, 2019).

Indeed, the role of power revolves around the power access-inhibition theory, which holds that power has dual effects: access and inhibition (Cho & Keltner, 2020; Keltner et al., 2003). The concept of access effect involves individuals exhibiting behaviours directed towards achieving goals when driven by positive stimuli, often involving taking more risks. Conversely, the inhibition effect pertains to individuals undertaking actions aimed at risk avoidance when motivated by negative incentives. Considerable power vested in a CEO may influence an increased willingness to take risks (Lewellyn & Muller-Kahle, 2012; Li & Tang, 2010). This heightened risk propensity can facilitate the CEO in making strategic, long-term decisions that align with business interests and organizational development, as Anderson and Galinsky (2006) discussed. However, the power reaches an excessive level, it also leads powerholders to become mindlessly optimistic (Anderson & Galinsky, 2006; Fast et al., 2012), acting on their desires in unethical ways (Hirsh et al., 2011; Kennedy & Anderson, 2017), and being more disinhibited in behaviour (Patrick et al., 2009; Zhou et al., 2021). The recognition that a director's inclination to take risks and pursue lucrative opportunities is a result of influence predominantly arising from their ability to control valuable resources and dispense rewards and punishments (Finkelstein, 1992). The important question is, are influential CEOs more likely to risk initiating firm strategic change due to their access to and allocation of abundant resources? Or, given the growing resistance to change within the organization, do CEOs bring about less firm risk-taking (FRT) as their power increases? Despite extensive scholarly inquiry, the impact of CEOP on firm risk-taking has largely escaped scrutiny in academic research.

In previous studies, another factor influencing FRT is the correlation between risk-taking and organizational structure and governance (Faccio et al., 2011). As Vo (2018) suggested, this connection originates from investment horizons and the diverse risk preferences of distinct shareholders. Uddin (2016) adds a layer to this understanding by asserting that government ownership in a corporation directly shapes its risk-taking behaviours in both investment and trading, ultimately influencing its performance and survival in a competitive market. Previous studies also underscore the impact of disparities between public and non-public sectors on firm activities, especially in assuming certain risks for competitive advantage and innovation (Song et al., 2020; Zhou et al., 2016). By leveraging their political connections, state-owned enterprises typically receive financial incentives and policies that bolster their effectiveness and competitiveness (Ben-Nasr et al., 2015). Consequently, state-owned enterprise managers often perceive political

relationships as a means to mitigate external uncertainties (Schweizer et al., 2019). However, it is crucial to acknowledge that these political connections can introduce complexities into firm strategy. SOEs frequently grapple with excessive interference and a lack of independence for operating activities (Bhatti & Sarwet, 2011). Moreover, they may deviate from conventional governance principles, altering the goals and activities of corporations (Abramov et al., 2017). SOE managers might prioritize social objectives and short-term political goals over maximizing performance (Kang & Kim, 2012).

In light of these considerations, although extensive research has been conducted, the impact of CEOP and state ownership (SO) influences on FRT have not been examined in academic research. First, agency theory-based predictions are weak and inconsistent (Finkelstein et al., 2008). Some scholars have proposed that the absence of clear-cut relationships could stem from the presumption in agency theory that managers possess consistent risk preferences, either leaning towards risk aversion or risk neutrality (Sanders & Hambrick, 2007). Indeed, the measurements of the CEO considered do not fully reflect the power of the CEO, and therefore, the previous results are still highly inconclusive. Prior studies on CEOP measured "power" from both insider or duality perspective and disregarding other dimensions of power, for instance, the CEO's gender (Faccio et al., 2016; Hang, 2022; Ting et al., 2017) or the CEO's ownership percentage (Pham & Pham, 2020; Vu et al., 2019). This assumption fails to consider that managers may be risk-seekers in specific contexts. They could be observed in Mubeen et al. (2021), who examined the concurrent CEO in a firm or the number of years in the CEO position. Second, a divergence of opinion exists among scholars regarding the role of CEOP on risk preference in decision-making. Some studies suggest that excessive power may lead to risky activities (Keltner et al., 2003; Tang et al., 2011), while others provide evidence of conservative decision-making under increased power (Anderson & Berdahl, 2002; Maner et al., 2007). Thirdly, this investigation underscores the pivotal role played by SO in shaping FRT behaviour. While previous studies have made assertions regarding the impacts of SO (Nguyen et al., 2020; Vo, 2018), the absence of a clear connection between SO and CEOP presents a notable research gap that requires attention. Given that government objectives mirror its interests, and the CEO might function as a representative of either the government or other shareholders, potential conflicts could arise in decision-making related to risk-taking activities. This potential discord between the CEO and other stakeholders or between the CEO and the government necessitates a closer examination of the interplay between SO and CEOP within the scope of this study.

This study explores the relationship among CEOP, SO and FRT by constructing the indicators of the power components. Moreover, we consider the power connection between SO and CEOP that determines whose interests are likely to be pursued (Finkelstein et al., 2008). Our study contends that a heightened inclination for involvement in risky endeavours correlates with elevated levels of CEOP; nevertheless, this inclination also draws resistance and scrutiny from other stakeholders, influencing the change in risk-taking mindset (Zhou et al., 2021). Thus, Vietnam serves as a compelling research case to explore the impact of SO and CEOP, owing to its past status as an emerging transitional country and its historical backdrop of a centrally-planned economy characterized by the prevalence of state-owned enterprises (Vo, 2018). At the same time, this study provides practical implications for Vietnam's current firm governance regime. Vietnam's firm governance regulations are primarily based on the Law on Securities 2019, the Law on Enterprises 2020, and other relevant regulations which require further scientific evidence to practice subordinate regulations effectively. However, Vietnam lacks key sources of firm governance references found in more developed economies, such as firm governance practices and effectiveness.

This paper is organized in a 5-parts structure. In addition to the Introduction, [Section 2](#) is a literature review. [Section 3](#) describes the data, models, measurements, and related formulas. [Section 4](#) discusses the main findings. [Section 5](#) presents the conclusions, practical suggestions, and limitations.

2. Literature review

2.1. Theories of firm risk-taking and CEO power

The concept of power in governance is defined by Pfeffer and Salancik (1978) as the capacity to exert control over individuals or objects. Thus, CEOP is characterized by Halebian and Finkelstein (1993) as

consistently influencing crucial corporate decisions. In a broader context, the capability to navigate internal and external resources to address challenges can be seen as power for CEOs (Finkelstein, 1992). It is also posited by Baldenius et al. (2014) that greater control and influence over other managers are often exercised by a powerful CEO. Recent research on CEOP focuses on three key theories: the theory of power involving approach and inhibition effects, agency theory, and prospect and social psychology theories.

Regarding the aspect of risk-taking behaviour, the agency theory suggests that CEOs with more power tend to avoid risks to protect their personal gains in corporations. This theory centres on the separation of ownership and control and addresses conflicts of interest between shareholders and managers and differences in risk attitudes (Band, 1992; Jensen & Meckling, 1976). It assumes managers have distinct goals and are risk-averse, particularly in the absence of proper governance mechanisms. Without the ability to diversify employment risk, CEOs may exhibit heightened risk aversion, taking fewer risks to protect their personal interests (Bertrand & Mullainathan, 2003). However, Keltner et al. (2003) presented a comprehensive theory of power that explores both the approach and inhibition effects, shedding light on the dual consequences associated with power. When individuals possess higher levels of power, it activates their behavioural approach system (BAS) for two primary reasons: access to resources and autonomy in pursuing their goals. According to this theory, powerful CEOs exhibit greater self-assurance regarding potential rewards, resulting in reduced risk aversion (Zhou et al., 2021). Previous studies have shown that increased CEOP leads to heightened confidence in obtaining rewards, ultimately leading to decreased risk aversion (Keltner et al., 2003). Meanwhile, the Behavioral Agency Model (BAM) posits that loss-averse managers have their risk-taking behaviour influenced by compensation strategies (Wiseman & Gomez-Mejia, 1998). Executives may prioritize safeguarding current wealth over pursuing new gains, potentially dampening their inclination for managerial risk-taking. The negative relationship between CEOP and FRT implies that highly influential CEOs may lean towards risk aversion in decision-making.

Therefore, CEO risk-taking attitudes are further influenced by decision frameworks and reference points tied to their power and corporate performance (Keltner et al., 2003). The theories of power underscore the dual effects of power: increased power activates the approach system, encouraging risk-taking (Sheikh, 2019), while diminished power activates the inhibition system, leading to risk aversion (Zhou et al., 2021).

2.2. Previous studies and hypothesis development

Regarding empirical findings, most studies indicate a relationship between CEOP and FRT. It is worth noting that various measures and regions have been used to assess CEOP, as outlined in the literature (Loukil & Yousfi, 2022; Shabir et al., 2023). These measures often consider duality, independence, ownership, and tenure to gauge the extent of a CEO's resource control and influence (Finkelstein, 1992; Tang et al., 2011). For instance, a study by Cheikh (2014) highlighted that a higher CEOP index could indicate that the CEO held the position of the sole inside director or even served as the chairperson, thereby exerting a substantial influence on the board. In such cases, the CEO might be more inclined to pursue risky investment strategies to secure private benefits. Furthermore, a study by Farag and Mallin (2016) examined the influence of duality and the number of directors on the risk-taking of listed firms in Spain between 1995 and 2000, and a positive relationship between the duality of CEO and firm risk-taking was revealed. When the roles of Chairman and CEO were combined into one individual, the ability to effectively oversee and control decision-making was diminished, resulting in a greater propensity for riskier choices. Similarly, Sheikh (2019) perceived that CEOP had a link with firm risk. Using a panel of non-financial US corporations from 1992 to 2015, positive relationships between CEOP and FRT (total risk and idiosyncratic risk) were identified only in high-competition markets or with good firm governance, according to the study, but a significant effect of CEOP on firm risk was not found in low-competition markets or with weak firm governance. Then, this study suggested that a CEO's risk attitude was shaped by decision-making frameworks and reference points, with more powerful CEOs relating higher risk tolerance levels, according to the prospect theory posited by Kahneman and Tversky (1979). Thus, the first hypothesis posits positive effect of CEOP on FRT.

H1: CEO power positively influences firm risk-taking.

Various studies have explored the intricate relationship between CEOP and FRT, considering different aspects of CEOP. Examination of CEOP components such as prestige (academic degree), ownership, expert (CEO tenure), structural (duality of CEO and inside directors), and demographic (age and gender) power was conducted by Haider and Fang (2018). Results revealed a significant negative association between CEOP and both total and idiosyncratic risks, challenging the notion that CEOs consistently favour risky ventures. Zou et al. (2020) differentiated formal (ownership and duality) and informal (independence and tenure) CEOP, finding a positive link between formal power from ownership and firm risk, while informal power from expertise (tenure) showed a negative association. CEO ownership was perceived as closely linked with firm performance, possibly motivating the pursuit of ventures with elevated risks. In contrast, the duration of a CEO's tenure was associated with diminished firm risk, as it augmented decision-making caution in situations characterized by uncertainty. CEO duality, however, provided insufficient incentives for increased risk-taking (Foong et al., 2021). In a nuanced approach, Foong et al. (2021) studied CEOP in family firms, revealing mixed findings regarding structural and expert power promoting higher risk-taking and ownership power correlating with lower risk-taking. Li (2019) explored CEOP across a diverse sample, finding that powerful CEOs tended to take higher risks, influenced by opportunistic decision-making prioritizing personal interests. CEO tenure emerged as a significant factor, allowing for greater risk embracement due to extensive familiarity with the firm's structure and processes (Cheikh, 2014). Varied theoretical and methodological approaches are attributed to the divergent research findings. This study underscores the multidimensional nature of CEOP, incorporating tenure, ownership, duality and independence in the director board of CEO (Foong et al., 2021; Zou et al., 2020). Hence, the second hypothesis posits diverse effects of CEOP characteristics on FRT.

H2: CEO power's characteristics yield varied impacts on firm risk-taking.

While agency theory traditionally addresses conflicts between managers and shareholders, its applicability extends to explaining the conduct of state owners as stakeholders (Nguyen & Wong, 2021; Tran et al., 2023). Indeed, the dynamics differ for different owners, whose interests are intricately linked to overall wealth portfolios, personal gains and losses, and the potential for entrenchment (Uddin, 2016). SO introduces a scenario where the owner or presenter of enterprises functions under state influences. Under pressure to preserve capital, representatives of SO rarely venture into high-risk investment projects, often opting for risk aversion to safeguard their positions and benefits (Nguyen et al., 2020). Although the corporation's risk profile reflects diverse shareholder interests and is notably influenced by the government, SO often holds the preeminent position as the most politically powerful shareholder, irrespective of percentage (Sharma et al., 2020).

Approaching it from an agency theory standpoint, the extent to which a CEO shapes a firm's risk-taking behaviour is intricately tied to the firm's ownership structure, as noted by Haider and Fang (2018). The ownership structure delineates the decision-making processes, managerial oversight, and compensation mechanisms, thereby substantially influencing a firm's risk profile (Jensen & Meckling, 1976). When the government assumes a pivotal role as a major shareholder, inherent conflicts arise between governmental objectives and those of the CEOs. State-owned enterprises juggle financial and social goals concurrently, whereas CEOs prioritize a more straightforward cost-benefit analysis (Chintrakarn et al., 2014). Moreover, the socio-political inclinations of government officials become crucial in evaluating and promoting CEOs in state-owned enterprises (Duong et al., 2023). Several studies, including those by Vo (2018) and Nguyen et al. (2020), have revealed that state-owned listed corporations tend to be more risk-averse compared to their non-state-owned counterparts. Drawing from this empirical foundation, significant shareholders shape the dynamic between CEOP and a firm's willingness to take risks through active monitoring and control, ultimately aligning with the firm's best interests (Haider & Fang, 2018). In light of these insights, we formulate the third hypothesis as follows:

H3a: State ownership reduces the influences of CEO power on firm risk-taking.

H3b: State ownership reduces the influences of CEO power's characteristics on firm risk-taking.

3. Data and method

3.1. Data

Data for this study were collected from listed firms on the Vietnam stock exchanges during the period from 2010 to 2020. Financial information was extracted from financial statements, and indicators of CEOP were derived from firm governance reports. Firms with incomplete information were excluded to ensure comprehensive data, leading to a final sample of 303 corporations with 3,121 observations. Additionally, it is essential to note that institutions in the financial sector, including banking, securities, and insurance industries, were not included in the study.

3.2. Variable descriptions

3.2.1. Firm risk-taking

Firm executives seek to embrace higher risks in pursuing strategies, aiming to maximize profits despite the increased volatility in financial performance caused by internal and external uncertainties (Darsono et al., 2022; Nguyen et al., 2020). The fluctuation in returns over time serves as an indicator of the firm's level of risk-taking. In alignment with previous studies, we employ two variables as proxies for FRT.

First, RISK1 is measured as the standard deviation of return on assets (ROA), and a higher standard deviation in this variable reflects increased FRT, followed by Zou et al. (2020) and Nguyen et al. (2020). This measure captures debt risk and encompasses any realized risks affecting a firm's profits (Mihet, 2013). Calculating the standard deviation of ROA requires at least three years of ROA data (e.g. T-2 to T).

$$RISK1_{it} = \sqrt{\frac{1}{T-1} \sum_{t=1}^T (ROA_{it} - \frac{1}{T} \sum_{t=1}^T ROA_{it})^2} \mid T \geq 3 \quad (1)$$

Second, RISK2 is measured by the standard deviation of daily stock returns (DSR) in a year (Chakraborty et al., 2019; Zou et al., 2020). Regarded as the market risk gauge, this proxy signifies the extent of equity risk manifested in the volatility of stock returns (T is the number of trading days in a year).

$$RISK2_{it} = \sqrt{\frac{1}{T-1} \sum_{t=1}^T (DSR_{it} - \frac{1}{T} \sum_{t=1}^T DSR_{it})^2} \quad (2)$$

3.2.2. CEO power

Four CEOP aspects, namely Structural Power, Expert Power, Ownership Power, and Prestige Power, were identified by Finkelstein (1992). However, Tang et al. (2011) eliminated Prestige Power, deeming it non-essential. Following their suggestion and that of Han et al. (2016), this study focuses on three dimensions of CEOP: (i) Structural Power showing the CEO's authority, measured by the proportion of independent board members and duality of CEO. (ii) Ownership Power, reflecting the CEO's influence over compensation and decision-making, gauged by the percentage of shares held by the CEO. (iii) Expert Power, transferring the CEO's knowledge and experience, measured by CEO tenure. To address the limitation of prior studies measuring CEOP separately, the study employs the Entropy weight methodology to combine indicators in Table 1. This approach enhances objectivity by avoiding human factor interference in indicator weights (Ding et al., 2017; Wu et al., 2017). The entropy method, proven reliable in

Table 1. CEOP indicators.

Aspects	Variables	Definition
Structure power	Independence of board (CEO_INDE)	The proportion is assigned by independent members in the total members of the director board.
	Duality (CEO_DUAL)	The dummy variable is assigned a value of 1 when the CEO acts as the chairman of the board and 0 otherwise.
Ownership power	Ownership (CEO_OWEN)	The proportion of common shares being held by the CEO.
Expert power	Tenure (CEO_TENURE)	The duration of the CEO's tenure in years.

Source: Tang et al. (2011) and Finkelstein (1992).

calculating weights, is applied after standardizing all CEOP-related variables. The study calculates each variable's weight related to CEOP based on entropy values. CEOP, ranging from zero to one, is then determined by weighting each variable's score, with a higher value indicating greater CEOP (Dong et al., 2016; Teixeira et al., 2021).

3.3. Models

The following equations are employed to examine the correlation between the risk-taking behaviour and CEOP of selected firms in Vietnam. Our models are categorized into 04 distinct groups representing firm risk, CEOP, firm characteristics, and macro factors:

$$\begin{aligned} \text{FRISK}_{it} = & \beta_{30} + \gamma_3 * \text{FRISK}_{it-1} + \beta_{31} * \text{CEOP}_{it} + \beta_{32} * \text{SIZE}_{it} + \beta_{33} * \text{DEBT}_{it} + \beta_{34} * \text{CE}_{it} + \beta_{35} * \text{TBO}_{it} \\ & + \beta_{36} * \text{SALEGR}_{it} + \beta_{37} * \text{HHI}_{it} + \beta_{38} * \text{INF}_{it} + \varepsilon_{it} \end{aligned} \quad (3)$$

where FRISK_{it} represents the firm risk-taking and is described in Section 4.2. CEOP_{it} reflects the level of CEOP, which is measured in Section 3.2.2. SO_{it} is measured by the percentage of shares held by the state or state agents or state-owned enterprises (Nguyen & Wong, 2021).

$$\begin{aligned} \text{FRISK}_{it} = & \beta_{50} + \gamma_5 * \text{FRISK}_{it-1} + \beta_{51} * \text{CEOP}_{it} + \beta_{52} * \text{CEOP}_{it} * \text{SO}_{it} + \beta_{53} * \text{SIZE}_{it} + \beta_{54} * \text{DEBT}_{it} + \beta_{55} * \text{CE}_{it} \\ & + \beta_{56} * \text{TBO}_{it} + \beta_{57} * \text{SALEGR}_{it} + \beta_{58} * \text{HHI}_{it} + \beta_{59} * \text{INF}_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

As in prior studies of Zou et al., 2020, Nguyen et al. (2020), Sheikh (2019), Haider and Fang (2018) and Assidi et al. (2016) and other previous studies, SIZE_{it} , DEBT_{it} , CE_{it} , TBO_{it} and SALEGR_{it} present the firm characteristics, meanwhile, macro factors include HHI_{it} (Herfindahl-Hirschman Index), reflecting market concentration, and inflation (INF_{it}), gathered from the World Wide Indicator. ε_{it} represents the residual. All of the variable descriptions are shown in Table 2. Then, we extend the models by using CEOP characteristics to assess their differential impact on risk-taking behaviour in the following regression model:

$$\begin{aligned} \text{FRISK}_{it} = & \beta_{40} + \gamma_4 * \text{FRISK}_{it-1} + \beta_{41} * \text{CEOC}_{it} + \beta_{42} * \text{SIZE}_{it} + \beta_{43} * \text{DEBT}_{it} + \beta_{44} * \text{CE}_{it} + \beta_{45} * \text{TBO}_{it} \\ & + \beta_{46} * \text{SALEGR}_{it} + \beta_{47} * \text{HHI}_{it} + \beta_{48} * \text{INF}_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

Last, we examine the influence of SO on CEOP and changes in risk-taking behaviour, including the CEOP index and the components of CEOP (CEOC) indexes as follows:

$$\begin{aligned} \text{FRISK}_{it} = & \beta_0 + \gamma_6 * \text{FRISK}_{it-1} + \beta_{61} * \text{CEOC}_{it} + \beta_{62} * \text{CEOC}_{it} * \text{SO}_{it} + \beta_{63} * \text{SIZE}_{it} + \beta_{64} * \text{DEBT}_{it} + \beta_{65} * \text{CE}_{it} \\ & + \beta_{66} * \text{TBO}_{it} + \beta_{67} * \text{SALEGR}_{it} + \beta_{68} * \text{HHI}_{it} + \beta_{69} * \text{INF}_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

where CEO ownership (CEO_OWN), CEO duality (CEO_DUAL), CEO tenure (CEO_TENURE) and CEO on board independence (CEO_INDE) are components of CEOC.

Table 2. Variable descriptions.

Variable	Definition	Measurement
RISK1	Firm risk-taking	As indicated in Section 3.2.1.
RISK2	Firm risk-taking	As indicated in Section 3.2.1.
CEOP	Power of CEO	As indicated in Section 3.2.2.
SO	State ownership	The proportion is assigned by number of shares held by the state/state agents/state ownership enterprises in total shares.
SIZE	Firm size	Total assets' natural logarithm at the year-end.
DEBT	Firm debt	The proportion of total debt in total assets at the year-end.
CE	Firm capex expenditure	The proportion of capital cost in total assets at the year-end.
TBO	Firm market value	The ratio of market value to book value of assets.
SALEGR	Firm development	The annual rate of change in firm sale
HHI	Herfindahl-Hirschman Index	Squaring the market share of each competing firm in a given market and summing up these squared values
INF	Inflation	The changes in the yearly consumer price index

Source: Author.

4. Finding and discussion

Descriptive statistics for the variables are presented in Table 3. As measured by RISK1, firm risk has a mean of approximately 2.60%, while RISK2 has a mean of about 4.60%. CEOP in our sample has an average power indicator of 0.195. On average, corporations in our study possess around 699 billion in total assets (Vietnam Dong), a debt-to-assets ratio (DEBT) of 22.70%, capital expenditure (CE) at -4.30%, a market-to-book ratio (TBQ) of 1.062, and experience a 16.60% growth in sales (SALEGR). The Herfindahl-Hirschman Index (HHI) is 0.112, with the highest value in the utility sector, while inflation (INF) averages 5.5%.

Table 4 furnishes statistical insights into the CEOP indicator's four facets. The average CEO tenure in our dataset stands at 15.997 years, indicating an experience level exceeding 15 years. Examining the range from minimum to maximum values unveils a spectrum spanning from the shortest-serving CEO with one year of experience to the longest-serving CEO boasting 50 years of accumulated expertise. Notably, CEO duality is evident in approximately an average of 27.00% of the corporations within our sample, with 843 instances out of the 3,121 firm-year observations where CEOs concurrently hold the position of chairman. On average, CEOs have ownership stakes of around 13.60% in company stock (CEO_OWN), although there are 368 instances where CEOs do not possess any firm shares. Additionally, the CEO_INDE component reflects a mean value of 37.20%, indicating that independent members comprise roughly 37.20% of all board directors.

Table 5 displays the correlation matrix among variables. For the RISK1 proxy, there is a significantly negative correlation between investment opportunity and FRT, indicating that as a firm's investment opportunity improves its risk-taking increases. FRT, measured by RISK1, significantly correlates negatively with firm size and debt in this context. Conversely, when measuring FRT with RISK2, debt exhibits a

Table 3. Variable statistics.

Variable	Obs	Mean	Std	Min	Max
RISK1	3,121	0.026	0.035	0.000	0.533
RISK2	3,121	0.046	0.024	0.000	0.278
SO	3,112	23.452	24.534	0.000	96.720
CEOP	3,121	0.195	0.248	0.000	0.980
SIZE	3,121	27.273	1.451	23.441	32.510
DEBT	3,121	0.227	0.185	0.000	0.798
CE	3,121	-0.043	0.073	-0.822	0.639
TBQ	3,121	1.062	0.540	0.192	8.902
SALEGR	3,121	0.166	1.162	-1.049	29.556
HHI	3,121	0.112	0.114	0.019	0.574
INF	3,121	5.504	4.668	0.631	18.678

Source: Authors.

Table 4. Descriptive statistics for the characteristics of CEOP.

Variable	Obs	Mean	Sd	Min	Max
CEO_TENURE	3,121	15.997	9.158	1.000	50.000
CEO_DUAL	3,121	0.270	0.444	0.000	1.000
CEO_OWN	3,121	0.136	0.224	0.000	0.995
CEO_INDE	3,121	0.372	0.183	0.000	1.000

Source: Authors.

Table 5. Pearson correlation matrix.

	RISK1	RISK2	CEOP	SIZE	DEBT	CE	TBQ	SALEGR	HHI	INFL
RISK1	1.000									
RISK2	0.081	1.000								
CEOP	0.020	0.074	1.000							
SIZE	-0.047	-0.170	-0.028	1.000						
DEBT	-0.097	0.060	0.046	0.358	1.000					
CE	0.023	0.028	0.028	-0.079	-0.160	1.000				
TBQ	0.090	-0.097	-0.088	0.094	-0.184	-0.094	1.000			
SALEGR	-0.006	0.016	0.023	0.064	-0.017	-0.004	-0.006	1.000		
HHI	0.072	-0.156	-0.025	0.063	-0.057	0.005	0.180	-0.017	1.000	
INFL	0.060	0.187	0.047	-0.082	0.039	-0.036	-0.178	0.007	-0.103	1.000

Source: Authors.

significantly positive correlation with risk-taking, while firm size and investment opportunity are negatively correlated. Notably, firm size and debt demonstrate a substantial correlation coefficient of 0.358, indicating an absence of multicollinearity issues.

Table 6 presents the empirical findings about the correlation between CEOP and FRT. The respective *p*-values for the Hansen test of RISK1 and RISK2 are 0.282 and 0.275. These results indicate the validity of the instruments in addressing endogeneity concerns through the Hasen test. Furthermore, the *p*-values of the AR(2) test show that no second-order autocorrelation is confirmed, but it rejects the null hypothesis about no first-order autocorrelation. Hence, the estimations are reliable and validity. Our analysis exploring the first hypothesis (H1) posits that CEOP influences FRT. The results in Table 6 provide supportive evidence for our hypothesis. Notably, the proxies for CEOP coefficients are significantly positive at 0.6371 (RISK1) and 0.0728 (SDROE), respectively. Thirdly, the estimation results clearly show that SO significantly mitigates CEOP's risk-taking behaviour, shown by negative coefficients of -0.0003 (for RISK1) and -0.0006 (for RISK2), respectively. Our results support hypothesis H3a, that SO decreases risk-taking behaviour by appointed (or elected) CEOs through increasing the monitoring and supervising.

These findings can be elucidated by considering that an increase in CEOP may bolster the confidence of CEOs in the potential rewards linked to intrinsic payoffs and reduce their aversion to risk (Sheikh, 2019). The principle of high risk and high return might encourage the CEO to invest in ventures with increased risk potential, aiming to attain benefits associated with profits (Hirshleifer et al., 2012). Furthermore, an overconfident CEO might perceive their actions as aligned with shareholders' interests, leading them to utilize free cash flow to expand their footprint. As a result, firms led by overconfident CEOs may face challenges related to overinvestment, consequently amplifying the firm inclination for risk-taking, as suggested in studies by Shahab et al. (2020) and Sheikh (2019). However, SO participation with the right to supervise and appoint management board representatives can deter CEOs' risky behaviour. Previous studies by Vo (2018) and Nguyen et al. (2020) also showed that SO reduced total risks in enterprises.

Table 6. The relationships among FRT, CEOP, and SO.

Equation	Eq. (3)	Eq. (4)	Eq. (3)	Eq. (4)
RISK(-1) (by RISK1)	0.6317*** (-246.77)	0.6270*** (-247.43)	—	—
RISK(-1) (by RISK2)	—	—	0.0728*** (-29.79)	0.0666*** (-28.32)
CEOP	0.0034*** (-7.94)	0.0050*** (-11.01)	0.0017*** (-6.41)	0.0068*** (-15.89)
SO*CEOP	—	-0.0003*** (-9.08)	—	-0.0006*** (-19.60)
SIZE	-0.0008*** (-6.47)	-0.0010*** (-7.93)	-0.0044*** (-38.31)	-0.0049*** (-44.41)
DEBT	0.0024*** (-4.27)	0.0021*** (-3.82)	0.0318*** (-27.26)	0.0309*** (-24.59)
CE	0.0423*** (-18.86)	0.0402*** (-18.48)	0.0342*** (-15.99)	0.0287*** (-18.67)
TBQ	0.0045*** (-25.07)	0.0046*** (-23.51)	0.0055*** (-24.74)	0.0057*** (-22.58)
SALEGR	-0.0001*** (-3.68)	-0.0001*** (-5.32)	-0.0011*** (-26.69)	-0.0013*** (-25.60)
HHI	-0.0042*** (-4.49)	-0.0041*** (-3.96)	-0.0980*** (-45.63)	-0.0940*** (-40.16)
INF	0.0001*** (-3.39)	0.0001*** (-6.12)	0.0005*** (-38.90)	0.0006*** (-31.88)
Constant	0.0257*** (-7.80)	0.0321*** (-9.32)	0.1591*** (-48.58)	0.1725*** (-57.63)
Number of Groups	303	303	303	303
Number of IV	261	261	295	295
AR(1) test	0.000	0.000	0.000	0.000
AR(2) test	0.370	0.377	0.202	0.182
Hansen test	0.282	0.357	0.275	0.263

***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

() shows the *t*-statistic of the coefficient.

Source: Authors.

Next, Table 7 illustrates the relationship between the characteristics of the CEOP and FRT. Specifically, CEO_OWN and CEO_TENURE exhibit significant negative associations with FRT. In Table 7, the coefficients of CEO_OWN are -0.0016 (for RISK1) and -0.0333 (for RISK2), while coefficients of CEO_TENURE are -0.0002 (for RISK1) and -0.0003 (for RISK2), respectively. This study elucidates that increasing CEO ownership is tied to heightened wealth-performance sensitivity, prompting overly conservative risk choices (Kim & Buchanan, 2011). Further emphasis is placed by Souder and Shaver (2010) on the notion that firms led by CEOs with substantial stock ownership are less prone to engaging in risky long-term investments. In a similar vein, substantial expert power enables CEOs to adeptly navigate external and internal challenges in uncertain conditions, thereby mitigating firm risk. This outcome is in alignment with the findings of Foong et al. (2021) and Zou et al. (2020), suggesting that a lower inclination for risk-taking is associated with a high degree of CEO ownership and CEO expertise.

Notably, a significant observation emerges regarding the distinct impacts of individual characteristics within the CEOP indicator on FRT. Specifically, the structural power of the CEO, encompassing CEO_DUAL and CEO_INDE, exhibits a noteworthy positive correlation with FRT. One plausible explanation is that the dual role of CEO and Chairman may have detrimental effects on the monitoring function of the board of directors. CEO_DUAL could foster self-interest managerial behaviour, hindering the influential oversight role of the board of directors. In essence, CEO_DUAL might diminish the board's ability to control the directors, potentially leading to more risk-prone decision-making. Moreover, non-executive directors on boards play a crucial role in mitigating conflicts of interest between managers and shareholders (Jensen & Meckling, 1976). A positive link between a CEO's structural power and FRT has been identified in previous studies, including those conducted by Foong et al. (2021) and Mirza et al. (2019) and Farag and Mallin (2016). SO is also observed to reduce the influence of CEOP on FRT in component indices, similar to previous findings in Table 6.

Tables 6–8 reveal notable patterns in our estimates. Risk-taking is consistently negatively influenced by firm size (SIZE), achieving a 1% significance level across both RISK1 and RISK2, aligning with prior research (Chintrakarn et al., 2014; Jo & Na, 2012). Our results indicate that larger firms opt for less risk,

Table 7. The relationships among FRT (RISK1), characteristics of CEOP and SO.

Equation	Eq. (5)	Eq. (6)	Eq. (5)	Eq. (6)	Eq. (5)	Eq. (6)	Eq. (5)	Eq. (6)
Characteristics of CEOP	CEO_DUAL	CEO_DUAL	CEO_INDE	CEO_INDE	CEO_OWN	CEO_OWN	CEO_TENURE	CEO_TENURE
RISK(-1)	0.6339*** (260.20)	0.6329*** (249.76)	0.7627*** (256.66)	0.7596*** (265.10)	0.6277*** (265.06)	0.6288*** (262.63)	0.6249*** (322.49)	0.6214*** (293.59)
CEOC	0.0031*** (9.08)	0.0043*** (9.97)	0.0034** (2.22)	0.0107*** (5.62)	-0.0016*** (-5.58)	-0.0027*** (-6.15)	-0.0002*** (-11.70)	-0.0001*** (-4.27)
SO*CEOC	–	-0.0001*** (-5.37)	–	-0.0003*** (-7.85)	–	0.0000*** (2.03)	–	0.0000*** (-6.52)
SIZE	-0.0007*** (-5.86)	-0.0008*** (-6.40)	-0.0005*** (-3.20)	-0.0011*** (-5.89)	-0.0012*** (-13.26)	-0.0012*** (-13.29)	-0.0013*** (-15.58)	-0.0014*** (-15.84)
DEBT	0.0023*** (3.94)	0.0020*** (3.60)	0.0049*** (4.67)	0.0058*** (5.05)	0.0047*** (8.02)	0.0049*** (8.04)	0.0038*** (8.08)	0.0040*** (8.00)
CE	0.0438*** (22.00)	0.0422*** (21.36)	0.0574*** (12.78)	0.0538*** (12.46)	0.0560*** (31.84)	0.0565*** (32.04)	0.0471*** (26.41)	0.0457*** (24.13)
TBQ	0.0046*** (22.94)	0.0046*** (22.65)	0.0047*** (11.62)	0.0045*** (12.33)	0.0048*** (28.36)	0.0048*** (27.44)	0.0050*** (26.15)	0.0048*** (26.15)
SALEGR	-0.0001*** (-6.11)	-0.0001*** (-6.60)	-0.0007*** (-3.22)	-0.0010*** (-4.79)	-0.0001*** (-3.16)	-0.0001*** (-2.85)	0.0000* (-1.72)	0.0000** (-2.27)
HHI	-0.0051*** (-5.38)	-0.0047*** (-4.84)	-0.0061 (-3.47)	-0.0012 (-0.58)	-0.0076*** (-6.54)	-0.0078*** (-6.71)	-0.0048*** (-4.98)	-0.0036*** (-3.78)
INF	0.0000*** (1.61)	0.0001*** (3.69)	0.0001*** (1.53)	0.0001*** (2.59)	0.0000*** (2.70)	0.0000*** (2.50)	0.0001*** (3.75)	0.0001*** (3.85)
Constant	0.0248*** (7.21)	0.0268*** (7.69)	0.0148*** (3.17)	0.0296*** (5.71)	0.0374*** (15.50)	0.0376*** (15.52)	0.0424*** (19.60)	0.0442*** (19.14)
Number of groups	303	303	303	303	303	303	303	303
Number of IV	261	261	209	209	267	267	279	279
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.368	0.371	0.338	0.341	0.379	0.379	0.374	0.375
Hansen test	0.269	0.272	0.157	0.148	0.289	0.275	0.485	0.518

***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

() shows the t-statistic of the coefficient.

Source: Authors.

Table 8. The relationships among FRT (RISK2), characteristics of CEO and SO.

Equation	Eq. (5)	Eq. (6)	Eq. (5)	Eq. (6)	Eq. (5)	Eq. (6)	Eq. (5)	Eq. (6)
Characteristics of CEO	CEO_DUAL	CEO_DUAL	CEO_INDE	CEO_INDE	CEO_OWEN	CEO_OWEN	CEO_TENURE	CEO_TENURE
RISK(-1)	0.0599*** (29.66)	0.0533*** (29.19)	0.0542*** (16.40)	0.0396*** (11.11)	0.1172*** (63.42)	0.1149*** (76.06)	0.0668*** (27.01)	0.0611*** (23.92)
CEOC	0.0045*** (25.99)	0.0102*** (41.95)	0.0242*** (32.87)	0.0364*** (32.77)	-0.0333*** (-233.79)	-0.0531*** (-118.49)	-0.0003*** (-13.78)	-0.0002*** (-9.14)
SO*CEOC		-0.0004*** (-27.15)	-	-0.0005*** (-18.70)	-	0.0007*** (57.96)		0.0000*** (-13.85)
SIZE	-0.0046*** (-46.62)	-0.0050*** (-39.48)	-0.0042*** (-29.64)	-0.0048*** (-36.39)	-0.0019*** (-29.88)	-0.0012*** (-15.28)	-0.0047*** (-34.86)	-0.0050*** (-36.10)
DEBT	0.0319*** (31.64)	0.0307*** (39.37)	0.0347*** (19.41)	0.0318*** (17.74)	0.0227*** (33.69)	0.0271*** (38.15)	0.0318*** (33.36)	0.0312*** (28.05)
CE	0.0329*** (14.7)	0.0298*** (24.12)	0.0469*** (20.83)	0.0368*** (17.64)	0.0461*** (52.51)	0.0489*** (51.63)	0.0250*** (17.69)	0.0241*** (15.11)
TBQ	0.0053*** (32.75)	0.0054*** (24.45)	0.0066*** (21.47)	0.0063*** (21.04)	0.0007*** (4.17)	0.0004*** (3.91)	0.0061*** (27.80)	0.0061*** (32.32)
SALEGR	-0.0010*** (-24.12)	-0.0012*** (-29.11)	-0.0009*** (-13.80)	-0.0013*** (-11.39)	-0.0002*** (-3.98)	-0.0001*** (-2.74)	-0.0012*** (-20.94)	-0.0013*** (-25.18)
HHI	-0.0925*** (-53.45)	-0.0893*** (-45.39)	-0.0913*** (-32.64)	-0.0838*** (-29.31)	-0.0365*** (-30.15)	-0.0423*** (-35.24)	-0.0945*** (-59.81)	-0.0929*** (-59.83)
INF	0.0005*** (38.33)	0.0006*** (37.40)	0.0005*** (19.42)	0.0005*** (25.65)	0.0002*** (15.99)	0.0002*** (15.34)	0.0005*** (38.32)	0.0005*** (38.08)
Constant	0.1635*** (63.21)	0.1729*** (51.35)	0.1426*** (38.33)	0.1588*** (45.96)	0.0958*** (60.32)	0.0768*** (33.32)	0.1723*** (43.59)	0.1778*** (45.71)
Number of Groups	303	303	303	303	303	303	303	303
Number of IV	298	298	282	282	300	300	290	290
AR(1) test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	0.131	0.114	0.161	0.114	0.994	0.963	0.134	0.125
Hansen test	0.303	0.294	0.142	0.146	0.386	0.410	0.222	0.207

***, **, and * denote significance levels at 1%, 5%, and 10%, respectively.

() shows the t-statistic of the coefficient.

Source: Authors.

capitalizing on economies of scale and enjoying more straightforward access to external financing. A negative relationship between firm growth (SALEGR) and risk-taking is further supported by our research, particularly evident in RISK2 or RISK1, consistent with studies by Zou et al. (2020) and Faccio et al. (2016).

In contrast, a noteworthy positive correlation emerges between capital expenditure (CE) and FRT at a 1% significance level, signifying that firms with elevated capital expenditures lean toward more risk-taking activities due to potential capital constraints. This aligns with earlier investigations by Khaw et al. (2019) and Benlemlih et al. (2016). Additionally, a positive and significant relationship surfaces between debt (DEBT) and FRT at a 1% level, resonating with findings from Zou et al. (2020), Sheikh (2019) and Benlemlih et al. (2016). Firms with higher debt ratios exhibit a proclivity for risk-taking, potentially driven by the mitigating effect of debt on agency conflicts and its role as a safeguard against bankruptcy.

Moreover, our study indicates that firms with greater TBQ are inclined to take more risks due to future cash flow uncertainty. This observation aligns with previous studies by Zou et al. (2020), Sheikh (2019), and Haider and Fang (2018). The remaining indicators in our estimates, such as the market concentration index (HHI) and inflation (INF), consistently yield significant results. HHI has a statistically significant negative impact on risk levels, reflecting the risk aversion of companies in monopolistic markets (Canta et al., 2023). As observed in prior studies (Angeloni et al., 2015; Tran & Le, 2022), rising inflation is associated with increased institutional risk-taking tendencies.

5. Conclusion

While risk aversion is commonly perceived as an individual trait, it is essential to recognize that avoiding all forms of risk is impractical in business. Indeed, many risk-taking endeavours are closely linked to potential opportunities for growth and advancement. However, the uncertainties arising from internal and external factors can significantly impact profitability and financial performance. Consequently, corporations must

demonstrate astute risk management capabilities, allowing them to capitalize on the benefits risks can offer and ensure their long-term survival in the competitive business landscape. Effective firm governance practices can potentially enhance its performance and mitigate risks. However, in situations where other executives hold divergent opinions, the decision-making process of CEOs can be influenced by the extent of their power, given that they are responsible for firm governance mechanisms. Despite the pivotal role that a manager's propensity for risk-taking plays in driving a company's growth and performance, the influence of CEOP on FRT has received limited attention in academic research.

Hence, this study examines the interaction between CEOP and FRT in Vietnam from 2010 to 2020. The primary objective is to address existing literature gaps by exploring the relationship between CEOP and FRT while introducing an indicator to measure power levels. Additionally, the study sheds light on the influential role of SO in top managerial decision-making and its impact on firm-level risk choices across different power levels, contributing to the prevailing body of research. Utilizing RISK1 and RISK2 as proxies for FRT, this investigation establishes that powerful CEOs tend to gravitate towards risky activities. However, SO has the effect of restraining CEOs' risk preferences through monitoring and representation mechanisms. A noteworthy revelation from the analysis is the varied effects of individual characteristics within the CEOP index on FRT. The structural power of the CEO, including elements such as duality and an independent board of directors, displays a significant positive association with FRT. In contrast, ownership power and expert power exert a significantly negative influence on FRT. These findings hold substantial implications for management literature and practices in corporate governance, especially in the allocation and monitoring of CEOP, significantly shaping perceptions of FRT.

The study's findings offer practical implications for management practices and firm governance. Managers and firm leaders should recognize the influential role of CEOP in shaping FRT and the positive impact of SO in supervision. Striking a balance between empowering CEOs and maintaining organizational checks and balances is crucial. Solutions may involve implementing comprehensive risk assessment procedures, establishing clear risk appetite frameworks, and implementing effective internal controls to monitor and manage risks associated with CEO decision-making. The study underscores the positive association between the structural power of the CEO and FRT, comprising elements such as duality and independent directors. To foster effective risk management, corporations should ensure higher independence among board members, reducing potential conflicts of interest and enhancing oversight mechanisms. Additionally, balancing ownership concentration and diversifying ownership interests can contribute to a more prudent approach to risk management. Encouraging knowledge sharing and continuous learning among executives can enhance risk assessment, mitigate excessive risk-taking, and focus on establishing transparent, accountable, and well-functioning governance structures that promote ethical decision-making, accountability, and risk oversight.

Nevertheless, this study has limitations in exploring the relationship between CEOP and FRT perception. The reliance on secondary archival data is acknowledged, and the authors propose that future research utilize multiple data sources for a more comprehensive analysis of the construct's operationalization. Moreover, it is noted that the study exclusively delved into the effects of CEOP on the inclination toward risk-taking and did not delve into other aspects related to firm finance or strategy. Exploring moderating variables in future studies, such as the interaction between CEOP and the characteristics of the director board or financial factors like financial debt, earning management, or financial distress, is also recommended.

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Data availability statement

The data presented in this study are available on request from the corresponding author.

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