The effects of political connections on labor investment: evidence from Indonesia

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Abstract

Purpose – The purpose of our study is to investigate the effects of politically-connected boards (*PCBs*) on over-(under-)investment in labor. We also examine the impacts of the supervisory board (*SB*)'s optimal tenure on the association between *PCBs* and over-investment in labor.

Design/methodology/approach – We constructed the proxy for *PCBs* using a dummy variable set to 1 (one) if a firm has politically-connected boards and zero (0) otherwise. For the robustness check, we used the number of politically-connected members on the boards as the proxy for *PCBs*.

Findings – We find that the presence of *PCBs* reduces over-investment in labor. Consistent with our prediction, we found no significant association between *PCBs* and under-investment in labor. We also find that the *SB* with optimal tenure strengthens the negative association between *PCBs* and over-investment in labor. In our channel analysis, we find that the presence of *PCB* mitigates over-investment in labor through a higher dividend payout ratio.

Research limitations/implications – Due to the unavailability of data in firms' annual reports regarding the number of poorly-skilled and highly skilled employees, we were not able to examine the effect of low-skilled and high-skilled employees on over-investment in labor. Also, we were not able to examine over-(under-) investment in labor by drawing a distinction between general (generalist) and firm-specific human capital (specialist) as suggested by Sevcenko, Wu, and Kacperczyk (2022). Generally, it is more difficult for managers to hire highly-skilled employees, specialists in particular, thereby driving the choice of either over- or under-investing in the labor forces. In addition, in the firms' annual reports, there is no information regarding temporary employees. Therefore, if and when such data become available, this would provide another avenue for future research.

Practical implications – Our study offers several practical implications and insights to stakeholders (e.g. insiders or management, shareholders, investors, analysts and creditors) in the following ways. First, our study highlights significant differences between capital investment and labor investment. For instance, labor investment is considered an expense rather than an asset (Wyatt, 2008) because, although such investment is human capital and is not recognized on the firm's balance sheet (Boon *et al.*, 2017). In addition, labor investment is characterized by: its flexibility which enables firms to make frequent adjustments (Hamermesh, 1995; Dixit & Pindyck, 2012; Aksin *et al.*, 2015), its non-homogeneity since every employee is unique (Luo *et al.*, 2020), its direct impact on morale and productivity of a firm (Azadegan *et al.*, 2013; Mishina *et al.*, 2004; Tatikonda *et al., 2013*), and its financial outlay which affects the ongoing cash flows of a firm (Sualihu *et al.*, 2021; Khedmati *et al.*, 2020; Merz & Yashiv, 2007). Second, our findings reveal that the presence of *PCBs* could help to reduce over-investment in labor. However, if managers of a firm choose to under-invest in labor in order to obtain better profit in the short-term through cost saving, they should be aware of the potential consequences of facing a financial loss when a new business opportunity suddenly arises which requires a larger labor force. Third, our

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findings help stakeholders to re-focus on the labor investment. This is crucial due to the fact that labor investment is often neglected by those stakeholders because the expenditure of labor investment is not recognized on the firm's balance sheet as an asset. Instead, it is written off as an expense in the firm's income statement. Fourth, our findings also provide insightful information to stakeholders, suggesting that an *SB* with optimal tenure is more committed to a firm, and this factor plays an important role in strengthening the negative association between *PCBs* and over-investment in labor.

Social implications – First, our findings provide a valuable understanding of the effects of *PCBs* on over-(under-)investment in labor. Stakeholders could use information disclosed in the financial statements of a publicly-listed firm to determine the extent of the firm's investment in labor and *PCBs*, and compare this information with similar firms in the same industry sector. Second, our findings give a better understanding of the association between investment in labor and political connections , which are human and social capital that could determine the long-term survival and success of a firm. Third, for shareholders, the appointment of board members with political connections is an important strategic decision to build political capital, which is likely to have a long-term impact on the financial performance of a firm; therefore, it requires thoughtful consultation with firm insiders.

Originality/value – Our findings highlight the role of *PCBs* in reducing over-investment in labor. These findings are significant because both investment in labor and political connections as human and social capital can play an important role in determining the long-term survival and success of a firm.

Keywords Investment in labor, Off-balance sheet asset, Politically-connected boards, Supervisory board's optimal tenure

Paper type Research paper

1. Introduction

Human capital plays an important role in contributing to the financial performance of a firm and the economic growth of a country. Firms with effective management of human resources related to labor investment in particular are generally in a better position to compete and prosper in a changing market environment [1]. Drábek, Lorincová, and Javorčíková (2017) assert that the future will certainly belong to firms which focus on investing in human capital. As a country that has strong growth opportunities (World Economics, 2024), Indonesia offers businesses and investors a lucrative opportunity for market expansion, which may affect labor investment. By capitalizing on the potential for business expansion, political connections could offer firms a number of sources of information including the government's medium- and long-term economic policy and strategy (González-Bailon, Jennings, & Lodge, 2013; Liu, Xin, & Li, 2021). This may help managers to predict market demands more accurately, thereby reducing over-invesment in labor. Since political connections require commitment from top management, and to maximize the benefits of such political connections, shareholders may strategically appoint former public officials and politicians with established reputations as stewards to their boards [2].

Prior studies have investigated how labor investment efficiency is associated with various firm characteristics such as financial reporting quality (Jung, Lee, & Weber, 2014), equity-based compensation (Sualihu, Rankin, & Haman, 2021), CEO-director ties (Khedmati, Sualihu, & Yawson, 2020), employee-friendly treatment (Cao & Rees, 2020), and prospector(defender-) type business strategy (Habib & Hasan, 2021). Furthermore, prior studies have examined the impacts of political connections on the capital investment efficiency. They find that political connections increase the inefficiency of capital investment (Chen, Sun, Tang, & Wu, 2011; Duchin & Sosyura, 2012; Cherkasova & Ivanova, 2019). What is missing from the landscape of prior studies (Jung *et al.*, 2014; Khedmati *et al.*, 2020; Cao & Rees, 2020; Habib & Hasan, 2021; Chen, Sun, *et al.*, 2011; Duchin & Sosyura, 2012; Cherkasova & Ivanova, 2019) is an investigation to determine whether political connections influence labor investment. Our study addresses this gap by examining the impacts of politically-connected boards (*PCBs*) on over-(under-)investment in labor. This is important because the findings of prior studies (Chen, Sun, *et al.*, 2011; Duchin & Sosyura, 2012; Cherkasova & Ivanova, 2019) on the association between political connections and capital investment inefficiency cannot be meaningfully extrapolated to investment in labor for the following reasons.

Firstly, investment in labor differs from investment in capital expenditures. Unlike the latter (e.g. plant, property and equipment/*PPE)*, which refers to tangible assets that are listed on a firm's balance sheet, the expenditure related to investment in labor is not capitalized; instead, it is written off as an expense in the firm's income statement (Wyatt, 2008). Because it is considered an expense, managers and other stakeholders (e.g. shareholders, investors, analysts and creditors) often pay less attention to investment in labor. It is worth noting that investment in labor should not be seen merely in terms of a firm's financial outlay, but as the most important off-balance-sheet asset, which comprises human capital characterized by a pool of skills, knowledge, talents and capabilities that could generate greater net economic benefits than those of a firm's competitors (Boon, Eckardt, Lepak, & Boselie, 2017).

Secondly, unlike capital investment, costs related to labor investment (e.g. salary, wages and related expenses) affect a firm's cash flow on an ongoing basis (Sualihu *et al.*, 2021; Khedmati *et al.*, 2020; Merz & Yashiv, 2007). Further, capital investment such as *PPE* is homogenous. Conversely, the labor force is not homogenous since every employee is unique and, in addition, employees are free to choose whether to join, stay, or leave a firm (Luo, Li, & Chan, 2020).

Thirdly, due to the permanent and long-term nature of capital investment, managers are usually less able to make frequent adjustments. On the other hand, managers can regularly increase or decrease investment in labor by hiring or firing (Hamermesh, 1995; Dixit & Pindyck, 2012). Therefore, in terms of resources, investment in labor gives managers more flexibility than investment in capital expenditures. Aksin, Cakan, Karaesmen, and Omeci (2015) assert that flexible resources can be adjusted to better meet uncertain demand.

Fourthly, unlike capital expenditures, over-investment (over-hiring and/or under-firing) or under-investment in labor (under-hiring and/or over-firing) has a direct impact on employees' morale and productivity, thereby affecting the firm's growth (Azadegan, Patel, & Parida, 2013; Mishina, Pollock, & Porack, 2004) and the firm's long-term survival (Tatikonda, Terjesen, Patel, & Parida, 2013).

Prior studies suggest that over-investment in labor is more likely than under-investment to have a more negative impact on the firms' profitability (Sualihu *et al.*, 2021; Lee & Mo, 2020; Chen, Kacperczyk, & Ortiz-Molina, 2011). Since a politically-connected board could have access to political networks (González-Bailon *et al.*, 2013), this could help firms to alleviate the negative impact of government policy and market uncertainty (Liu *et al.*, 2021). Hence, our first and second research questions are:

RQ1. Do politically-connected boards (*PCBs*) affect firms' over-investment in labor? and

RQ2. Do politically-connected boards (*PCBs*) affect firms' under-investment in labor?

Furthermore, we investigate the impacts of the supervisory board (*SB*)'s optimal tenure on the association between *PCBs* and over-investment in labor. The *SB* in a two-tier board system in the Indonesian setting is referred to as the board of commissioners (*BOC*). The *SB* has a special power to suspend the members of a board of director (*BOD)* (Yap, Tan, & Lai, 2020) [3]. This is more likely to strengthen the role of the *SB* in supervising, monitoring and advising the *BOD*, which is in charge of the management of the firm's business. Hence, it is also worth investigating the impacts of an *SB* on the association between *PCBs* and over-investment in labor. In this case, an *SB* in a two-tier board system that has optimal tenure may be better at fulfilling these responsibilities. However, in the literature, there are mixed findings for the effects of board tenure in a one-tier board system on various attributes including firm performance (Kor & Sundaramurthy, 2009; Huang & Hilary, 2018). Therefore, our third research question is:

RQ3. Does the supervisory board (*SB*)'s optimal tenure influence the association between *PCBs* and firms' over-investment in labor?

To address our research questions, we developed three hypotheses. To test these hypotheses, we used a sample of firms listed on the Indonesia Stock Exchange (IDX) from 2010 to 2019. We find that the presence of *PCBs* is negatively associated with over-investment in labor. On the other hand, the presence of *PCBs* has no effect on under-investment in labor. We also find that the negative association between *PCBs* and over-investment in labor is more pronounced for firms with optimal *SB* tenure. In our additional analysis, we find that the presence of *PCBs* is negatively associated with over-investment in labor through a higher dividend payout ratio.

Our study provides several important contributions. First, prior studies examine the impacts of various firm characteristics on labor investment (e.g. Jung *et al.*, 2014; Khedmati *et al.*, 2020; Cao & Rees, 2020; Habib & Hasan, 2021) and the effects of political connections on the capital investment (e.g. Chen, Sun, *et al.*, 2011; Duchin & Sosyura, 2012; Cherkasova & Ivanova, 2019). Our study complements those studies on labor investment and political connections by specifically investigating the effects of politically-connected boards (*PCBs*) on over-(under-)investment in labor. Second, our study contributes to the literature on the importance of separating labor investment inefficiency into over- and under-investment because each has different implications for firms' operations, in particular for those firms that have politically-connected boards (*PCBs*). Third, prior studies on board optimal tenure are focused on a one-tier board system. On the other hand, our study contributes to the literature on the role of the supervisory board's optimal tenure in a two-tier board system in influencing the association between *PCBs* and over-investment in labor.

The remainder of the paper is organized as follows. In Section 2, we present the theoretical background and hypothesis development. Section 3 discusses the sample selection, data sources and research method. Section 4 presents the results of our hypotheses testing, endogeneity testing and additional analyses. Section 5 concludes the findings, acknowledges the limitations of the study, and offers suggestions for future research.

2. Theoretical background and hypothesis development

2.1 Indonesian setting and political connections

Politically-connected firms are a global trend. Indonesia provides a distinctive setting for the study of political connections, particularly after the reforms introduced in 1998. The Indonesian political system has been transformed from a centralized, autocratic government to a more democratic system since President Soeharto stepped down from his position in 1998. For instance, instead of having only one powerful president (e.g. Soeharto for 32 years from 1966 to 1998), Indonesia has elected five different presidents over the last 24 years since 1998. Interestingly, since 2004, the last two presidents have been directly elected by the Indonesian people in the general elections (Harianto, 2020).

In addition to the major shift in the Indonesian political system and law reforms intended to establish a more democratic government, the focus of government has also shifted from reliance on natural resources to a more efficient economy in the service and manufacturing industry sectors which contribute to the employment of 45% (compared to only a third in 1990) and 21% (having become more prominent in recent years) of local workers, respectively [4]. The change in the Indonesian political and economic environment provides opportunities for researchers to further explore the role that political connections in Indonesia play in ensuring firms' efficiency and success post-1998-reforms, particularly after the global financial crisis (GFC) in 2008.

Extant studies have found that political connections can affect firm value (Fisman, 2001; Goldman, Rocholl, & Jongil, 2009; Kim, Pantzalis, & Park, 2012; Fan & Chen, 2022). Gao, Martin, Hu, and Lu (2023) found that firms select new directors with political backgrounds as a strategic decision to build political capital to improve firm performance. Peng, Zhang, and Zhu (2017) found that political connections help firms to obtain long-term loans. Firms generally use a politician as a rent seeker (Krueger, 1974). El Nayal, Van Oosterhout, and Van Essen (2021) state that "politician-directors can supply firms with valuable, private

knowledge of the inner workings of government. This can involve sharing information on loopholes in the bureaucracy, as well as the provision of a real-time insider's view into the policymaking process" (p. 459–460). In this context, shareholders could appoint reputable former public officials and politicians to the board as a signal of their commitment to the firms and to the public (Bona-Sánchez, Pérez-Alemán, & Santana-Martín, 2014; Djankov, La Porta, Lopez-De-Silanes, & Shleifer, 2010). This will benefit not only politically-connected firms, but also those former politicians (Niessen & Ruenzi, 2010) and the economic development of the country (Claessens, 2006).

2.2 Politically-connected boards and over-investment in labor

Jensen and Meckling (1976) defined an agency relationship "as a contract under which one or more persons (the principal) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent" (p. 308). Agency theory assumes that individuals have self-interest, and therefore, their actions are more likely to be driven by their desire to maximize their own utility or wealth (Jensen & Meckling, 1976). Indonesia has a number of publicly-listed firms with high shareholding concentrations (Joni, Ahmed, & Hamilton, 2020). This has led to conflicts of interest between large shareholders (controlling shareholders) and minority shareholders (non-controlling shareholders) (Chang, 2003; Setia-Atmaja, Haman, & Tanewski, 2011). This type of conflict is referred to as "agency problem II" (principal-principal conflict) (Young, Peng, Ahlstrom, Bruton, & Jiang, 2008; Setia-Atmaja *et al.*, 2011).

From the perspective of principal-principal relationship, the controlling shareholders and non-controlling shareholders have different interests regarding the potentially conflicting objectives of profit and growth (David, O'Brien, Yoshikawa, & Delios, 2010). This may also include the conflicts of interest involved in determining the level of investment in labor. Large shareholders (controlling shareholders) could enjoy the private benefits of control at the expense of minority shareholders (non-controlling shareholders) (Setia-Atmaja *et al.*, 2011). The opponents of firms with high shareholding concentration assert that managers of such firms may misappropriate the firms' resources for the benefit of the controlling shareholders as well as for their own benefit at the expense of non-controlling shareholders (Holderness & Sheehanm, 1988; Shleifer & Vishny, 1997; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000; Claessens, Djankov, Fan, & Lang, 2002; Setia-Atmaja *et al.*, 2011). The controlling shareholders may misuse corporate resources by, for instance, subsidizing their personal loans, excessive remuneration for the members of the boards and the use of corporate assets for personal purposes (Sauerwald, Heugens, Turturea, & Essen, 2019).

As a country experiencing strong economic development with a compound annual growth rate (CAGR) of 5.1% over a ten-year period from 2013 to 2023 (World Economics, 2024) [5], Indonesia provides ample opportunities for entrepreneurs and investors to establish, develop and expand their businesses. In capitalizing on the growth potential of a business, managers of firms with a high shareholding concentration may opportunistically engage in empire building by increasing the size of labor forces in order to gain more prestige, power and rewards (Sualihu *et al.*, 2021; Stein, 2003). This may encourage managers of such firms to increase their investment in labor.

On the other hand, the proponents of firms with high shareholding concentration assert that since large shareholders have invested a substantial amount of wealth in the firms and if they dominate the voting rights of the firms and control the board, they could use their appointed board to provide effective monitoring of the firms' operations in order to ensure that managers will work in the best interests of the firms (Ang, Cole, & Lin, 2000; Anderson & Reeb, 2003; Ben-Amar & André, 2006). Moreover, from the stewardship perspective, managers with high ethical standards are more likely to behave like stewards in order to

strengthen the trustworthiness and reputation of their firm (Aleksey, 2009; Zhang, Wei, Yang, & Zhu, 2018; Eddleston & Kellermanns, 2007; Tosi, Brownlee, Silva, & Katz, 2003). In line with the stewardship perspective and the arguments from the proponents of high shareholding concentration, we expect that the presence of *PCB*s may help to mitigate the principal-principal conflict. A weaker principal-principal conflict may encourage managers to aim for optimal labor forces by reducing over-investment in labor.

Given the fact that publicly-listed firms in Indonesia are dominated by those with a high concentration of shareholdings (Joni *et al.*, 2020), we elaborate on the detrimental effects of over-investment in labor and the rationale for the beneficial effects of politically-connected boards (*PCB*s) in Indonesia in reducing over-investment in labor. Prior studies suggest that over-investment in labor may detrimentally affect the profitability, cash flows, productivity and reputation of firms. Firstly, it may be costly to firms in terms of additional labor expenses and its ongoing expenditures, thereby reducing the firms' profitability and free cash flows (Bertrand & Mullainathan, 2003; Ghaly, Dang, & Stathopoulos, 2020; Jung *et al.*, 2014; Sualihu *et al.*, 2021). Secondly, over-investment in labor means that firms have a labor force that is larger than is actually required, which is likely to cause job insecurity and financial anxiety among employees which, in turn, affects their morale and reduces the firms' productivity (Choi, Heo, Cho, & Lee, 2020). Finally, it is hard for managers to reduce the firms' labor force because the decision to fire employees is difficult, particularly when firms are required to compensate employees with a lump sum employment termination payment. Moreover, unfair dismissal claims and union backlash may have a negative impact on firms' reputation (Chen, Tong, Wang, & Zhang, 2019; Chen, Kacperczyk, *et al.*, 2011; Chu, Haw, Ho, & Zhang, 2020; Jung *et al.*, 2014).

In terms of operations management and in the absence of managerial opportunism to engage in empire building through larger labor forces, managers are generally interested in obtaining optimal labor forces by reducing over-investment in labor. However, dynamic market environments are more likely to cause market and/or demand uncertainty, which may prevent managers from securing an optimal labor force (Azadegan *et al.*, 2013; Mishina *et al.*, 2004). To avoid the negative repercussions of over-investment in labor, political connections could help firms to mitigate it. Amah (2022) states that "organizations have a means of steering participants away from the dark side to the bright side of political behavior which is useful for productivity" (p. 341). Furthermore, González-Bailon *et al.* (2013) explore in detail the attributes and importance of the firms' politically-connected board members. They state that "For companies, the value of recruitment of these individuals to their board might be derived from general attributes (for example due to their reputation, prestige, governance or networking) or traits that are domain specific (such as technical expertise, ties to domestic industry or business overseas) or some combination of these reasons" (p. 852). Hence, shareholders could strategically appoint to the board former public officials and/or politicians with established reputations (González-Bailon *et al.*, 2013; Bona-Sánchez *et al.*, 2014). Moreover, the appointment of politically-connected board members can also offer significant benefits to former public officers and politicians in terms of social status and financial rewards (González-Bailon *et al.*, 2013; Niessen & Ruenzi, 2010; Butler, Fauver, & Mortal, 2009). González-Bailon *et al.* (2013) also state that "For individuals, appointments to corporate boards provide a means for securing financial remuneration through directors' salaries and also for obtaining nonfinancial benefits such as prestige or networking opportunities (for example maintaining professional status or regular involvement in public life)" (p. 851). By holding a prestigious position on the board of a publicly-listed firm offering a sizeable remuneration, members of a politically-connected board have actually pledged their personal reputation as an intangible collateral asset (Gilson, 2007). Therefore, they are more likely to make a rational choice to work in the best interests of the firm and shareholders because if

they fail to perform their duties and fulfill responsibilities, they are more likely to lose their reputation and various privileges.

Since corporate directorship provides members of politically-connected boards with a source of income, prestige and regular involvement in public life, this could incentivize them to perform well on the board. Batta, Ricardo, and March (2014) found that due to their connections with high-level government and politicians, politically-connected firms have less risk of expropriation from the insiders and/or controlling shareholders. A politically-connected board is expected to provide better evaluative and informative advice to managers. This could help to curb managerial opportunism and engagement in empire building by means of establishing unnecessarily large labor forces.

Furthermore, as discussed earlier, Azadegan *et al.* (2013) and Mishina *et al.* (2004) suggest that the presence of market uncertainty prevents managers from establishing optimal labor forces. Politically-connected boards could also play an important role in mitigating this uncertainty. For example, a politically-connected board could assist public officials to understand the business and economic issues, thus enabling the government to adjust or formulate policies that benefit firms as well as the economy (Liedong, 2021). Faccio (2006) and Fisman (2001) also found that political connections can enhance firm value by helping firms to obtain valuable resources and deal with various external uncertainties. In addition, *PCB*s could also help firms to access new markets, increase sales, or obtain more rewarding government contracts, thereby reducing the uncertainties of market expansion (Agrawal & Knoeber, 2001; Dieleman & Sachs, 2008; Li, He, Lan, & Yiu, 2012; Li, Xia, & Zajac, 2018; Wu, Li, & Li, 2013).

Together with the previous arguments, and because *PCB*s have access to public officials and government resources, managers are able to predict market demands more accurately. In addition, better-quality *PCBs* could provide better evaluative and informative advice to managers. This enables managers to forecast their required labor force more precisely from time to time. A more accurate labor force forecast could prevent excessive labor forces. Therefore, it helps to reduce over-investment in labor and prevents managerial opportunism to engage in empire building through larger labor forces. Hence, we predict that *PCB*s could reduce firms' over-investment in labor. To address the first research question (RQ1), we develop testable hypothesis 1.

H1. The presence of politically-connected boards is negatively associated with the firms' over-investment in labor.

2.3 Politically-connected boards and under-investment in labor

Publicly-listed firms in Indonesia are characterized by the presence of high shareholding concentrations. From the perspective of agency theory II (principal-principal conflict), the proponents of high shareholding concentration suggest that managers can maximize their own interests as well as those of both the controlling shareholders and the non-controlling shareholders (Ang *et al.*, 2000; Anderson & Reeb, 2003; Ben-Amar & André, 2006). In these cases, managers may under-invest in labor in order to save labor costs, thus enabling them to record a higher profit outlook to indicate better financial performance aligned with their performance target. A better profit outlook is more likely to satisfy the interests of the managers and all shareholders.

Chen, Kacperczyk, *et al.*, (2011) found that firms with under-investment in labor have better future performance due to savings from short-term labor hire. Managers of firms facing a labor shortage due to under-investment in labor could still deliver on a potentially profitable project by hiring temporary employees (Jung *et al.*, 2014; Ghaly *et al.*, 2020; Sualihu *et al.*, 2021). Although this may not be an ideal solution in the long term, it does help firms to execute a profitable project that would increase firm value, which aligns the interests of

managers with those of all shareholders. Furthermore, De Stefano, Bonet, and Camuffo (2019) assert that temporary employees provide flexibility since managers can hire or terminate them without legal consequences. In that regard, under-investment in labor is perceived to be less problematic and more manageable than over-investment in labor.

Based on the findings in the literature, under-investment in labor offers certain benefits (Chen, Kacperczyk, *et al.*, 2011; De Stefano *et al.*, 2019), managers are more likely to under-invest in labor because by doing so, firms incur less cost and risk. Under-investment in labor gives managers the flexibility to hire more employees when new business opportunities arise (Sualihu *et al.*, 2021). If managers under-invest in labor, they can afford to increase their labor force when required. In addition, under-investment in labor is more manageable than over-investment because it is easier for managers to hire than to fire employees. The firing of employees could affect the management-employee relationship, demoralize employees, and reduce their productivity , which in turn, has a negative impact on firm growth (Sualihu *et al.*, 2021; Lee & Mo, 2020; Chen, Kacperczyk, *et al.*, 2011).

Since the managers may under-invest in labor in order to incur less cost and risk, this enables firms to record a better profit outlook. Hence, this strategy is expected to align the interests of managers with those of all shareholders, both controlling and non-controlling entities. Given the foregoing arguments, under-investment in labor is more manageable than over-investment in labor; hence, it is anticipated that the role of *PCBs* is weaker in firms with under-investment in labor. Therefore, we posit that there is no significant association between *PCBs* and under-investment in labor. To address the second research question (RQ2), testable hypothesis 2 is formulated:

H2. There is no statistically significant association between politically-connected boards and firms' under-investment in labor.

2.4 Role of supervisory board' optimal tenure

Prior studies (Belot, Ginglinger, Slovin, & Sushka, 2014; Jungmann, 2006) assert that the two-tier board system is more suitable for dealing with the agency problems in a firm that has high shareholding, thus addressing the conflicts between major shareholders and minority shareholders. Publicly-listed firms in Indonesia have a high level of shareholding concentration. The two-tier board system in Indonesia is designed to protect the interests of both the shareholders and the public by separating the responsibilities of the supervisory board (*SB*) from those of the board of directors (*BOD*) (IFC and IFSA, 2014, 2018). In this two-tier board system, shareholders appoint an *SB* to represent them in a firm because they cannot directly interfere with the firm's internal management.

As a steward of the firm, the *SB* supervises, monitors and advises the *BOD*, which is responsible for the firm's management and operations (Khalil, Harianto, & Guney, 2022). In addition, the *SB* has a statutory right giving it special power over the *BOD*. When deemed necessary in order to protect the firm's interests, the *SB* has the authority to temporarily suspend the members of the *BOD* (Yap *et al.*, 2020). In order to do so, the *SB* members need to have adequate business experience and knowledge.

In Indonesia, the members of an *SB* are generally appointed by shareholders during the Annual General Meeting (AGM); their appointment is for five years and they can be re-elected for another five years, and so on. Prior studies suggest that board tenure has a significant impact on a firm's strategic direction, monitoring mechanism, communication, financial performance and the quality of the financial report (Alves & Lourenço, 2023; Chu, Gupta, & Livne, 2021; Golden & Zajac, 2001; Li & Wahid, 2018; McGuinness, Lam, & Vieito, 2015; Sun & Bhuiyan, 2020).

Empirical studies provide mixed findings in terms of the association between the length of board tenure in a one-tier board and board effectiveness. Sun and Bhuiyan (2020) found that

longer board tenure is associated with strategic changes and better financial reporting. Li and Wahid (2018) suggest that longer board tenure can provide better monitoring of management. Golden and Zajac (2001) assert that boards with longer tenure have more knowledge and understanding of business, which helps to improve communication between board members. However, Huang and Hillary (2018) argue that shorter (longer) board tenure may make a difference in the effectiveness of a firm's governance. On the one hand, a shorter (longer) tenure may signal that the board is less (more) experienced and knowledgeable. A board with longer tenure is more likely to have better knowledge of the firm and therefore can provide better monitoring of management (e.g. Bacon & Brown, 1975; Beasley, 1996; Li & Wahid, 2018). On the other hand, shorter (longer) board tenure may indicate lower (higher) entrenchment [6], resulting in stronger (weaker) monitoring of management (Anderson, Mansi, & Reeb, 2004; Huang & Hilary, 2018; Li & Wahid, 2018). Jia (2017) found that boards with longer tenure influence the contributions of innovation outputs to the firms' future value and performance.

Explaining these differences, Kor and Sundaramurthy (2009) and Huang and Hilary (2018) found that board tenure has an inverse U-shaped relationship with firm value, accounting performance, and quality of corporate decisions such as mergers and acquisitions, and financial reporting. Since there are mixed findings with regard to the association between board tenure and board effectiveness in a one-tier board system in the literature, we conjecture that the supervisory board's optimal tenure in a two-tier board system may not affect the association between *PCBs* and over-investment in labor. To address the third research question (RQ3), we formulate non-directional hypothesis 3:

H3. The supervisory board's optimal tenure may not influence the association between politically-connected boards and the firms' over-investment in labor.

3. Research method

3.1 Sample selection and data sources

Our sample consisted of firms listed on the Indonesia Stock Exchange (IDX) from 2010 to 2019. We excluded financial and utility firms from our sample since these two industry sectors have distinctive reporting systems and are also more heavily regulated than other industry sectors (Pittman & Fortin, 2004). We downloaded the financial variables from the Bloomberg database. Our main variables (e.g. political connections, supervisory board' tenure and regional employment data) were manually collected from the firms' annual reports. Our final sample comprised 260 firms listed on the IDX with 2,456 firm-year observations spanning a 10-year period from 2010 to 2019. Because data for some variables was missing, the number of observations was reduced accordingly for the testing of hypotheses 1, 2 and 3.

Panel A of Table 1 presents the details of the sample selection process. Panel B of Table 1 shows the industry distribution and representativeness of sample firms based on the Indonesia Stock Exchange (IDX) Industry Classification [7]. Firms in the property, consumer goods manufacturing, other services and mining industry sectors comprise 17.69, 11.15, 9.62 and 9.62% of the sample, respectively. The remaining industry sectors accounted for between 4.23 and 9.23% of the sample.

3.2 Multivariate analysis

We conducted the multivariate ordinary least squares (OLS) regression models depicted in Equations (1, 2 and 3) to test hypotheses 1, 2 and 3, respectively.

Panel A: Sample selection process

Description	Firm	Firm years
IDX listed firms/observations from 2010 to 2019	413	4,130
Less		
financial firms/observations*	(68)	(680)
utility firms/observations	(2)	(20)
firms/observations with missing/incomplete data	(66)	(660)
firms/observations with negative equities**	(17)	(170)
firms/observations with missing data for control variable(s)		(144)
Final sample firms/observations	260	2,456

Note(s): *Firms with JASICA code 8, which include Banks (81), Multi-finance (82), Securities (83), Insurance (84) and others (89)
**Either in a single period or multiple periods between 2010 and 2019

Panel B: Industry distribution

Industry sector	Number of firms	%
Agriculture	13	5.00
Mining	25	9.62
Metal	11	4.23
Forestry and livestock	13	5.00
Other basic industry	21	8.08
Miscellaneous manufacturing industry	24	9.23
Consumer good manufacturers	29	11.15
Property	46	17.69
Telecommunication and Transportation	18	6.92
Hospitality (services)	14	5.38
Trading	21	8.08
Other services industry	25	9.62
Total	*260*	*100%*

Note(s): Industry distribution is based on Indonesia Stock Exchange (IDX)'s industry classification which is derived from Indonesia Business Classification (IBS) published by Central of Agency on Statistics Indonesia/ Badan Pusat Statistik (BPS). IBS is constructed by BPS using International Standard Industrial Classification (ISIC)
Source(s): Table 1 by authors

Table 1.
Sample distribution

$$OVER\_LAB_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 TOP5_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 DPR_{it} + \beta_6 TANG_{it} + \beta_7 OPER\_CC_{it} + \beta_8 Q_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (1)$$

$$UNDER\_LAB_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 TOP5_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 DPR_{it} + \beta_6 TANG_{it} + \beta_7 OPER\_CC_{it} + \beta_8 Q_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (2)$$

$$OVER\_LAB_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 SB\_TENR_{it} + \beta_3 PCB{*}SB\_TENR_{it} + \beta_4 TOP5_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \beta_7 DPR_{it} + \beta_8 TANG_{it} + \beta_9 OPER\_CC_{it} + \beta_{10} Q_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (3)$$

Where: i = firm and t = year and ε = error term

3.2.1 Dependent variable. The dependent variable in Equations (1 and 3) to test hypotheses 1 and 3 is over-investment in labor (*OVER_LAB*). On the other hand, in Equation (2), under-investment in labor (*UNDER_LAB*) is the dependent variable used to test hypothesis 2.

We measured over-(under-)investment in labor (*OVER_LAB* or *UNDER_LAB*) using a variation of Equation (4) employed by Mishina *et al.* (2004) [8].

$$OVER(UNDER)\_LAB_{it} = \left(\frac{EMPLOYEES_{it}}{ANNUAL\ SALES_{it}}\right) - \left(\frac{INDUSTRY\ EMPLOYEES_t}{INDUSTRY\ ANNUAL\ SALES_t}\right) \quad (4)$$

Where: i = firm and t = year; *OVER(UNDER)_LAB* = Over-(under)investment in labor.

Investors and analysts often assess a firm's performance by comparing it with the industry norms. Using Equation (4), we measured over-investment in labor (*OVER_LAB*) and under-investment in labor (*UNDER_LAB*) by comparing labor investment of firm i in year t with the ratio of the total number of employees of all firms in the same industry sector in year t to the total annual sales for all firms in the same industry sector in year t (Mishina *et al.*, 2004). Hence, *OVER_LAB (UNDER_LAB)* in firm i occurs when the ratio of the number of employees at the end of financial year t to the annual sales of firm i during year t is *greater* (*lower*) than the ratio of the total number of employees of all firms in the same industry sector in year t to the total annual sales for all firms in the same industry sector in year t.

Over-investment in labor is represented by the positive sign in Equation (4), and indicates that a firm has over-invested in labor compared to the industry norm. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. On the other hand, the negative sign in Equation (4) indicates that a firm has under-invested in labor relative to the industry norm. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor.

3.2.2 Explanatory variable. The presence of PCBs is the explanatory variable in Equations (1 and 2) used to test hypotheses 1 and 2. We applied a variation of the model employed by Faccio (2006), Chaney, Faccio, and Parsley (2011) and Arifin, Hasan, and Kabir (2020) to determine whether or not a firm has *PCBs*. Firms are considered as having *PCBs* if a member of the supervisory board and/or the board of directors is a former member of parliament or a former minister or a former high-ranking government official or a former public official, or has a close relationship with top politicians or a political party. Hence, the presence of $PCBs_{it}$ is a dummy variable set to 1 if firm i in year t has politically-connected board member(s) and zero (0) otherwise.

In Equation (3), the explanatory variable used to test hypothesis 3 is $PCBs_{it}{*}SB\_TENR_{it}$ which is the interaction between $PCBs_{it}$ and SB_TENR_{it}. We define *SB_TENR* as the optimal tenure of *SB*. We measure SB_TENR_{it} as a dummy variable set to 1 (one) if average *SB* tenure of firm i in year t is between five to ten years, zero (0) otherwise. We used five to ten years because the members of the *SB* are generally appointed for five years and they can be

re-elected subsequently. Further, we set eight to eleven years as the optimal tenure, as suggested by Huang and Hilary (2018).

3.2.3 Control variables. As suggested by extant studies, we included in Equations (1, 2 and 3) a number of control variables, that may affect the dependent variable. There are nine control variables including industry and year effects, namely $TOP5_{it}$, LEV_{it}, ROA_{it}, DPR_{it}, $TANG_{it}$, $OPER\_CC_{it}$, Q_{it}, $INDUSTRY_i$ and $YEAR_t$ *DUMMIES*. Details of each variable are given in Appendix. To support our hypotheses 1 and 3, we expected the coefficients of explanatory variables to be significantly negative. For hypothesis 2, we expected the coefficient of the explanatory variable to be statistically insignificant. All variables including dependent variables, explanatory variables and control variables are summarized and defined in Appendix.

4. Results

4.1 Descriptive statistics and univariate analysis

Panel A of Table 2 shows the mean, median, 25th percentile and 75th percentile values of the key variables used in the empirical analysis. All continuous variables are winsorized at the 1 and 99% levels to mitigate the effect of outliers (Kennedy, 2003; Kraft, Leone, & Wasley, 2007). The mean (median) value of labor investment inefficiency (LAB_INEFF_{it}), the proxy for labor investment inefficiency, is 9.6% (3.9%). Firms with *PCB*s accounted for 50.1% of the sample. The mean (median) value of return on assets (ROA_{it}) is 4.4% (3.2%) compared to dividend payout ratio (DPR_{it}) with a mean (median) value of 20.4% (0.0%). The sample firms

Panel A: Descriptive statistics – Whole sample

Variable	Mean	Median	25th	75th	SD
LAB_INEFF_{it}*	0.096	0.039	0.016	0.089	0.159
$PCBs_{it}$	0.501^	1.000	0.000	1.000	0.500
$TOP5_{it}$	0.708	0.732	0.592	0.858	0.181
LEV_{it}	0.475	0.478	0.311	0.632	0.209
ROA_{it}	0.044	0.032	0.003	0.076	0.087
DPR_{it}	0.204	0.000	0.000	0.306	0.349
$TANG_{it}$	0.610	0.564	0.299	0.876	0.414
$OPER\_CC_{it}$	5.019	4.851	4.395	5.459	1.012
Q_{it}	1.562	1.051	0.824	1.665	1.600

Panel B: Univariate analysis – OVER_LAB & UNDER_LAB

	Mean			Median		
	Over	Under	*t*-test	Over	Under	M-W *U* test
LAB_INEFF_{it}	0.143	0.030	18.868***	0.063	0.025	19.819***
$PCBs_{it}$	0.460^	0.562^	−4.997***	0.000	1.000	−4.973***
$TOP5_{it}$	0.699	0.722	−2.994***	0.730	0.736	−2.768***
LEV_{it}	0.459	0.506	−7.693***	0.464	0.506	−7.447***
ROA_{it}	0.034	0.063	−9.593***	0.027	0.047	−9.031***
DPR_{it}	0.172	0.258	−5.644***	0.000	0.130	−8.330***
$TANG_{it}$	0.629	0.574	3.887***	0.593	0.513	5.222***
$OPER\_CC_{it}$	5.121	4.847	7.332***	4.949	4.730	7.204***
Q_{it}	1.411	1.843	−6.149***	1.004	1.168	−7.517***

Note(s): *The labor investment inefficiency (LAB_INEFF_{it}) includes both $OVER\_LAB_{it}$ and $UNDER\_LAB_{it}$. ^The proportion of firms, rather than the mean proportion for the associated variable. The definitions of variables are presented in Appendix

Source(s): Table 2 by authors

Table 2.
Descriptive statistics and univariate analysis

are dominated by the top five largest shareholders ($TOP\ 5_{it}$) with a mean (median) value of ownership percentage of 70.8% (73.2%). This suggests that publicly-listed firms in Indonesia have a high level of shareholding concentration. The leverage (LEV_{it}) has a mean (median) value of 47.5% (47.8%), which is also supported by the asset tangibility ratio ($TANG_{it}$) with a mean (median) value of 61.0% (56.4%). Tobin's q (Q_{it}) ratio, the proxy of firm growth, has a mean (median) value of 1.56 (1.05) and the operating cycle ($OPER\_CC_{it}$) has a mean (median) value of 5.02 (4.85). Panel B of Table 2 presents the results of the univariate tests in terms of both mean and median values of the key variables. It shows that the mean and median values of the key variables for the sub-sample of over-investment in labor ($OVER\_LAB_{it}$) differ significantly from the sub-sample of under-investment in labor ($UNDER\_LAB_{it}$).

4.2 Spearman correlation matrix

Table 3 shows the Spearman Correlation Matrix of all variables in the main regressions. The coefficients of correlation between variables are below 0.500 except between over-investment in labor ($OVER\_LAB_{it}$) and under-investment in labor ($UNDER\_LAB_{it}$), and between return on assets (ROA_{it}) and dividend payout ratio (DPR_{it}). We conducted the variance inflation factor (VIF) diagnostic test to ensure that there was no multicollinearity problem between variables (Thompson, Kim, Aloe, & Becker, 2017; Kennedy, 2003). The overall mean (maximum) VIF value is 1.22 (1.61), indicating that the variables have no multicollinearity issue.

4.3 Main results

4.3.1 Results of testing hypotheses 1 and 2. The results of testing hypothesis 1 are given in columns 1 and 2 of Table 4. The results show that the coefficient of $PCBs_{it}$ and the *t*-statistic value are −0.048 and −2,29, respectively. The coefficient of $PCBs_{it}$ is significantly negative at the 5% level. The results suggest that the presence of *PCBs* reduces firms' over-investment in labor, thereby supporting hypothesis 1. The result is also economically significant as *PCBs* can reduce the level of over-investment in labor by 12.6%.

The coefficients of the control variables are as follows: the coefficient of $TOP5_{it}$ is not statistically significantly associated with over-investment in labor. The coefficients of LEV_{it}, ROA_{it} and DPR_{it} are negative and statistically significant at the 5, 1 and 5% levels, respectively. The results indicate that a higher leverage (LEV_{it}) encourages firms to act more carefully in their human resources recruitment strategy so as not to impose an unnecessary financial burden on themselves (Bae, Kang, & Wang, 2011), and that more efficient investment in labor is associated with better firm performance (ROA_{it}) (Ferguson & Reio, 2010; Michie & Sheehan, 2005) and higher devidend payment ratio (*DPR*) (Michiels, Uhlaner, & Dekker, 2017). Meanwhile, the coefficients of $TANG_{it}$, $OPER\_CC_{it}$ and Q_{it} are positive and statistically significant at the 1, 5 and 10% levels, respectively. These results are consistent with the assumption that a greater number of fixed assets acquired by a firm ($TANG_{it}$), especially when empire building, will also increase investments in other internal resources, including the labor force (Franzoni, 2009). In addition, when opportunities for further growth arise (Q_{it}), firms may be spurred to hire more employees than required (Mishina *et al.*, 2004). Furthermore, firms with poor (good) management of inventory and accounts receivable ($OPER\_CC_{it}$) have higher (lower) over-investment in labor (Becker & Huselid, 2006).

In columns 2 and 3 of Table 4, we report the coefficient and *t*-statistic value of $PCBs_{it}$, which are −0.001 and −0.29, respectively. The results suggest that the coefficient of $PCBs_{it}$ is not statistically significant. In other words, the presence of $PCBs_{it}$ is not statistically and significantly associated with firms' under-investment in labor. Hence, hypothesis 2 is supported.

Table 3.
Spearman correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	$OVER\_LAB_{it}$										
(2)	$UNDER\_LAB_{it}$	0.845***									
(3)	$PCBs_{it}$	−0.155***	−0.089***								
(4)	$TOP5_{it}$	−0.039***	−0.078***	−0.107***							
(5)	LEV_{it}	−0.158***	−0.163***	0.055***	−0.024						
(6)	ROA_{it}	−0.217***	−0.164***	0.07***	0.076***	−0.296***					
(7)	DPR_{it}	−0.228***	−0.163***	0.12***	0.032	−0.139***	0.553***				
(8)	$TANG_{it}$	0.145***	0.13***	−0.078***	0.058***	0.033	−0.138***	−0.082***			
(9)	$OPER\_CC_{it}$	0.149***	0.137***	−0.025	−0.199***	−0.094***	−0.129***	−0.131***	−0.289***		
(10)	Q_{it}	−0.148***	−0.139***	0.143***	0.071***	0.017	0.477***	0.343***	−0.062***	−0.139***	

Note(s): All variables are summarized and defined in Appendix. The overall mean (maximum) VIF value is 1.22 (1.61) indicating that there is no multicollinearity issue between variables. *, **, and *** indicate the significance of coefficients at the 10, 5 and 1% levels, respectively
Source(s): Table 3 by authors

	OVER_LAB		UNDER_LAB	
	Coefficient #1	*t*-values #2	Coefficient #3	*t*-values #4
$PCBs_{it}$	−0.048**	(−2.29)	−0.001	(−0.29)
$TOP5_{it}$	−0.032	(−0.66)	0.008	(1.15)
LEV_{it}	−0.117**	(−2.14)	0.007	(0.92)
ROA_{it}	−0.406***	(−3.83)	−0.017	(−1.01)
DPR_{it}	−0.034**	(−2.24)	−0.002	(−0.79)
$TANG_{it}$	0.086***	(2.89)	−0.007**	(−1.98)
$OPER\_CC_{it}$	0.029**	(2.52)	−0.004**	(−2.15)
Q_{it}	0.014*	(1.81)	0.001	(0.99)
Constant	0.247**	(2.48)	0.100***	(7.32)
INDUSTRY FE	Yes		Yes	
YEAR FE	Yes		Yes	
Observations	1,439		1,017	
F	5.14***		10.65***	
R2	0.269		0.421	

Note(s): Ordinary Least Squares (*OLS*) regression model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. Over-(under)investment in labor ($OVER\_LAB_{it}$ or $UNDER\_LAB_{it}$) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t*. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor. The presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. Columns 1 and 2 report the *OVER_LAB* regression coefficients and *t*-values in parentheses, columns 3–4 report the *UNDER_LAB* regression coefficients and *t*-values in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix

Source(s): Table 4 by authors

Table 4. The effects of politically-connected boards (*PCBs*) on over-investment in labor (*OVER_LAB*) and under-investment in labor (*UNDER_LAB*)

4.3.2 Results of testing hypothesis 3. We report the results of testing hypothesis 3 in columns 1 and 2 of Table 5. Hypothesis 3 predicts that *SB*'s optimal tenure does not influence the negative association between *PCBs* and the firms' over-investment in labor. Columns 1 and 2 of Table 5 show that the coefficient and *t*-statistic value of interaction between $PCBs_{it}$ and the optimal tenure of an *SB* (SB_TENR_{it}) if we use the *SB*'s optimal tenure of five to ten years. The coefficient of $PCBs_{it}$*SB_TENR_{it} is −0.085 and −3.53, respectively. Hence, the results do not support hypothesis 3. The findings show that the coefficient of $PCBs_{it}$*SB_TENR_{it} is significantly negative at the 1% level, suggesting that the *SB*'s optimal tenure strengthens the negative association between *PCBs* and over-investment in labor. As an additional analysis, we followed Huang and Hilary (2018), who used an optimal tenure of eight to eleven years. Columns 3 and 4 of Table 5 show that the coefficient and *t*-statistic value of the interaction between $PCBs_{it}$ and the optimal tenure of *SB*s (SB_TENR_{it}) if we use *SB*'s optimal tenure of eight to eleven years. The coefficient of $PCBs_{it}$*SB_TENR_{it} is −0.059 and −2.40, respectively. The results show that the coefficient of $PCBs_{it}$*SB_TENR_{it} is statistically and significantly negative at the 5% level. The findings confirm the results given in columns 1 and 2 of Table 5, thereby supporting the main results that the *SB*'s optimal tenure strengthens the negative association between *PCBs* and over-investment in labor. The results demonstrate that an *SB* with a tenure of five to ten years or eight to eleven years strengthens the negative association between *PCBs* and over-investment in labor. Usually, the members of an *SB* in publicly-listed firms in Indonesia are appointed for five years, with our findings suggesting that firms benefit from the re-appointment of *SB* members for a second term or more.

	Optimal tenure = 5–10 years OVER_LAB		Optimal tenure = 8–11 years OVER_LAB	
	Coefficient #1	*t*-values #2	Coefficient #3	*t*-values #4
$PCBs_{it}$	−0.050*	(−1.75)	−0.054**	(−2.30)
SB_TENR_{it}	−0.041**	(−2.11)	−0.031*	(−1.65)
$PCBs_{it}xSB\_TENR_{it}$	−0.085***	(−3.53)	−0.059**	(−2.40)
$TOP5_{it}$	−0.045	(−0.89)	−0.037	(−0.73)
LEV_{it}	−0.122**	(−2.25)	−0.120**	(−2.20)
ROA_{it}	−0.403***	(−3.81)	−0.412***	(−3.90)
DPR_{it}	−0.033**	(−2.19)	−0.032**	(−2.15)
$TANG_{it}$	0.090***	(3.02)	0.088***	(2.95)
$OPER\_CC_{it}$	0.027**	(2.43)	0.028**	(2.48)
Q_{it}	0.013	(1.59)	0.013*	(1.70)
Constant	0.284***	(2.75)	0.258**	(2.55)
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Observations	1,437		1,437	
F	5.22***		5.38***	
R2	0.279		0.271	

Note(s): Ordinary Least Squares (*OLS*) regression model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. Over-investment in labor ($OVER\_LAB_{it}$) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t*. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. The presence of *PCBs* is a dummy variable set to 1 if a firm has politically-connected board member(s) and zero (0) otherwise. Columns 1, 2, 3 and 4 report the coefficients and *t*-statistic values of the interaction between $PCBs_{it}$ and SB_TENR_{it} (*SB's* optimal tenure). SB_TENR_{it} is a dummy variable set to 1 if the average of *SB* tenure of firm *i* in year *t* is between 5–10 years (Columns 1 and 2) or 8–11 years (Columns 3 and 4) and zero (0) otherwise. *t*-values are reported in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix

Source(s): Table 5 by authors

Table 5.
Effect of supervisory board's optimal tenure (*SB_TENR*) on the relationship between politically-connected boards (*PCBs*) and over-investment in labor (*OVER_LAB*)

4.4 Endogeneity testing

4.4.1 Two-stage least squares (2SLS) regression model. Firms can choose whether or not to appoint former public officials and politicians to the boards, which has the potential to create an endogeneity problem. To address this potential endogeneity issue of having $PCBs_{it}$ and the reverse causality between the labor investment inefficiency (over-investment in labor/$OVER\_LAB_{it}$ and under-investment in labor/$UNDER\_LAB_{it}$) and $PCBs_{it}$ in our main regression, we applied the Heckman treatment effect using a two-stage least square (*2SLS*) regression model, commonly used as a robustness test by prior studies on political connections (Kim & Zhang, 2016; Wu, Wu, & Rui, 2012).

The *2SLS* regression model requires valid and relevant instrumental variable(s) in the first-stage regression that is later excluded from the second-stage regression. We applied two instruments that have been suggested by prior studies on political connections: the average age of public officials (An, Chen, Luo, & Zhang, 2016; Xu, Chen, Xu, & Chan, 2016) and the average education level of public officials (An *et al.*, 2016), in the first-stage regression. An *et al.* (2016) argue that these two instrumental variables are valid and relevant because the experience and knowledge of public officials, which relate to their age and education level, can affect the probability of the public official changes, but they are not directly related to a corporate investment. Using the same logic, Xu *et al.* (2016) also found that the age affects the

probability of the individuals' potential new appointment to a position as a public official, but it can not directly influence the firm's cash holdings.

Applying the logic from both An *et al.* (2016) and Xu *et al.* (2016), we assumed that the age and education level of former public officials can affect their appointment to the *PCBs*, but they are not directly related to the firm's labor investment. Hence, we used two instrumental variables (1) average age of board members of firm i in year t ($AVG\_BOARD\_AGE_{it}$) (An *et al.*, 2016; Xu *et al.*, 2016) and; (2) average education level of board members of firm i in year t ($AVG\_BOARD\_EDU_{it}$) (An *et al.*, 2016) in the first-stage regression. However, to ensure that these two instruments are robust and reliable, we ran the Cragg-Donald F-test to check the strength and relevance of these two instruments. Consistent with An *et al.* (2016), we also performed the Kleibergen-Paap rk Wald F-statistic test. In addition, we conducted the Sargan-Hansen J-test to check the exogeneity or validity of these two instruments.

The results of the tests show that the Cragg-Donald F-statistic score and the Kleibergen-Paap rk Wald F-statistic score are 171.77 (p-value 0.000) and 30.68, respectively. Both of these scores are higher than the Stock-Yogo (2005) weak ID test critical values at 10% (19.93), indicating that those two instrumental variables used in the first-stage regression are strong therefore they are robust and relevant. Further, the score of the Sargan-Hansen J-test is 0.162 (p-value 0.6869), which is statistically insignificant. The result of the Sargan-Hansen J-test confirms the exogeneity of these two instrumental variables, suggesting that they are valid and appropriate for the first-first- and second-stage regressions. Overall, the results of the Cragg-Donald F-test and the Kleibergen-Paap rk Wald F-statistic test, as well as the Sargan-Hansen J-test supported our assumption that these two instrumental variables-($AVG\_BOARD\_AGE_{it}$) and ($AVG\_BOARD\_EDU_{it}$) are valid and relevant for the *2SLS* regression model.

After performing the first-stage regression (see Equation (5)), we obtained the inverse mills ratio (IMR_{it}) by using the estimated results for $PCBs_{it}$ from the first-stage regression, and incorporated the *IMR* in the second-stage least square regression (see Equation (6)). For the second-stage regression, we applied the following models:

$$OVER\_LAB_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 TOP5_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 DPR_{it} + \beta_6 TANG_{it} + \beta_7 OPER\_CC_{it} + \beta_8 Q_{it} + \beta_9 IMR_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (5)$$

$$UNDER\_LAB_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 TOP5_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 DPR_{it} + \beta_6 TANG_{it} + \beta_7 OPER\_CC_{it} + \beta_8 Q_{it} + \beta_9 IMR_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (6)$$

Where: *IMR* = Inverse Mills Ratio. Other variables are defined in Equations (1 to 3) and in Appendix.

Panels A and B of Table 6 show the results from the first-stage and second-stage Heckman *2SLS* regression models. The coefficients of both instruments are significant at the 1% level, further indicating that they are strong and valid instruments for $PCBs_{it}$. The *IMR* coefficients in the second-stage regression are also significant, indicating the existence of an endogeneity problem. Columns 3 (4) of Table 6 report that the coefficient of $PCBs_{it}$ is −0.189 (t-statistic value = −3.87). The results suggest that the presence of *PCBs* is negatively associated with

Variable	*Panel A. 1st stage regression* PCBs Coefficient #1	*t*-values #2	*Panel B. 2nd stage regression* OVER_LAB Coefficient #3	*t*-values #4	UNDER_LAB Coefficient #5	*t*-values #6
$PCBs_{it}$			−0.189***	(−3.87)	−0.007	(−1.32)
$AVG\_BOARD\_AGE_{it}$	0.057***	(4.82)	−0.036	(−0.72)	0.008	(1.05)
$AVG\_BOARD\_EDU_{it}$	0.928***	(5.32)	−0.080	(−1.40)	0.007	(0.97)
$TOP5_{it}$	−0.515	(−1.31)	−0.379***	(−3.67)	−0.015	(−0.89)
LEV_{it}	0.514	(1.39)	−0.016	(−1.05)	−0.002	(−0.60)
ROA_{it}	0.571	(0.81)	0.073**	(2.52)	−0.006*	(−1.84)
DPR_{it}	0.194	(1.57)	0.029**	(2.57)	−0.004**	(−2.20)
$TANG_{it}$	0.064	(0.33)	0.016**	(2.08)	0.001	(1.17)
$OPER\_CC_{it}$	0.020	(0.25)	0.103***	(3.14)	0.004	(1.28)
Q_{it}	0.102**	(2.50)	0.302***	(2.95)	0.103***	(7.54)
IMR_{it}			−0.189***	(−3.87)	−0.007	(−1.32)
Constant	−5.618***	(−5.15)	−0.036	(−0.72)	0.008	(1.05)
Industry FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Observations	2,442		1,429		1,013	
Wald Joint	87.47***					
Pseudo R2	0.176					
F			5.49***		11.78***	
R2			0.293		0.424	

Table 6. Endogeneity testing using the Heckman treatment effect using a two-stage least square (*2SLS*) regression model: The relationship between politically-connected boards (*PCBs*) and over-(under-) investment in labor (*OVER_LAB or UNDER_LAB*)

Note(s): Heckman two-stage model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. Columns 1 to 4 report the regression coefficients and *t*-statistic values in parentheses. Panel A reports the first-stage probit regression between $PCBs_{it}$ with instrumental variables ($AVG\_BOARD\_AGE_{it}$ *and* $AVG\_BOARD\_EDU_{it}$) and the control variables used in the second-stage regression. Panel B reports the second-stage regression results. Labor investment inefficiency is measured as over-investment in labor ($OVER\_LAB_{it}$) and under-investment in labor ($UNDER\_LAB_{it}$). The presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. Columns 3–4 report the *OVER_LAB* regression coefficients and *t*-statistic values in parentheses, columns 5–6 report the *UNDER_LAB* regression coefficients and *t*-statistic values in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix
Source(s): Table 6 by authors

over-investment in labor at the 1% level, which supports our hypothesis 1. On the other hand, columns 5 (6) of Table 6 show that the coefficient of $PCBs_{it}$ is −0.007 (*t*-statistic value = −1.32). The results confirm our hypothesis 2: that the presence of $PCBs_{it}$ is not significantly associated with under-investment in labor. Overall, the results for $PCBs_{it}$ are qualitatively similar to the main results as reported in Table 4 [9].

4.4.2 Entropy balancing. In addition to the endogeneity testing using the Heckman treatment effect-two-stage least square (*2SLS*) regression model, we employed entropy balancing to validate our main results. Entropy balancing is a data pre-processing procedure for a binary variable prior to the subsequent determination of the treatment effect. Entropy balancing can be seen as a generalization of the propensity score weighting approach (Hainmueller, 2012; Hainmueller & Xu, 2013).

The results of our entropy balancing test are presented in columns 1 to 4 of Table 7. Columns 1 and 2 report that the coefficient of $PCBs_{it}$ and *t*-statistic value are −0.046 and −5.14, respectively. The results show that $PCBs_{it}$ is significantly associated with over-investment in labor ($OVER\_LAB_{it}$) at the 1% level. Further, columns 3 and 4 show that the coefficient of $PCBs_{it}$ and *t*-statistic value are 0.002 and 1.47, respectively. The results show that the presence of $PCBs_{it}$ is not significantly associated with under-investment in labor

	OVER_LAB		UNDER_LAB	
	Coefficient #1	*t*-values #2	Coefficient #3	*t*-values #4
$PCBs_{it}$	−0.046***	(−5.14)	0.002	(1.47)
$TOP5_{it}$	−0.015	(−0.61)	0.009**	(2.36)
LEV_{it}	−0.106***	(−4.07)	0.007*	(1.86)
ROA_{it}	−0.404***	(−5.21)	−0.010	(−0.97)
DPR_{it}	−0.028**	(−2.47)	−0.003	(−1.59)
$TANG_{it}$	0.084***	(5.45)	−0.006***	(−3.89)
$OPER\_CC_{it}$	0.027***	(4.83)	−0.004***	(−3.53)
Q_{it}	0.012**	(2.53)	0.001	(1.22)
Constant	0.255***	(4.83)	0.096***	(12.69)
Observations	1,439		1,017	
F	14.5***		28.6***	
R2	0.280		0.431	

Note(s): Entropy balancing regression model. Over-(under)investment in labor ($OVER\_LAB_{it}$ or $UNDER\_LAB_{it}$) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t*. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor. The presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. Columns 1 and 2 report the *OVER_LAB* regression coefficients and *t*-values in parentheses, columns 3–4 report the *UNDER_LAB* regression coefficients and *t*-values in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix

Source(s): Table 7 by authors

Table 7. Robustness test using entropy balancing - The effects of politically-connected boards (*PCBs*) on over-(under-)investment in labor (*OVER_LAB or UNDER_LAB*)

($UNDER\_LAB_{it}$). All these results are qualitatively similar to the main findings reported in Table 4 [10].

4.5 Additional analyses

4.5.1 Additional control variables. Because in this study, we investigated the effects of *PCBs* on over-(under-)investment in labor, and to ensure that our results remained robust with the inclusion of board related characteristics as suggested by prior studies: the average board age ($AVG\_BOARD\_AGE_{it}$) (An *et al.*, 2016; Xu *et al.*, 2016), the average board education level ($AVG\_BOARD\_EDU_{it}$) (An *et al.*, 2016), the proportion of independent members on the supervisory board ($INDEP\_SB_{it}$) (El Ammari, 2023) and the proportion of female members on the board (FEM_BOARD_{it}) (Proença, Augusto, & Murteira, 2020).

Columns 1 and 2 of Table 8 show that the coefficient of $PCBs_{it}$ and *t*-statistic value are −0.050 and −2.17 at the 5% level, respectively. In contrast, columns 3 and 4 of Table 8 show that the coefficient of $PCBs_{it}$ and *t*-statistic value are −0.001 and −0.01 at the insignificant level, respectively. The findings are qualitatively similar to the main results reported in Table 4: that $PCBs_{it}$ reduces over-investment in labor but it has no influence on under-investment in labor.

4.5.2 Alternative proxies for over-(under-)investment in labor. Scharfstein and Stein (1990) assert that managers often make investment decisions using similar firms in the same industry as a reference. To check the robustness of the main results presented in Table 4, we employed alternative proxies for over-(under-)investment in labor. These proxies use the industry-adjusted ratio as a benchmark (Azadegan *et al.*, 2013). Hence, to capture

	OVER_LAB		UNDER_LAB	
	Coefficient #1	*t*-values #2	Coefficient #3	*t*-values #4
$PCBs_{it}$	−0.050**	(−2.17)	−0.001	(−0.01)
$AVG\_BOARD\_AGE_{it}$	−0.001	(−0.83)	−0.001	(−0.48)
$AVG\_BOARD\_EDU_{it}$	0.006	(0.29)	−0.001	(−0.47)
$INDEP\_SB_{it}$	0.023	(0.34)	−0.007	(−0.60)
FEM_BOARD_{it}	0.002**	(2.54)	−0.001	(−0.21)
$TOP5_{it}$	−0.046	(−0.87)	0.011	(1.47)
LEV_{it}	−0.116**	(−2.06)	0.008	(1.13)
ROA_{it}	−0.415***	(−4.03)	−0.013	(−0.77)
DPR_{it}	−0.026	(−1.63)	−0.002	(−0.72)
$TANG_{it}$	0.082***	(2.83)	−0.007**	(−2.01)
$OPER\_CC_{it}$	0.025**	(2.17)	−0.004*	(−1.81)
Q_{it}	0.012*	(1.68)	0.001	(1.01)
Constant	0.309*	(1.96)	0.106***	(5.57)
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Observations	1,396		991	
F	5.47***		10.67***	
R2	0.287		0.428	

Table 8.
Additional test: THE relationship between politically-connected boards (*PCBs*) and over-investment in labor (*OVER_LAB*) and under-investment in labor (*UNDER_LAB*) after incorporating additional control variables related to board characteristics in the main regression

Note(s): Ordinary Least Squares (OLS) regression model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. Over-(under)investment in labor ($OVER\_LAB_{it}$ or $UNDER\_LAB_{it}$) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t*. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor. The presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. Columns 1 and 2 report the *OVER_LAB* regression coefficients and *t*-values in parentheses, columns 3–4 report the *UNDER_LAB* regression coefficients and *t*-values in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix

Source(s): Table 8 by authors

over-(under-) investment in labor using the mentioned approach, we employed Equations (7a and 7b) as follows.

Equation 7a is defined as follows: Over-(under-)investment in labor in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than *the mean value* of this ratio for all firms in the same industry sector in year *t*.

Equation 7b is defined as follows: Over-(under-)investment in labor in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than *the median value* of this ratio for all firms in the same industry sector in year *t*.

In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor.

Using *the industry mean* (Equation 7a) as a benchmark, the coefficient and *t*-statistic value of $PCBs_{it}$ in columns 1 and 2 of Table 9 are −0.051 and −2.46, at the 5% level, respectively, for

	Mean (average) industry				Median industry			
	OVER_LAB Coefficient #1	*t*-values #2	UNDER_LAB Coefficient #3	*t*-values #4	OVER_LAB Coefficient #5	*t*-values #6	UNDER_LAB Coefficient #7	*t*-values #8
$PCBs_{it}$	−0.051**	(−2.46)	−0.001	(−0.22)	−0.055**	(−2.52)	0.001	(0.21)
$TOP5_{it}$	−0.039	(−0.84)	0.007	(1.08)	−0.056	(−1.13)	0.015**	(1.92)
LEV_{it}	−0.117**	(−2.12)	0.007	(1.21)	−0.090*	(−1.66)	0.011	(1.28)
ROA_{it}	−0.38***	(−3.51)	−0.017	(−1.11)	−0.348***	(−3.21)	0.001	(0.01)
DPR_{it}	−0.033**	(−1.98)	0.001	(0.04)	−0.034**	(−2.03)	−0.004	(−1.17)
$TANG_{it}$	0.069**	(2.22)	−0.008***	(−2.61)	0.067**	(2.11)	−0.002	(−0.56)
$OPER\_CC_{it}$	0.031***	(2.73)	−0.002	(−1.25)	0.026**	(2.31)	−0.001	(−0.40)
Q_{it}	0.014*	(1.80)	0.001	(0.86)	0.012*	(1.64)	0.001	(0.94)
Constant	0.274***	(2.97)	0.085***	(7.84)	0.245**	(2.65)	0.122***	(6.67)
Industry FE	Yes		Yes		Yes		Yes	
Year FE	Yes		Yes		Yes		Yes	
Observations	1,273		1,183		1,191		1,191	
F	5.88***		15.48***		4.17***		12.51***	
R2	0.302		0.402		0.254		0.418	

Note(s): Ordinary Least Squares (*OLS*) regression model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. Over-(under-)investment in labor in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than *the mean (median) value* of this ratio for all firms in the same industry sector in year *t*. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor. The presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. Columns 1, 2, 5 and 6 report the *OVER_LAB* regression coefficients and *t*-values in parentheses, columns 3, 4, 7 and 8 report the *UNDER_LAB* regression coefficients and *t*-values in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix

Source(s): Table 9 by authors

Table 9. Additional test: the effects of politically-connected boards (*PCBs*) on over-investment in labor (*OVER_LAB*) and under-investment in labor (*UNDER_LAB*) using the alternative proxies for over-(under)-investment in labor

the over-investment regression. On the other hand, the coefficient and *t*-statistic value of $PCBs_{it}$ in columns 3 and 4 of Table 9 are −0.001 and −0.22 at the insignificant level, respectively, for the under-investment regression. The findings show that the presence of $PCBs_{it}$ reduces over-investment in labor but it has no influence on under-investment in labor.

Using *the industry median* (Equation 7b) as a benchmark, the coefficient and *t*-statistic value of $PCBs_{it}$ in columns 5 and 6 of Table 9 are −0.055 and −2.52 at the 5% level, respectively, for the over-investment regression. On the other hand, the coefficient and *t*-statistic value of $PCBs_{it}$ in columns 7 and 8 of Table 9 are 0.001 and 0.21 at the insignificant level, respectively, for the under-investment regression. The findings show that the presence of *PCBs* reduces over-investment in labor but it has no influence on under-investment in labor. Overall, employing Equations 7a (*industry mean*) and 7b (*industry median*), columns 1, 2, 3, 4, 5, 6, 7 and 8 of Table 9 show that the results remain qualitatively the same as reported in Table 4.

4.5.3 Alternative proxies for politically-connected boards. In our main analysis, the presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. For the robustness check, we employ $NUMPCBs_{it}$ as the alternative proxy for $PCBs_{it}$ using a continuous variable which captures the number of politically-connected board members on the boards of firm *i* in year *t*. A continuous variable could provide more statistical power to detect differences among politically-connected firms and between politically connected firms and non-politically-connected firms.

Columns 1 and 2 of Table 10 show the coefficient and *t*-statistic value of $NUMPCBs_{it}$, which are −0.048 and −2.29 at the 5% level, respectively. The results show that $NUMPCBs_{it}$, which is the number of politically-connected members on the boards reduces over-investment in labor. On the other hand, columns 3 and 4 of Table 10 show the coefficient and *t*-statistic value of $NUMPCBs_{it}$, which are −0.001 and −0.29, respectively. The results are not statistically significant, confirming that the number of politically-connected members on the boards ($NUMPCBs_{it}$) has no influence on under-investment in labor. Overall, the results are qualitatively similar to the main findings presented in Table 4.

4.5.4 Channel analysis through the dividend payout ratio (DPR). As discussed earlier, publicly-listed firms in Indonesia are characterized by the presence of high shareholding concentration, which causes agency problem II (principal-principal conflict). Some studies have found that the principal-principal relationship gives large shareholders the private benefits associated with control at the expense of minority shareholders (Holderness & Sheehanm, 1988; Shleifer & Vishny, 1997; La Porta *et al.*, 2000; Claessens *et al.*, 2002; Setia-Atmaja *et al.*, 2011). On the other hand, prior studies have concluded that the presence of high shareholding concentration offers benefits to all shareholders (Ang *et al.*, 2000; Anderson & Reeb, 2003; Ben-Amar & André, 2006; Zahra, Filatotchev, & Wright, 2009; Sauerwald *et al.*, 2019). Moreover, Zahra *et al.* (2009) and Sauerwald *et al.* (2019) assert that in addition to the private benefits of control, through their appointed board, controlling shareholders have an incentive to improve the firm's performance, which creates shared benefits for all

	OVER_LAB		UNDER_LAB	
	Coefficient #1	*t*-values #2	Coefficient #3	*t*-values #4
$NUMPCBs_{it}$	−0.048**	(−2.29)	−0.001	(−0.29)
$TOP5_{it}$	−0.032	(−0.66)	0.008	(1.15)
LEV_{it}	−0.117**	(−2.14)	0.007	(0.92)
ROA_{it}	−0.406***	(−3.83)	−0.017	(−1.01)
DPR_{it}	−0.034**	(−2.24)	−0.002	(−0.79)
$TANG_{it}$	0.086***	(2.89)	−0.007**	(−1.98)
$OPER\_CC_{it}$	0.029**	(2.52)	−0.004**	(−2.15)
Q_{it}	0.014*	(1.81)	0.001	(0.99)
Constant	0.247**	(2.48)	0.100***	(7.32)
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Observations	1,439		1,017	
F	5.14***		10.65***	
R2	0.2687		0.4205	

Table 10. Additional test: The effects of politically-connected boards (*PCBs*) on over-investment in labor (*OVER_LAB*) and under-investment in labor (*UNDER_LAB*) using a continuous variable-the number of politically-connected board members on the boards as an alternative proxy for *PCBs*

Note(s): Ordinary Least Squares (OLS) regression model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. Over-(under)investment in labor ($OVER\_LAB_{it}$ or $UNDER\_LAB_{it}$) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater (lower)* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t*. In the sub-sample of over-investment in labor, a higher (lower) positive number indicates a higher (lower) over-investment in labor. For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor. The number of politically-connected members on the boards of firm *i* in year *t* ($NUMPCBs_{it}$) is a continuous variable. Columns 1 and 2 report the *OVER_LAB* regression coefficients and *t*-values in parentheses, columns 3–4 report the *UNDER_LAB* regression coefficients and *t*-values in parentheses. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix

Source(s): Table 10 by authors

shareholders. Better firm performance enables the board to pay higher dividends to shareholders (Su, Fung, Huang, & Shen, 2014).

By testing hypothesis 1, we found that the presence of *PCBs* reduces over-investment in labor, but we did not consider the channel (Liang, Fu, & Jiang, 2024) through which *PCBs* may affect over-investment in labor. To perform the channel analysis, we employed the two-step regression model suggested by Liang *et al.* (2024).

First step:

$$CHANNEL_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 TOP5_{it} + \beta_3 LEV_{it} + \beta_4 ROA_{it} + \beta_5 DPR_{it} + \beta_6 TANG_{it} + \beta_7 OPER\_CC_{it} + \beta_8 Q_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (8a)$$

Second step:

$$OVER\_LAB_{it} = \beta_0 + \beta_1 PCBs_{it} + \beta_2 CHANNEL_{it} + \beta_3 TOP5_{it} + \beta_4 LEV_{it} + \beta_5 ROA_{it} + \beta_6 DPR_{it} + \beta_7 TANG_{it} + \beta_8 OPER\_CC_{it} + \beta_9 Q_{it} + \sum INDUSTRY_i + \sum YEAR_t + \varepsilon_{it} \quad (8b)$$

All variables are defined in Equations (1 to 3) and also in Appendix.

In the regression models depicted in Equations (8a and 8b), *CHANNEL* is a mediation variable which can be replaced with a specific indicator. If the coefficient of $PCBs_{it}$ in the first-step regression model depicted in Equation (8a) is statistically significant, we perform the second-step regression model depicted in Equation (8b). If the coefficients of the second-step regression model for both the $PCBs_{it}$ and the mediation variable are statistically significant, the results suggest a partial mediation effect. If only the coefficient of the mediation variable is statistically significant, the result suggests a complete mediation effect (Liang *et al.*, 2024).

Firms with better performance are more likely to pay higher dividends. Lin, Xin & Li (2021) found that firms with strong political connections have a higher dividend payout ratio. Su *et al.* (2014) assert that cash dividends are shared proportionately among the controlling shareholders and the minority shareholders; therefore, a higher dividend payout ratio is more likely to reduce the principal-principal conflict of firms with strong political connections. Therefore, in the presence of high-shareholding concentration, the presence of $PCBs_{it}$ is expected to increase the dividend payout ratio (DPR_{it}). Chen, Kacperczyk, *et al.*, (2011) found that firms without over-investment in labor have better performance. This encourages politically-connected boards to increase the firm's operational efficiency by reducing over-investment in labor in order to increase firm performance.

In Equations (8a and 8b), *CHANNEL* is the dividend payout ratio (DPR_{it}), which is used as the mediation variable. DPR_{it} is computed as total dividend payments scaled by net income of firm i in year t. In the first step of the regression model (Equation (8a)), the dependent variable is the dividend payout ratio of firm i in year t (DPR_{it}). The explanatory variable is politically-connected boards of firm i in year t ($PCBs_{it}$). In columns 1 and 2 of Table 11, we report the coefficient and t-statistic value of $PCBs_{it}$, which are 0.058 and 2.61 at the 5% level, respectively. The results suggest that the presence of $PCBs_{it}$ is positively associated with the dividend payout ratio (DPR_{it}). In other words, the presence of $PCBs_{it}$ increases the firms' dividend payout ratio (DPR_{it}). In the second step of the regression model as depicted in Equation (8b), the explanatory variable is the presence of $PCBs_{it}$. On the other hand, DPR_{it} is the mediation variable. In columns 3 and 4 of Table 11, we report the coefficients of $PCBs_{it}$ and DPR_{it}, which are −0.048 and −0.034 and t-statistic values of −2.29 and −2.24, respectively,

	First step		Second step	
	DPR		OVER_LAB	
	Coefficient #1	*t*-values #2	Coefficient #3	*t*-values #4
$PCBs_{it}$	0.058***	(2.61)	−0.048**	(−2.29)
DPR_{it}			−0.034**	(−2.24)
$TOP5_{it}$	0.084	(1.41)	−0.032	(−0.66)
LEV_{it}	−0.094*	(−1.76)	−0.117**	(−2.14)
ROA_{it}	1.147***	(6.26)	−0.406***	(−3.83)
$TANG_{it}$	−0.019	(−0.74)	0.086***	(2.89)
$OPER\_CC_{it}$	−0.029**	(−2.07)	0.029**	(2.52)
Q_{it}	0.023**	(2.57)	0.014*	(1.81)
Constant	0.209**	(2.26)	0.247**	(2.48)
Industry FE	Yes		Yes	
Year FE	Yes		Yes	
Observations	2,456		1,439	
F	9.00***		5.14***	
R2	0.176		0.269	

Note(s): Ordinary Least Squares (*OLS*) regression model, *t*-statistics calculated based on the robust standard errors clustered at firm-level. DPR_{it} is the dividend payout ratio of firm *i* in year *t*. We use DPR_{it} as the mediation effect for the channel analysis using two-step regression model as suggested by Liang *et al.* (2024). The presence of $PCBs_{it}$ is a dummy variable set to 1 if firm *i* in year *t* has politically-connected board member(s) and zero (0) otherwise. Columns 1, 2, 3 and 4 report the *DPR* and *OVER_LAB* regression coefficients and *t*-values in parentheses, respectively. *, **, and *** indicate statistical significance at the 10, 5 and 1% levels, respectively (two-tailed). The definitions of variables are presented in Appendix
Source(s): Table 11 by authors

Table 11.
Channel analysis: the mediation variable is the dividend payout ratio (*DPR*)

both at the 5% level. Since both variables, namely $PCBs_{it}$ and DPR_{it} are significantly negatively associated with over-investment in labor of firm *i* in year *t* ($OVER\_LAB_{it}$), the results suggest that when DPR_{it} is used as a channel, there are partly mediation effects. The findings suggest that the presence of $PCBs_{it}$ reduces over-investment in labor by increasing the dividend payout ratio (DPR_{it}).

5. Conclusion

In a country with strong economic growth, firms are exposed to a wide range of market expansion opportunities, which may lead to over-investment in labor. To take advantage of such opportunities, firms often establish political connections by, for example, strategically appointing former public officers and politicians to their boards. Politically-connected boards (*PCB*s) could help firms to access new markets and obtain lucrative government contracts, thereby reducing the uncertainties of market expansion (Agrawal & Knoeber, 2001; Dieleman & Sachs, 2008; Li *et al.*, 2012, 2018; Wu *et al.*, 2013). This enables managers to forecast customer demands and their labor force requirements more accurately. In such cases, *PCB*s could prevent excessive investment in labor and mitigate managerial opportunism, which is a means of empire building through the acquisition of larger labor forces.

We find that the presence of *PCBs* reduces a firm's over-investment in labor. Unlike over-investment in labor, which is risky and costly to firms, under-investment gives firms the flexibility to increase their labor force when required. Consistent with our prediction, we find that the presence of *PCB*s is not significantly associated with the firm's under-investment in labor. In addition, we find that a supervisory board (*SB*) with optimal tenure strengthens the negative association between the *PCB*s and over-investment in labor. In other words, the role

of the *PCB* in reducing over-investment in labor is more pronounced in those firms that have optimal tenure for their *SB* members. In our channel analysis, we find that the presence of *PCB*s reduces over-investment in labor through a higher dividend payout ratio.

Our study offers several practical implications and insights to stakeholders (e.g. insiders or management, shareholders, investors, analysts and creditors) in the following ways. First, our study highlights significant differences between capital investment and labor investment. For instance, labor investment is considered an expense rather than an asset (Wyatt, 2008) because, although such investment is human capital and is not recognized on the firm's balance sheet (Boon *et al.*, 2017). In addition, labor investment is characterized by: its flexibility which enables firms to make frequent adjustments (Hamermesh, 1995; Dixit & Pindyck, 2012; Aksin *et al.*, 2015), its non-homogeneity since every employee is unique (Luo *et al.*, 2020), its direct impact on morale and productivity of a firm (Azadegan *et al.*, 2013; Mishina *et al.*, 2004; Tatikonda *et al.*, 2013), and its financial outlay which affects the ongoing cash flows of a firm (Sualihu *et al.*, 2021; Khedmati *et al.*, 2020; Merz & Yashiv, 2007). Second, our findings reveal that the presence of *PCB*s could help to reduce over-investment in labor. However, if managers of a firm choose to under-invest in labor in order to obtain better profit in the short-term through cost saving, they should be aware of the potential consequences of facing a financial loss when a new business opportunity suddenly arises which requires a larger labor force. Third, our findings help stakeholders to re-focus on the labor investment. This is crucial due to the fact that labor investment is often neglected by those stakeholders because the expenditure of labor investment is not recognized on the firm's balance sheet as an asset. Instead, it is written off as an expense in the firm's income statement. Fourth, our findings also provide insightful information to stakeholders, suggesting that an *SB* with optimal tenure is more committed to a firm, and this factor plays an important role in strengthening the negative association between *PCBs* and over-investment in labor. Fifth, our findings provide a valuable understanding of the effects of *PCB*s on over-(under-)investment in labor. Stakeholders could use information disclosed in the financial statements of a publicly-listed firm to determine the extent of the firm's investment in labor and *PCB*s, and compare this information with similar firms in the same industry sector. Sixth, our findings give a better understanding of the association between investment in labor and political connections , which are human and social capital that could determine the long-term survival and success of a firm. Lastly, for shareholders, the appointment of board members with political connections is an important strategic decision to build political capital, which is likely to have a long-term impact on the financial performance of a firm; therefore, it requires thoughtful consultation with firm insiders.

Our study has several limitations. Due to the unavailability of data in firms' annual reports regarding the number of poorly-skilled and highly skilled employees, we were not able to examine the effect of low-skilled and high-skilled employees on over-investment in labor. Also, we were not able to examine over-(under-)investment in labor by drawing a distinction between general (generalist) and firm-specific human capital (specialist) as suggested by Sevcenko, Wu, & Kacperczyk (2022). Generally, it is more difficult for managers to hire highly-skilled employees, specialists in particular, thereby driving the choice of either over- or under-investing in the labor forces. In addition, in the firms' annual reports, there is no information regarding temporary employees. Therefore, if and when such data become available, this would provide another avenue for future research.

Notes

1. Investment in labor enables a firm to formulate a distinctive competitive strategy. However, this strategy also entails significant expenses related to labor adjustments. A firm often encounters challenges in recruiting individuals who align with the firm's requirements. Consequently, the

turnover of the existing labor force results in elevated expenditures for recruitment, training, and productivity losses. Given that cash reserves serve as a safeguard against various risks, heightened investment in labor prompts companies to hold a greater amount of precautionary cash (Huang, Pan, Zhu, & Chen, 2023). In an effort to mitigate these costs and/or expenditures, the company often minimises labor adjustments and maintains a stable level of labor force.

2. Aleksey (2009) states that "Managers at low levels of moral development are more likely to behave like agents, while managers at higher levels of moral development are more likely to behave like stewards" (p. 239). Stewardship theory suggests that when managers see themselves as stewards, they aim for trust and good reputation therefore they are more likely to maximize the firm's value (Zhang *et al.*, 2018; Eddleston & Kellermanns, 2007; Tosi *et al.*, 2003).
3. Yap *et al.* (2020) state that "Indonesian Company Law confers the Board of Commissioners with a statutory right to (1) access the premises of the company; (2) access the company's documents and records; (3) inspect the company's accounts and financial statements; and (4) require the Board of Directors to provide the Board of Commissioners with further information in relation to the affairs of the company at any time". All these rules are made in good faith with the intention of strengthening the role of *BOC* in overseeing the *BOD* and guiding the management to achieve the firm's goals.
4. https://asialinkbusiness.com.au/indonesia/getting-started-in-indonesia/indonesias-economy?doNothing=1
5. https://www.worldbank.org/en/country/indonesia
6. In this context, entrenchment refers to a situation where board members may act in their own interest or derive benefits at the expense of shareholders or investors.
7. Industry distribution is based on Indonesia Stock Exchange (IDX)'s industry classification which is derived from Indonesia Business Classification (IBS) published by Central of Agency on Statistics Indonesia/Badan Pusat Statistik (BPS). IBS is constructed by BPS using International Standard Industrial Classification (ISIC).
8. Mishina *et al.* (2004) use this model to measure over-(under)-investment in labor of 112 publicly listed firms. We adopt their model since it is appropriate with the Indonesian data which comprises260 publicly listed firms.
9. Our untabulated results using Heckman treatment effect-*2SLS* also confirm the same findings for H3.
10. Our untabulated results using entropy balancing also confirm the same findings for H3.

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Appendix

Variable	Definition
Dependent variable	
$OVER\_LAB_{it}$	Over-investment in labor (*OVER_LAB*) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *greater* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t* (Mishina *et al.*, 2004)
$UNDER\_LAB_{it}$	Under-investment in labor (*UNDER_LAB*) in firm *i* occurs when the ratio of the number of employees at the end of financial year *t* to the annual sales of firm *i* during year *t* is *lower* than the ratio of the total number of employees of all firms in the same industry sector in year *t* to the total annual sales for all firms in the same industry sector in year *t* (Mishina *et al.*, 2004). For ease of interpretation, the negative signs of the sub-sample for under-investment in labor are multiplied by −1 to obtain a positive number. Hence, a higher (lower) positive number indicates a higher (lower) under-investment in labor
Explanatory variable	
$PCBs_{it}$	*PCBs* (Politically-connected boards): Dummy variable set to one (1) if firm *i* in year *t* has politically-connected board member(s) (*PCBs*) and zero (0) otherwise (Faccio, 2006; Chaney *et al.*, 2011; Arifin *et al.*, 2020))
$NUMPCBs_{it}$	$NUMPCBs_{it}$ is the number of politically-connected members on the boards of firm *i* in year *t*, which is a continuous variable
Moderating variable	
SB_TENR_{it}	Supervisory board's optimal tenure: Dummy variable with the value of one (1) if the average *SB* tenure of firm *i* in year *t* is between five and ten years, and zero (0) otherwise. We also use eight to eleven years as *SB* optimal tenure (Huang & Hilary, 2018)
Control variables	
$TOP5_{it}$	Ownership concentration: percentage of shares held by five largest shareholders of firm *i* in year *t* (Fan & Wong, 2002; Leuz, Nanda, & Wysocki, 2003; Firth, Fung, & Rui, 2007)
LEV_{it}	Leverage: Total debt scaled by total assets of firm *i* in year *t* (Ang *et al.*, 2000; Harvey, Lins, & Roper, 2004; Garanina & Kaikova, 2016)
ROA_{it}	Return on assets: Net income scaled by the total asset of firm *i* in year *t* s (Cronqvist & Nilsson, 2003; Dey, 2008; Choy, Gul, & Yao, 2011)
DPR_{it}	Dividend pay-out ratio: Total dividend payments scaled by net income of firm *i* in year *t* (Su *et al.*, 2014)
$TANG_{it}$	Asset tangibility ratio: Net fixed assets (Net value of property, plant, and equipment after depreciation) scaled by total assets of firm *i* in year *t* (Harvey *et al.*, 2004; He & Luo, 2018)
$OPER\_CC_{it}$	Operating Cycle: Natural logarithm of the operating cycle of firm *i* in year *t* (Days Inventory + Days Account Receivable)
Q_{it}	Tobin's *q*: Book value of total assets minus book value of equity plus market value of equity scaled by book value of total assets of firm *i* in year *t* (Cronqvist & Nilsson, 2003; Dey, 2008; Choy *et al.*, 2011; Aktas, Andreou, Karasamani, & Philip, 2019)
$\sum INDUSTRY_i$	It represents industry fixed effect
$\sum YEAR_t$	It represents year fixed effect
Instrumental variables	
$AVG\_BOARD\_AGE_{it}$	Average age of board members of firm *i* in year *t* (An *et al.*, 2016; Xu *et al.*, 2016)
$AVG\_BOARD\_EDU_{it}$	Average education level of board members of firm *i* in year *t* Scoring method: 1-up to high school, 2-Bachelor degree, 3-Master degree, 4-Doctorate degree (An *et al.*, 2016)
Other variables	
$INDEP\_SB_{it}$	The proportion of independent members on the supervisory board of firm *i* in year *t* (El Ammari, 2023)
FEM_BOARD_{it}	The proportion of female members on the boards of firm *i* in year *t* (Proença *et al.*, 2020)

Table A1. Definitions of variables

Source(s): Appendix by authors