Does Investors’ Divergence of Opinion Affect Stock Mispricing?

Diogo Silva*, António Cerqueira, Elísio Brandão

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Abstract
The main purpose of this study is to address the association between
investors’ divergence of opinion (DIVOP) and stock mispricing for UK firms listed in the London Stock Exchange Market. Previous research on this topic has provided mixed results. Some studies provide evidence consistent with the overpricing hypothesis, which indicates that DIVOP leads to overpricing because the market overweights the most optimistic valuations, since optimistic investors can always buy a stock but pessimistic investors can only sell a stock if they already own it or need rely on short-selling, which has costs. Other studies support the underpricing hypothesis, which proposes that DIVOP works as a price risk factor that generates underpricing. We develop an empirical analysis that do not depend on the interpretation of abnormal future stock returns to assess contemporaneous mispricing. We use five explicit measures of mispricing. Also, to safeguard the development of a comprehensive study, we use three kinds of proxies of DIVOP, based on idiosyncratic volatility, dispersion in analysts’ forecasts and unexpected trading volume. The results show a positive significant association between DIVOP and stock mispricing on a yearly basis. This association is stronger for underpriced stocks, which is consistent with the underpricing hypothesis, and indicates that DIVOP signals risk. An implication of this study is that firms have incentives to provide high-quality and explicit information to limit DIVOP and avoid being underpriced.

**Keywords:** Divergence of opinion, Stock mispricing

**Abstract**

Here, the link between the mandatory adoption of International Financial Reporting Standards (IFRS) and Real Earnings Management (REM), as well as Accrual Earnings Management (AEM), will be examined for non-financial listed firms in the London Stock Exchange. Robust regression analysis of the mandatory IFRS adoption will be conducted on the panel data, as well as earnings management using three AEM models and three REM models. Mixed
results with respect to the qualities of AEM and REM were notably garnered, with mandatory IFRS adoption positively relating to the Roychowdhury of abnormal cash flow and the Roychowdhury of abnormal production. Meanwhile, the Roychowdhury of abnormal discretionary expenses, standard Jones, and Kothari negatively related to mandatory IFRS adoption, whilst modified Jones showed an insignificant relation to mandatory IFRS adoption. Changes in IFRS adoption and guidelines for UK firms may have an impact on AEM and REM, and, as predicted, mandatory IFRS adoption mostly affects the Kothari model followed by the standard Jones model as proxies for accounting earnings quality.

**Keywords:** Mandatory IFRS, Accruals earnings management (AEM), Real earnings management (REM), Robust Regression

**Abstract**

In the face of business competition, a company strategy is needed by seeking and exploiting opportunities in the business environment, one of which is through political connections. Ownership structure plays an essential role in the company to determine the firm performance. The high concentration of family ownership has the power to reduce agency conflicts between management and stakeholders in a company. Concentrated ownership can serve as corporate governance mechanism for better and effective monitoring of management. This study was conducted to determine empirical evidence of the effect of political connections and family ownership structure on firm value. The sample in this study was 390 data of the manufacturing company. The data analysis used is moderating regression analysis. The results of this study are a positive influence of political connections and family ownership structure on firm value. The results showed that the more the company had a strong political connection and was controlled by the family, the more the firm value
would increase. The interaction of political connections can strengthen the influence of family ownership on firm value. It proves that the family ownership structure plays a role in determining political connections in Indonesia, especially in manufacturing companies. The existence of empirical evidence that shows that the firm value controlled by a politically connected family is higher than companies that are not connected politically, which implies investors to invest in companies that are politically connected and companies controlled by families with majority ownership because it is proven to increase firm value.

**Keywords:** Firm value, Political connection, Family ownership, Controlling shareholder

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1 University of Applied Sciences Upper Austria
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**Abstract**

Emanating from the influential survey of Barberis and Thaler (2003), this systematic literature review examines the significant volume of studies on behavioral finance from 36 reputable finance journals published between 2009 and 2019. The findings are clustered into eight prominent research streams, which indicate the current developments in behavioral finance. Findings show that research intensively focuses on behavioral biases and their influence on economic phenomena. Driven by the impetus to understand the human mind, significant findings originated in the relatively new field of Neurofinance. Additionally, the analysis addresses the influence of market sentiment and its correlation with some of the other findings. Furthermore, implications on the limits to arbitrage in connection with some financial anomalies complete the holistic picture.

**Keywords:** Behavioral Finance, Neurofinance, Limits to Arbitrage, Market Anomalies, Behavioral Biases
Corporate Social Responsibility as a managerial learning process

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3 Université du Québec à Montréal. Member of CAIMD, Mohammed VI Polytechnic University

Abstract
The purpose of this paper is twofold. 1) We propose for the first time in the literature a theory (managerial learning hypothesis) that may explain why managers engage in corporate social responsibility (CSR). 2) We use an intuitive empirical methodology (Edmans et al. 2017) to test the relevance/irrelevance of our new theory. The idea behind our main contribution is that managers engage in CSR to learn new relevant information from other informed stakeholders. In return, managers will use both the new information and other information they already have to choose the optimal level of firm’s investment (Jayaraman and Wu, 2019). Therefore, we propose to examine whether a strong CSR engagement improves revelatory efficiency (Edmans et al. 2012, 2017). The latter accounts for the extent to which stock prices reveal new information to managers that will help them make value-maximizing choices. Our findings suggest that CSR activities do not allow firm’s managers to extract new information from their stock prices and ultimately improve the efficiency of their investment choices.

Keywords: Corporate social responsibility, Managerial learning theory, Revelatory efficiency, Investment-price sensitivity

JEL Classification: G14, G34, M14

Beyond the three lines of defense: The five lines of defense model for financial institutions
Georgios L. Vousinas*
National Technical University of Athens, School of Mechanical Engineering, Sector of Industrial Management & Operational Research, Greece

Abstract
The purpose of this study is to provide an updated version of the widely accepted three lines of defense model (3LoD) to better apply for regulated financial institutions. The author proposes the five lines of defense model (5LoD) which consists of the existing three lines along with external audit and regulators (comprising the fourth and fifth line of defense respectively). In spite of the fact that the bodies forming the two additional lines of defense constitute the external lines of defense, there should be active in supervising and monitoring control issues within the organization, in strong cooperation with the internal lines. This calls for closer interaction among the internal auditors, external auditors and regulators in the design and implementation of an efficient and effective internal control system, aiming to strengthen the existing framework regarding the governance of modern financial institutions, which operate in a highly demanding regulated environment.

Keywords: Three lines of defense, Five lines of defense, Internal audit, External audit Regulator

Pedro Ildemaro Alguindigue Ruiz, Olaf Weber*
University of Waterloo
Abstract
Sustainability risks represent a significant concern for the banking industry. Consequently, financial regulators created financial sector sustainability guidelines and regulations. However, the effect of these policies on banks’ financial stability is unclear. Hence, this study analyzes 149 banks in 17 countries in Latin America to explore the impact of financial sector sustainability guidelines and regulations on the banking industry. We use the Z-Score to measure the financial stability of banks in countries with and without financial sector sustainability guidelines and regulations. Based on panel regression, our results suggest significant differences between banks in countries with and without financial sector sustainability guidelines and regulations. We conclude that sustainable finance regulations promote financial stability as well as sustainable banking practices.

Keywords: Sustainability, Regulation, Supervision, Financial stability, South-America

JEL Classification: G14, G34, M14

The value of political independent supervisory boards: Evidence from Indonesian dual board setting

Joni Joni*, Jahja Hamdani Widjaja, Maria Natalia, Ivan Junius Salim
Maranatha Christian University, Indonesia

Abstract
We investigate whether political independent supervisory boards (political I-SBs) help companies to reduce their corporate risks in the setting of Indonesian two-tier board system. This study is different from other studies in several ways. First, while most prior studies examine the effectiveness of independent boards in one-tier board setting, we use dual board system. This system promotes the strategic role of political I-SBs. Second, we use two measures of corporate risks: operating and market risks. Based on 1,176 firm-year observations for operating risk analysis and 1,254 firm-year observations for market risk analysis, we find that firms with political I-SBs have lower operating and market risks than firms with non-
politically connected independent SBs. We also control for endogeneity problem using GMM (Generalized Method of Moments) method, and the results are still consistent.

Keywords: Political I-SBs, Corporate risks, Two-tier board system

Victor Olkhov*
TVEL, Moscow, Russia

Abstract
We introduce the new price probability measure, which entirely depends on the probability measures of the value and the volume of the market trades. We define the nth statistical moment of the price as the ratio of the nth statistical moment of the value to the nth statistical moment of the volume of all trades performed during an averaging time interval $\Delta$. The set of the price statistical moments determines the price characteristic function and its Fourier transform defines the price probability measure. The price volatility depends on the 1st and the 2nd statistical moments of the value and the volume of the trades. The prediction of the price volatility requires a description of the sums of squares of the value and the volume of the market trades during the interval $\Delta$ and we call it the second-order economic theory. To develop that theory, we introduce numerical continuous risk ratings and distribute the agents by the risk ratings as coordinates. Based on distributions of the agents by the risk coordinates, we introduce a continuous economic media approximation that describes the collective trades. The agents perform the trades under the action of their expectations. We model the mutual impact of the expectations and the trades and derive equations that describe their evolution. To illustrate the benefits of our approach, in a linear approximation we describe perturbations of the mean price, the mean square price and the price volatility as functions of the first and the second-degree trades’ disturbances.
Abstract
In this paper, we examine the performance of certain short option trading strategies on the S&P500 with backtesting based on historical option price data. Some of these strategies show significant outperformance in relation to the S&P500 index. We seek to explain this outperformance by modeling the negative correlation between the S&P500 and its implied volatility (given by the VIX) and through Monte Carlo simulation. We also provide free testing software and give an introduction to its use for readers interested in running further backtests on their own.

Keywords: Option-trading, S&P500-index, Implied volatility, Realized volatility
Abstract
In this study, we examine whether international portfolio diversification still matters despite an increase in the cross-country correlations of assets returns. More specifically, we explain why an increase in global return correlations does not necessarily imply a reduction in the benefits of international portfolio diversification. We also propose to compare empirically two traditional strategies of international diversification (by country and industry) in addition to a new strategy (by region) using two different methodological approaches, namely the mean variance spanning and multivariate cointegration analysis. Over the full sample period (1994-2008), our results suggest that the three strategies of international diversification remain effective despite the secular increase in the cross-country return correlations. When we divide the sample into two different sub-periods (1994-2000 and 2000-2008), the findings indicate that the strategy based on regional diversification proved to be a new competing strategy during the second period in comparison to the other two traditional strategies.

Keywords: International diversification, Countries Industries/sectors Regions, Market indexes, Mean variance spanning, Cointegration

Linn Björkholm, Othmar M. Lehner
Hanken School of Economics
The green bond market is growing and becoming increasingly important in green finance and for the transition to a low-carbon economy. Still, the green bond market is to a large extent unstandardised. There is no commonly agreed definition of the term ‘green’. This has been seen as one of the biggest challenges when it comes to the development of the green bond market. The need of a unified EU standard has been raised and as an effect the establishment of the EU Green Bond Standard is now in development. However, new standards might not only bring advantages, but also challenges. Striking the right balance of strictness might be hard. The research has been conducted through qualitative method with semi-structured interviews. Nine interviews were held during November and December 2020. The data was then analysed through thematic coding in order to find patterns of meaning. The results show that Nordic green bond issuers overall are positive towards the EU Green Bond Standard. The EU GBS has a good aim, to harmonise and enlarge the green bond market. However, the standard brings challenges that are to a large extent known challenges which the EU GBS aims to address, such as labour intensive reporting processes, lack of initiative and reputational risk. Also, it is argued that the standard is not fair and applicable for all the countries and companies. Countries national laws may not always go hand in hand with the standard. For example, the requirements for green buildings are seen as challenging in the Nordics. If these challenges are not taken into consideration, Nordic green bond issuers fear that the market will not grow, but instead decrease. Additionally, Nordic green bond issuers argue the adoption of the EU GBS is not a guarantee for issuers. Bigger institutes are seen to be early adopters. For other issuers investor requirement and positive impact on their company reputation is seen as the key drivers for adoption of the standard.

**Keywords:** Green bond, Nordics, Green bond issuer, EU Green Bond Standard, EU GBS
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The chart shows the ratio of a journal's documents signed by researchers from more than one country; that is, the % international collaboration. Not every article in a journal is considered primary research and therefore "citable", this chart shows the ratio of a journal's items, grouped in three years windows, that have been cited at least once vs. those not cited during the following year.

Ratio of a journal's items, grouped in three years windows, that have been cited at least once vs. those not cited during the following year.

This indicator counts the number of citations received by a journal's published documents (and therefore "citable", this chart shows the ratio of a journal's items, grouped in three years windows, that have been cited at least once vs. those not cited during the following year.)

Evolution of the number of total citation per document and external citation per document (i.e. journal self-citations removed) received by a journal's published documents during the three previous years. External citations are defined as the number of citation of a journal to documents of other journals during the two, three and four years have been cited in the current year. The two years citation account for 55% of the total citations received by the journal's documents published in that journal. The chart shows the evolution of the average number of times that an article in a journal, it expresses how central to the global scientific community is this journal. It measures the scientific influence of journals, in which they have scored in three years. The idea that 'all citations are not created equal'. SJR is a size-independent prestige indicator that ranks journals by their 'average prestige per article'. It is based on a combination of the number of citations received by a journal and the importance or prestige of the journals where such citations come from. This indicator measures the importance or prestige of the journals where such citations come from.

The SJR is a size-independent prestige indicator that ranks journals by their 'average prestige per article'. It is based on a combination of the number of citations received by a journal and the importance or prestige of the journals where such citations come from.

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The value of political independent supervisory boards: Evidence from Indonesian dual board setting

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ABSTRACT

We investigate whether political independent supervisory boards (political I-SBs) help companies to reduce their corporate risks in the setting of Indonesian two-tier board system. This study is different from other studies in several ways. First, while most prior studies examine the effectiveness of independent boards in one-tier board setting, we use dual board system. This system promotes the strategic role of political I-SBs. Second, we use two measures of corporate risks: operating and market risks. Based on 1,176 firm-year observations for operating risk analysis and 1,254 firm-year observations for market risk analysis, we find that firms with political I-SBs have lower operating and market risks than firms with non-politically connected independent SBs. We also control for endogeneity problem using GMM (Generalized Method of Moments) method, and the results are still consistent.

Introduction

The value of independent board has been questioned by both academics and practitioners recently. Theoretically, the presence of independent board is expected to create value by mitigating the agency conflicts (Fama and Jensen 1983) and providing resources (Pfeffer and Salancik 1978). However, empirically, it is not clear whether independent board create or destroy value. Shi et al. (2018) provide a strong argument on why the empirical research shows a mixed result. This because Independent boards with different backgrounds can result different behaviors in conducting their main duties, including monitoring, supervising, and providing resources. Therefore, it is important to investigate the type of independent boards and how they can create value.

The objective of this empirical study is to examine the effect of political independent supervisory board (I-SB) as a particular type of independent board on corporate’s risks in Indonesian dual board system. In emerging market, political affiliations are valuable resources. Therefore it is common for listed companies to appoint former or current government officers as independent board to maintain their relationship with government. According to Agency Theory, the presence of I-SB can either destroy firm value due to rent-seeking behaviors or improve shareholder’s
value through their professional monitoring. As a complementary to Agency Theory, Resource Dependence Theory argues that resourceful people as top management can benefit company by gaining more external resources and reducing environmental uncertainty/other constraints. Firms use political connections as a vehicle to gain resources from government and to minimize boundaries when dealing with government’s bureaucracy. Prior literature shows that firms with political IDs are associated better firm value, such as higher performance (Wu et al. 2012), more bank loan (Houston et al. 2014), lower cost of capital (Boubakri et al. 2012), etc. However, another stream of literature finds that the presence of political IDs reduces firm value in several ways, including tunneling activities, inefficient investment, etc. This mixed result on the empirical studies is one of the challenges faced in the literature of political IDs (Hu et al. 2019). In addition, Hu et al. (2019) argue that another challenge in this literature is endogeneity issue. It is possible that firms with lower corporate’s risks are more likely to appoint political I-SB. Or perhaps, the presence of political I-SBs is not providing political protection or bringing government’s resources or improving the monitor function because they have similar social network with the SOEs as the controlling shareholders (Hu et al. 2019).

Our study addresses these challenges and is different with previous works (e.g., Shi et al. 2018; Hu et al. 2019) by using different setting. We examine this issue under Indonesian two-tier board context. Scholars have increasingly recognised that the role of independent board is significantly influenced by institutional setting (e.g., Liu et al. 2015; Ye and Li 2017). Mostly, literature shows the value of independent board in the single board system setting, such as U.S. (e.g. Daily and Dalton 1992; Anderson et al. 2004; Cornett et al. 2009). For instance, Nguyen and Nielsen (2010) investigate the important role of independent director in US one-tier board system. They find that investors value the presence of independent directors. Using similar context, Masulis and Zhang (2018) document that firm value is lower when firms have more distracted independent directors (proxied by fewer meetings, less trading, and more resignation).

Motivated by limited studies on the value of independent board in the two-tier board context, we investigate the role of political IDs in emerging economy, Indonesia. The adoption of dual board mechanism in Indonesia is influenced by the Dutch civil law. Consequently, all listed firms are required to have separate Board of Director (BOD) who is responsible for daily operation and Board of Commissioners (BOC) who is responsible for supervising and monitoring the BOD.\(^1\) Based on this context, we focus on the value of the political Independent BOC or SB (political I-SB). We expect that the presence of political I-SB in Indonesian dual board system can reduce the corporate risk through their strategic role and capability to bring resources from government and their effective monitoring function.

Second, our study will investigate the effect of political I-SB in Joko Widodo (JOKOWI) regime. We use the first period of JOKOWI (2014-2017) as our sample. The main reason to use JOKOWI regime because JOKOWI comes from different background with previous presidents. While previous presidents have military background or the head of party (such as Soeharto, Susilo Bambang Yudhoyono-SBY, Megawati), JOKOWI is only the member of PDI-P (Partai Demokrasi Indonesia-Perjuangan) and from civil background. Further, JOKOWI is claimed to be more transparent. Lastly, we evaluate endogeneity issue by applying Generalized Method of Moments (GMM).

\(^1\) BOC has similar idea with Supervisory Board (SB) in general.
We outlined the remainder of the full paper as follows: in section 2, we review the prior literature and develop the main hypotheses, followed by research method in Section 3. Section 4 reports our empirical findings, and section 5 provides additional tests. Finally, section 6 shows concluding remark.

**Hypotheses development**

**Recent studies on the independent boards**

Our research is closely associated to two streams of empirical literature. Firstly, the literature on the value of independent boards. Extant empirical research investigates the effectiveness of independent boards in one-tier board context, yet limited studies on the two-tier board context. Nguyen and Nielsen (2010) examine whether the independent directors contribute or add value to shareholders in the US from 1994 to 2007 using the sudden death of individual independent directors as a natural experiment. They show a convincing evidence that firm’s stock price declines after the sudden death of independent directors. This means that the role of independent director is effective and valuable in the perspective of shareholders. In addition, Masulis and Zhang (2018) estimate the value of independent directors by examining whether exogenous events (such as fewer meetings, less trading, and more resignation of the board) distract the effectiveness of the independent directors. Based on the S&P 1500 firms from 2000 to 2013, they conclude that firms with distracted independent boards decrease firm valuation and operating performance. This also lower firm’s accounting quality and M&A (Merger and Acquisition) profitability. However, Duchin et al. (2010) use the Sarbanes-Oxley Act and new regulations which require firms to add more independent directors on their board as an exogenous shock to examine the effectiveness of independent boards in the context of US one-tier board system from 2000-2005. They document that the value of independent board is associated to the cost of obtaining firm’s information. When the information cost is low, the increasing number of independent boards results better performance. On the other hand, if the information is high, the relation between independent board size and performance is statistically negative and significant.

Unlike one-tier board system, the Indonesian dual board system has board of directors (BODs) who has responsible for company’s operation and supervisory boards (SBs, often called as board of commissioners) whose duty is to monitor and provide advice to BODs. The IFC (2014, International Finance Corporation) argues that SBs have several important dan strategic roles in the Indonesian corporate governance mechanism, including deciding strategic development and long-term contracts. It is expected that the presence of independent SBs reduces corporate risks through monitoring and supervision functions.

**Recent studies on political Independent Boards**

Next, our empirical work is also related to the growing literature of the effectiveness of political IDs. Only limited study examines the value of political IDs, and the results are mixed. For instance, Wang (2015) tests the important of political IDs using 7,487 Chinese listed firm-year observations from 2003-2012. They analyse privately controlled firms and government-controlled firms differently. This study finds that the economic consequences of having political IDs are shaped by ownership structure. Specifically, the result shows that privately controlled firms with...
political IDs obtain more benefits than non-politically affiliated firms because they have more access to external funding and more government subsidies. In addition, the presence of political IDs in privately controlled firms increase the magnitude of related party transactions with their controlling party. However, the existence of political IDs in government-controlled firms do not add value, especially in local government-affiliated firms. It because of the expropriation of minority investors through related party transactions and over-investment issues.

Further, Shi et al. (2018) examine whether and how political IDs add or reduce firm value based on an exogenous regulatory change in China. They show several important findings. First, compared to non-political IDs, political IDs are less effective in overseeing managers (type 1 agency conflict). Second, political IDs do not create or reduce value in overseeing controlling shareholders (type 2 agency conflict). Third, the negative influence of political IDs can be reduced by high levels of marketization and analyst coverage as external corporate governance mechanisms. Cheng (2018) explores the value of political IDs by investigating market reactions to sudden deaths of political IDs in China during the period of 2003-2012. Using event study, they find that politically connected private listed firms suffer loss due to the sudden death of a political IDs. The share price reduces 3.61% on average around ten trading days. Also, the sudden death of political IDs reduces the economic benefits of the politically connected private firms, including bank loan, tax preference, and government subsidies.

Recently, Hu et al. (2019) examine the value of political IDs using an exogenous shock (a 2013 regulatory 18 shock) which stops firms to have political IDs. Specifically, they investigate whether Chinese listed firms with political IDs increase their firm value (having more long-term borrowing) and decrease firm value (increasing minority shareholder’s expropriation) before the regulatory 18. This empirical study contributes to the literature by using exogenous shock to address the endogeneity issue. They find that a 2013 regulatory 18 shock which reduces the number of political IDs causes the reduction of long-term debt financing and government subsidies for non-SOEs. In addition, they show that non-SOEs with the sudden loss of political IDs enhance the protection of minority shareholders by reducing self-dealing activities and improving investment efficiency.

While prior studies address the inconclusive findings on the relation between political IDs and firm value by using exogenous events as a natural experiment to reduce endogeneity problem, we add contribution to the literature by investigating whether political IDs reduce corporate’s risks in JOKOWI regime. JOKOWI’s regime is different with other presidents in several ways. First, he comes from different party with previous president-SBY. It means that they have different political directions. JOKOWI is supported by PDIP (Partai Demokrasi Indonesia Perjuangan) and SBY is from Demokrat party. Second, other presidents are head of the party, such as SBY is the head of Demokrat party (elite), but JOKOWI is only the member of PDIP party. Third, JOKOWI represents the interest of the people of Indonesia because he comes from civil background compared to other presidents, including SBY and Soeharto, who come from military background. Forth, JOKOWI promotes clean government and transparency more than SBY’s regime or prior regime.

In line with the theoretical background and the estimation of the prior empirical evidence, the following hypothesis is proposed:
H1: A firm with political independent supervisory boards is associated with lower corporate’s risks compared to their counterpart in the context of Indonesian dual board system, ceteris paribus.

**Research method**

**Data and sample**

To estimate the empirical model of the study, we collected all Indonesian publicly listed companies from 2015 to 2017, except financial industries because they are regulated under different system. Our data consists of financial and non-financial information. First, our corporate governance data, including political I-SBs, is hand-collected from corporate’s annual reports, institution website, and other search engines, such as Google, Yahoo, etc. Second, we also obtain the financial information from Datastream.

Next, we eliminate observations with incomplete required information in our sample. As a result, our final sample is reduced to 1,176 firm-year observations for operating risk estimation and 1,254 firm-year observations for market risk estimation (Table 1, Panel A). In Panel B of Table 1, the number of firms with political independent supervisory board members varies by year in operating risk analyses, with 167 firms (43.5%) in 2015, 169 firm-year observations (44.1%) in 2016, and 179 (42.5%) in 2017. For market risk, the percentage of companies with politically affiliated independent supervisory boards are 43.5%, 43.3%, 40.9% for the years 2015, 2016 and 2017, respectively.

**Table 1. The Sample Description**

| Panel A: The selection of the sample (SDROA: operating risk/VOL: market risk) |
|---------------------|---------------------|---------------------|---------------------|---------------------|
|                      | Fiscal year        | 2015               | 2016               | 2017               | Total observations |
| No.                  |                    |                    |                    |                    |
| 01. Number of listed firms in IDX | 582                | 582                | 582                | 1,746               |
| 02. Number of listed firms with missing data | 210 (191)          | 199 (176)          | 161 (125)          | 570 (492)           |
| Total listed firms in the sample | 372 (391)          | 383 (406)          | 421 (457)          | 1,176 (1,254)       |

| Panel B: Distribution of firms with politically affiliated independent supervisory board (SDROA/VOL) |
|---------------------|---------------------|---------------------|---------------------|---------------------|
| No.                  | Fiscal year        | 2015               | 2016               | 2017               | Total observations |
| 01 Firms with politically affiliated independent supervisory board | 167 (170)          | 169 (176)          | 179 (187)          | 515 (533)           |
| 02 Percentage of firms with politically affiliated independent supervisory board | 44.9% (43.5%)      | 44.1% (43.3%)      | 42.5% (40.9%)      | 43.8% (42.5%)       |
Models and variables

We examine the following regression models to investigate the effect of politically affiliated independent SBs on corporate risks in hypothesis1. The first model is to investigate the association between political I-SBs and operating risk, and the second model is to estimate the effect of political I-SBs on market risk. The models are presented as follow:

\[
SDROA_{it} = \alpha_{1}PC_{SBIND_{it}} + \alpha_{2}SBIND\_APPOINTED_{it} + \alpha_{3}SBIND\_TENURE_{it} + \alpha_{4}SBIND\_FIN_{it} + \alpha_{5}SOE_{it} + \alpha_{6}FSIZE_{it} + \alpha_{7}MTB_{it} + \alpha_{8}IND_{it} + \alpha_{9}YEAR_{it} + \epsilon_{it}
\]

\[
VOL_{it} = \alpha_{1}PC_{SBIND_{it}} + \alpha_{2}SBIND\_APPOINTED_{it} + \alpha_{3}SBIND\_TENURE_{it} + \alpha_{4}SBIND\_FIN_{it} + \alpha_{5}SOE_{it} + \alpha_{6}FSIZE_{it} + \alpha_{7}MTB_{it} + \alpha_{8}IND_{it} + \alpha_{9}YEAR_{it} + \epsilon_{it}
\]

We organise the detailed definition of variables and sources as follow:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDROA_{it}</td>
<td>A five years standard deviation of ROA for firm i in year t (e.g., from t-4 to t) (Harjoto and Laksmana 2018)</td>
</tr>
<tr>
<td>VOL_{it}</td>
<td>The standard deviation of daily stock returns for firm i in year t         (Harjoto and Laksmana 2018)</td>
</tr>
<tr>
<td>PC_{SBIND_{it}}</td>
<td>A dummy variable, set as 1 if political I-SB is exist for firm i in year t and 0 otherwise (Faccio 2006)</td>
</tr>
</tbody>
</table>

Firm and board characteristics as control variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBIND_APPOINTED_{it}</td>
<td>The independent Supervisory Board is appointed by BOD for firm i in year t (Nguyen and Nielsen 2010)</td>
</tr>
<tr>
<td>SBIND_TENURE_{it}</td>
<td>The years of tenure on the independent SB for firm i in year t (Nguyen and Nielsen 2010)</td>
</tr>
<tr>
<td>SBIND_FIN_{it}</td>
<td>The percentage of independent supervisory board members who have financial and accounting background for firm i in year t (Xie et al. 2003)</td>
</tr>
<tr>
<td>SOE_{it}</td>
<td>A dummy variable, set as one if the controlling owner is a central or local government for firm i in year t and zero otherwise (Hu et al. 2019)</td>
</tr>
<tr>
<td>FSIZE_{it}</td>
<td>The natural log of the company’s total assets for firm i in year t (Harjoto and Laksmana 2018)</td>
</tr>
<tr>
<td>MTB_{it}</td>
<td>The ratio of market value of equity for firm t in year t (Harjoto and Laksmana 2018)</td>
</tr>
</tbody>
</table>

Fixed effects as control variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND_{it}</td>
<td>a vector of industry indicator variables is grouped using two-digit GICS (Global Industry Classification Standard).</td>
</tr>
<tr>
<td>YEAR_{it}</td>
<td>a vector of year indicator variables: 2015; 2016; 2017.</td>
</tr>
</tbody>
</table>
Statistical analyses

We utilize OLS regression models to estimate all hypotheses. First, we provide descriptive statistics to have better understanding of the raw data and useful information for our main analysis. Second, we use correlation analysis to obtain initial understanding on the association among main variables. Then, this analysis is used to identify the presence of multicollinearity problem in the main models. We also check multicollinearity problem by using variance inflation factor (VIF) for each model. Third, we estimate the main hypotheses using OLS regression model. This method is consistent with previous studies (e.g. Hu et al. 2019; Shi et al. 2018).

Sensitivity analyses

As mentioned earlier, one potential problem to examine the relation between political I-SBs and corporate risks is endogeneity. It is possible that risky firms tend to have political connections to hide their unethical behavior. So, the political affiliated I-SBs can be endogenously determined. To address the possibility of endogeneity issue, we apply the difference Generalized Method of Moments (GMM) as additional test. As a complementary estimation, GMM is also an efficient model in the presence of heteroskedasticity (Baum et al., 2003).

Empirical findings

Descriptive statistics

In Table 3, we report descriptive statistics of the main variables in the full sample of 1,176 observations in operating risk analysis and 1,254 observation in market risk analysis. Operating risk/SDROA (or market risk/VOL) is the dependent variable which has an average value of 0.044 (0.029) with a minimum value of 0.002 (0.000) and maximum value of 0.511 (0.174). The mean of politically affiliated independent supervisory board (PC_SBIND) is 0.438 (0.425) with a maximum value of 1.000 (1.000) and a minimum value of 0.000 (0.000) for operating risk and market risk models, respectively. The descriptive statistics of our key variables are consistent with previous studies such as Hu et al. (2019), Joni et al. (2019), Harjoto and Laksmana (2018). In general, the value of corporate risks and politically affiliated independent supervisory board variables in the sample are considered reasonable. Next, we estimate pairwise Pearson correlations to report the correlations of several main variables in Table 4, except for the industry and year variables. The highest correlation exists between SDROA and FSIZE (r=0.221) at the 1% level in operating risk analysis. Further, we test multicollinearity issue using variance inflation factor (VIF) in Table 5. It shows that the average VIF for politically independent SB and corporate risk is about 1.14, suggesting that none of the results suffer from multicollinearity.
### Table 3. Descriptive statistics of our key variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDROA/VOL</td>
<td>1176</td>
<td>0.044</td>
<td>0.064</td>
<td>0.002</td>
<td>0.511</td>
<td>1254</td>
<td>0.029</td>
<td>0.017</td>
<td>0.000</td>
<td>0.174</td>
</tr>
<tr>
<td>PC_SBIND</td>
<td>1176</td>
<td>0.438</td>
<td>0.496</td>
<td>0.000</td>
<td>1.000</td>
<td>1254</td>
<td>0.425</td>
<td>0.495</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>SBIND_APPointed</td>
<td>1176</td>
<td>0.936</td>
<td>1.042</td>
<td>0.000</td>
<td>7.000</td>
<td>1254</td>
<td>0.922</td>
<td>1.033</td>
<td>0.000</td>
<td>7.000</td>
</tr>
<tr>
<td>SBIND_TENURE</td>
<td>1176</td>
<td>5.613</td>
<td>5.488</td>
<td>0.500</td>
<td>28.000</td>
<td>1254</td>
<td>5.441</td>
<td>5.424</td>
<td>0.500</td>
<td>28.000</td>
</tr>
<tr>
<td>SBIND_FIN</td>
<td>1176</td>
<td>0.527</td>
<td>0.384</td>
<td>0.000</td>
<td>2.000</td>
<td>1254</td>
<td>0.532</td>
<td>0.406</td>
<td>0.000</td>
<td>5.000</td>
</tr>
<tr>
<td>SOE</td>
<td>1176</td>
<td>0.039</td>
<td>0.193</td>
<td>0.000</td>
<td>2.000</td>
<td>1254</td>
<td>0.037</td>
<td>0.188</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>FSIZE</td>
<td>1176</td>
<td>27.34</td>
<td>3.782</td>
<td>13.000</td>
<td>35.000</td>
<td>1254</td>
<td>27.310</td>
<td>3.740</td>
<td>13.000</td>
<td>35.000</td>
</tr>
<tr>
<td>MTB</td>
<td>1176</td>
<td>2.61</td>
<td>3.990</td>
<td>-0.010</td>
<td>18.760</td>
<td>1254</td>
<td>2.729</td>
<td>4.102</td>
<td>-0.010</td>
<td>18.760</td>
</tr>
</tbody>
</table>

Notes: The table documents the summary statistics of the key variables. The sample includes 1,176 (1,254) firm-year observations from 2015 to 2017. Variable definitions are shown in Table 2.

### Table 4. The Pearson Correlation Matrix of Key Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDROA/VOL (1)</td>
<td>1.00</td>
<td>-0.079&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.095&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.037</td>
<td>0.000</td>
<td>-0.073&lt;sup&gt;b&lt;/sup&gt;</td>
<td>-0.148&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.002</td>
</tr>
<tr>
<td>PC_SBIND (2)</td>
<td>-0.067&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.00</td>
<td>0.129&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.072&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.059&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.107&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.030</td>
<td>0.052&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>SBIND_APPointed (3)</td>
<td>-0.088&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.118&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.000</td>
<td>0.181&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.024</td>
<td>0.183&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.195&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.092&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>SBIND_TENURE (4)</td>
<td>-0.052&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-0.087&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.175&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.000</td>
<td>-0.141&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.115&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.005</td>
<td>-0.092&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>SBIND_FIN (5)</td>
<td>-0.020</td>
<td>0.062&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.037</td>
<td>-0.138&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.000</td>
<td>0.030</td>
<td>0.074&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.027</td>
</tr>
<tr>
<td>SOE (6)</td>
<td>-0.076&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.105&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.185&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.124&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.036</td>
<td>1.000</td>
<td>0.143&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.063&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>FSIZE (7)</td>
<td>-0.221&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.029</td>
<td>0.195&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.001</td>
<td>0.093&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.144&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.000</td>
<td>0.087&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>MTB (8)</td>
<td>-0.063&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.055&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.095&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-0.076&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.020&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.073&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.091&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.000</td>
</tr>
</tbody>
</table>

The table presents the pairwise Pearson correlation matrix for the full sample (1,176 [1,254] firm-year observations). The superscripts a-c describe significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are shown in Table 2.

**Politically affiliated independent SB and corporate’s risks**

We report the Ordinary Least Square estimates for examining the association between political independent SB and corporate risks in Table 5. Model 1 of Table 5 show a negative association between politically affiliated independent SBs and corporate operating risk, and it is statistically significant at the 5% level (coefficient = -0.007, $t = -1.96$). Also, we find that the relation between firms with political independent SBs and corporate market risk is significantly negative at the 1% level (coefficient = -0.002, $t = -2.48$). Following previous literature (e.g. Joni et al. 2019; Shi et al. 2018), Table 5 reports the significant results after controlling for other Independent SB characteristics (such as Independent SB appointed by BOD, tenure, and Independent SB with financial background), market to book ratio, SOE, and firm size.

Overall, our findings are consistent with previous studies (Hu et al. 2019; Joni et al. 2019), suggesting that the presence of politically affiliated independent SB reduce either corporate operating or market risks. The role of independent SB in the context of two-tier board mechanism, such as Indonesia, is very important and strategic as they monitor and supervise Board of Director. Not only that, they also have authority to make approval of long-term investment and corporate strategic plan (Joni et al. 2019). When independent SB have political connection, their role...
is even more strategic because their connections can help companies obtain more external resources, including easier access to external funding. Consequently, the presence of political affiliated independent SB lower corporate risks.

**Table 5. Political Affiliated Independent SB and corporate’s risks**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Estimated coefficient</th>
<th>Model 1: SDROA</th>
<th>Model 2: VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>0.130* (8.84)</td>
<td>0.049* (12.57)</td>
<td></td>
</tr>
<tr>
<td>PC_SBIND</td>
<td>-0.007b (-1.96)</td>
<td>-0.002* (-2.48)</td>
<td></td>
</tr>
<tr>
<td>SBINDAppointment</td>
<td>-0.001 (-0.81)</td>
<td>-0.000c (-1.78)</td>
<td></td>
</tr>
<tr>
<td>SBIND_TENURE</td>
<td>-0.000b (-1.98)</td>
<td>-0.000 (-1.07)</td>
<td></td>
</tr>
<tr>
<td>SBIND_FIN</td>
<td>0.003 (0.67)</td>
<td>-0.000 (-0.31)</td>
<td></td>
</tr>
<tr>
<td>SOE</td>
<td>-0.012 (-1.29)</td>
<td>-0.004 (-1.61)</td>
<td></td>
</tr>
<tr>
<td>FSIZE</td>
<td>-0.003* (-5.23)</td>
<td>-0.004* (-5.03)</td>
<td></td>
</tr>
<tr>
<td>MTB</td>
<td>-0.000b (-1.69)</td>
<td>0.000c (0.50)</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Included</td>
<td>Included</td>
<td></td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Included</td>
<td>Included</td>
<td></td>
</tr>
</tbody>
</table>

Mean VIF 1.14          1.14

R² 0.097                0.056
F 8.96*                 5.21*
Prob > F 0.000        0.000
N 1,176                1,254

The table shows Ordinary Least Square (OLS) coefficient estimates. Also, we include dummy variables in the regression to control for year and industry differences. However, the results are not provided due to space constraints. The superscripts a-c describe significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are explained in table 2.

**Further test**

In corporate governance literature, it is important to address endogeneity problem. It is possible that less risky firms tend to have more political connection with government. We check endogeneity issue using Generalized Method of Moments (GMM). As shown in Table 6, after controlling for endogeneity, we find consistent results with our main OLS model in Table 5.
Table 6. Political Affiliated Independent SB and firm’s risks - GMM

<table>
<thead>
<tr>
<th>Variables</th>
<th>Estimated coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1: SDROA</td>
</tr>
<tr>
<td>INTERCEPT</td>
<td>0.247* (4.547)</td>
</tr>
<tr>
<td>PC_SBIND</td>
<td>-0.007b (-1.93)</td>
</tr>
<tr>
<td>SBIND_APPOINTED</td>
<td>-0.001 (-0.76)</td>
</tr>
<tr>
<td>SBIND_TENURE</td>
<td>-0.000a (-2.57)</td>
</tr>
<tr>
<td>SBIND_FIN</td>
<td>0.001 (0.20)</td>
</tr>
<tr>
<td>SOE</td>
<td>-0.013a (-4.27)</td>
</tr>
<tr>
<td>FSIZE</td>
<td>-0.003a (-5.60)</td>
</tr>
<tr>
<td>MTB</td>
<td>-0.000b (-1.94)</td>
</tr>
<tr>
<td>YEAR</td>
<td>Included</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>Included</td>
</tr>
</tbody>
</table>

The table shows Ordinary Least Square (OLS) coefficient estimates. Also, we include dummy variables in the regression to control for year and industry differences. However, the results are not provided due to space constraints. The superscripts a-c describe significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are explained in table 2.

Conclusion Remark

Our study investigates the effect of political independent supervisory board on corporate risks in the context of two-tier board system, Indonesia. Our finding suggests that firms with political independent supervisory boards have lower corporate risks compared to their counterparts after controlling for endogeneity problem. We show that the role of politically affiliated independent supervisory board is important and strategic in dual board system. This is consistent with agency theory suggesting that the presence of political independent board is effective to oversee Board of Director and reduces agency conflicts between management and shareholders. In addition, our finding is in line with Resource Dependency Theory, meaning that political connection is an effective vehicle to lower external factors which can reduce corporate risks.

Overall, this study contributes to the corporate governance literature by showing an empirical evidence on the effectiveness of independent supervisory board with political connection in two-tier board system, while previous studies focus on one-tier board system using US sample. First, our findings imply that monitoring role of independent supervisory board in emerging market context, Indonesia, which applies dual board system, is effective. Second, our paper sheds light on the strategic role of the resourceful political independent supervisory board in assisting company to reduce external uncertainty and to obtain external resources.

Our study should be interpreted by considering several limitations. First, we examine the effect of political independent supervisory board on financial outcomes, we do not address its impact on non-financial outcomes. Second, a quantitative research has a limitation to deeply explore how politics affect corporate decision making. We leave these issues for future research to examine the effect of political independent supervisory board on non-financial outcomes using qualitative or mixed methods.
References


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