TUNNELLING: EVIDENCE FROM INDONESIA STOCK EXCHANGE

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ABSTRACT

This study investigates the relationships between corporate governance variables and tunnelling activities in Indonesia. Using 2216 firm-year observations from 2005 to 2012, we find that several corporate governance variables contribute to explaining the phenomenon of tunnelling in Indonesia. The data reveal that approximately 276 firms had experienced expropriation in the form of tunnelling, particularly expropriation from majority to minority shareholders, which can be identified through the related party transaction. We find that firms with family and state ownership tend to experience tunnelling. This result is consistently revealed when we separate the data into eight industries. We document that the SINGLE ownership variable, which depicts family ownership, the STATE ownership variable, and the LEVERAGE variable have a positive influence on TUNNELING. In contrast, the institutional (INST) ownership variable has a negative influence on TUNNELING. However, BOARD_SIZE, OUTSIDERS, GROUP ownership, and BIG FIVE auditor variables have no significant effect on TUNNELING activities.

Keywords: tunnelling, good corporate governance, Indonesia Stock Exchange

INTRODUCTION

The Indonesian Institute for Corporate Governance (IICG), in collaboration with SWA magazine on Indonesian public companies, conducted a survey on the implementation of Good Corporate Governance (GCG). Not many firms responded to the survey. Of the 332 firms approached, only 31 companies actively participated—a response rate of less than 10%. For a comparison, a similar survey conducted in developed countries was responded to by more than 70% of companies. This phenomenon reflects that there is a low awareness about implementing the GCG in Indonesia (IICG, 2012).

The low response rate is unsurprising. Another survey conducted from 1998–2000 by La Porta, Lopez, Shleifer and Vishny (2000a; 2000b) regarding

the protection of investors and corporate governance classifies Indonesia as a country with a low implementation of GCG. The low implementation of GCG obviously had an effect on the lack of protection, particularly for minority shareholders. Additionally, this condition directly caused the confidence of investors, particularly foreign investors, to drop in terms of holding the shares of public companies in Indonesia. In the middle of 1998, the market was almost abandoned by foreign investors. Only speculators and domestic players survived in this situation. It was not surprising that in 1998, Indonesia's stock exchange experienced its lowest point of its operational activity.

The low awareness of GCG has notably led to higher risks of investing activity in Indonesia. This condition has a direct effect on the level of investment. Moreover, the lack of GCG is reportedly suspected the cause the loss of investors' and creditors' confidence to extend their credit. Trauma due to the reckless mounting of bad loans during the era (1998) is still haunting banks. This circumstance is noted by Wiwattanakantang (2001), who studies the effects of controlling shareholders on firm performance in Thailand. The work of Wiwattanakantang indicates that the controlling shareholders in Thailand do not act in expropriation (abused by the majority of shareholders) on the company's assets. In fact, the existence of controlling shareholders is presumably associated with higher firm performance. (Performance is specifically measured by ROA and the ratio of sales to assets.) This happens because virtually all companies in Thailand do not implement the controlling mechanisms in separating voting rights with the right of cash flows. As consequence, controlling shareholders are being constrained by themselves and do not acquire private benefits.

In emerging economies, the concentration of ownership seems real. Khanna and Palepu (2000a) reveal that in India, the majority of public companies are associated with diversified business groups and controlled by a number of families. According to the analysis conducted by Claessens, Djankov and Lang (2000), in several emerging markets, except for Japan, more than 40% of public companies in 9 Asian countries disclosed that they had dominant owners who were determined by families. In companies that have concentrated ownership, the controlling shareholders have the opportunity to perform expropriation through various methods. For instance, Johnson, La Porta, Lopez-De-Silanes and Shleifer (2000) report that the controlling shareholders are inclined to extract or extort cash by selling assets, goods, or services to the company through transactions that benefit themselves. They obtain a loan with a term that is likely more attractive and imposing and then subsequently transfer the assets of a listed company to another company that is still in control. Reciprocally, they might have diluted the interests of minority shareholders to acquire additional shares at preferential prices.

The cases of expropriation or asset tunnelling by controlling shareholders have been highlighted by a vast body of literature. There is considerable empirical evidence that demonstrate the level of resources abused by majority shareholders. However, other than this empirical evidence, little systematic evidence is directly available regarding specific transactions, such as what in particular causes expropriation. Virtually all seminal studies only attempt to measure the phenomenon of indirect expropriation (see, e.g., Bertrand, Mehta, & Mullainathan, 2002; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000a; 2000b; 2002; Claessens, Djankov, Fan, & Lang, 2002; Faccio, Lang, & Young, 2001), and almost all of them offer mixed evidence that minority shareholders lose value due to the actions of the specific expropriation (see, i.e., Bae, Kang & Kim, 2002).

We meticulously examine the link between the corporate governance variables and expropriation in Indonesia. With this focus, the research objective is to investigate the contribution of corporate governance variables toward expropriation surrogated by the presence of tunnelling activities. As noted by Li, Wang and Sun (2004), corporate governance problems can seriously obstruct economic development. We consider how to prevent tunnelling and protect the interests of minority shareholders. In this case, we first have to identify the failed mechanism of corporate governance that causes asset appropriation in Indonesia. Furthermore, tracking back to the focus of problems, this research contributes to the re-conceptualisation and the discovery of the empirical evidence with respect to the construct of tunnelling. We also want to confirm those reasons by employing a panel data regression model, in which firm characteristics such as firm size, leverage, and the effects of industrial groups can reduce the probability of tunnelling in the context of an emerging market, such as the Indonesia Stock Exchange (IDX), similar to the evidence of tunnelling activities in the Asian market, as reported by Claessens et al. (2000).

LITERATURE REVIEW

Ownership Structure of the Public Companies in Indonesia

Herdinata (2008) reveals that the overall ownership structure of listed companies in the IDX is not different from other public companies in Asia. In general, almost all public companies in Asia are dominated and controlled by family firms. When a company goes public, it does not necessarily reduce the control of the founding family. On the contrary, the company is still dominated by the family that funds its operational activity.

In several cases, family ownership is connected to political support. This circumstance was highlighted by Leuz and Oberholzer-Gee (2006), who state that family members who have a connection in terms of involvement with the government, or vice versa, are less likely to have publicly traded foreign securities. Using data from Indonesia, their study confirms that the estimation of the performance consequences of foreign financing are severely biased if value-creating domestic arrangements such as political relationships are ignored. Moreover, Sumiati and Agustia (2011) and Sirat (2012) document that the concentration of ownership in the form of a family firm or state-owned firm are likely to experience higher expropriation in supporting the parent company.

Additionally, Claessens, Djankov and Lang (1999) report that family firms have dominated the concentration of the market capitalisation of public companies in East Asia. They show that the number of public shares held by 10 large family enterprises in Indonesia has reached 57.7%. Other evidence describes similar results; the results of a cross-country study reveal that the portion of family owned companies in the Philippines and Thailand has reached 52.5% and 46.2%, respectively. Similar results are found in Malaysia and Korea; both of these countries are controlled by 15 family firms, and the concentration of majority ownership in these two countries is approximately 28.3 and 38.4%, respectively.

Moreover, Dwinanto (2010) examines 395 companies in the IDX. He describes that in 2009, the portion of publicly owned companies in the Indonesia Stock Exchange was approximately 27.6% on average, and the majority of public ownerships was under 60%. Figure 1 presents information regarding the detailed distribution of publicly owned companies in Indonesia.
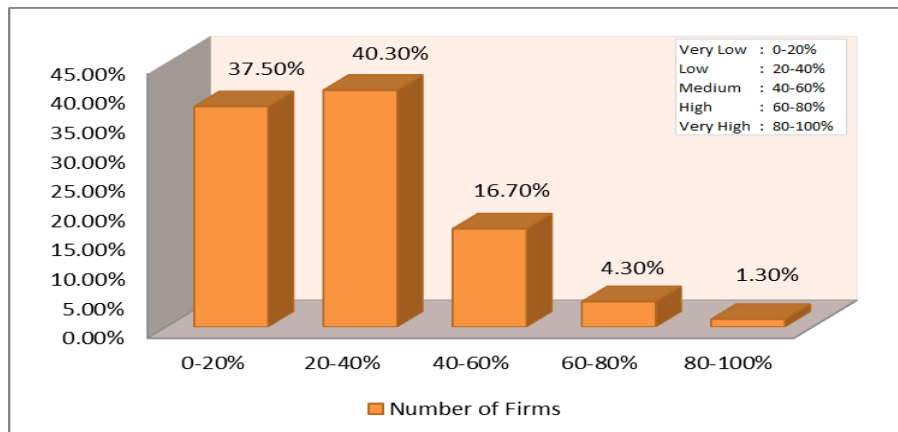

Figure 1. The proportion of publicly owned companies in 2009 Indonesia Stock Exchange (*Source*: Dwinanto, 2010)

Expropriation, Tunnelling, and Conglomeration

Expropriation is an action taken by controlling shareholders with the intention to benefit through either legal or illegal methods (Faccio et al., 2001). When the flow of benefits that is enjoyed by the controlling shareholders is clearly perceptible, it can be identified as moving in one of two directions: from the subsidiary to the parent company or from the parent company to its subsidiary. Johnson et al. (2000) argue that the term of tunnelling refers to the expropriation activity conducted by the controlling shareholders of a company in the lower level (e.g., subsidiary) to the higher level (parent company). The term "propping" leads to the opposite condition in which the controlling shareholders drain either funds or resources from the parent company to subsidiary.

The exploitation of minority shareholders by controlling shareholders has attracted the attention of researchers. For instance, Shleifer and Vishny (1986) find that when the majority shareholders control the company, the agency problem is no longer about the conflict of interest between management and shareholders but about how to prevent controlling shareholders from exploiting minority shareholders. Johnson et al. (2000) invented the term "tunnelling" to describe the asset appropriation conducted by large shareholders who legally or illegally transfer assets and profits for themselves. Tunnelling is not only detrimental to the interests of minority shareholders but also seriously precludes the development of the capital market (Johnson et al., 2000; Wurgler, 2000; Bertrand et al., 2002).

Furthermore, we consider concentrated ownership as a characteristic of the ownership structure for companies in emerging markets. In general, a company is formed as a part of a complex ownership structure that is owned by an individual or a family. This complexity is known as a group or conglomeration in which virtually all owners have shares in different companies and are affiliated or related to a business group (Bae et al., 2002).

Hypothesis Development

Our research focuses in particular on the corporate governance practice that has shifted from problems between shareholders and management to problems between majority shareholders and minority shareholders (Shleifer & Vishny, 1997; Johnson et al., 2000; Denis & McConnell, 2003). As suggested by Denis and McConnell (2003), to reduce the problems caused by controlling shareholders for minority shareholders, policymakers are recommended to rectify the following two good corporate governance mechanisms: (1) internal mechanisms, including the Board of Director (BOD) structure, a senior management incentive system, the ownership structure, the type of block-holding

shareholders, institutional ownership, and the transparency of the company and (2) external mechanisms, including market competition, environmental laws, the protection of minority shareholders, market development, and competition in the market product.

To measure the structure of the BOD, we use the percentage of external members, particularly the BOD members who are not associated with the company before becoming a member of the BOD. As mentioned by Yermack (1996), BOD members are usually more familiar with the internal operations. This condition is supposed to improve the efficiency and decision-making process undertaken by the BOD. Nevertheless, as the percentage of members from the internal BOD increases, the company becomes more controlled by management and controlling shareholders. Therefore, we develop the first hypothesis: A higher percentage of external BOD members will prevent the tunnelling activity conducted by controlling shareholders.

As revealed by Jensen and Murphy (1990), the increase in the number of BOD members is rational enough to improve the efficiency of the BOD, particularly if they have diverse backgrounds. Consequently, it becomes increasingly difficult for the CEO or senior management to manipulate the performance of the BOD. Hence, the BOD is functionally better in coordinating, balancing the interests of all parties, and restraining the tunnelling. However, when the BOD becomes too large, communication becomes difficult. This circumstance leads to less efficiency and effectiveness, as noted by Yermack (1996). For this reason, we formulate the second hypothesis: A higher number of BOD outsider members helps reduce tunnelling.

Gomes and Novaes (2001) argue that concentrated ownership also facilitates the appropriation of assets. This happens because majority shareholders not only dominate the stockholder meetings and the board of directors but also determine the daily operation of the company, appoint someone as the CEO, and establish the senior management. Shi and Shitu (2004) find that in 2001, shareholders participated in the process of electing 82.9% of all CEOs in Chinese listed firms. Furthermore, approximately 52.4% of BODs or CEOs had a position in those companies. Given to this dependency, it seems that the CEO decides everything based on the interests of the majority shareholders. We thus design the third hypothesis: Companies with shareholders who are concentrated in single block-holding show more tunnelling than companies with a principal shareholder.

Riyanto and Toolsema (2008) report that family firms prefer to use the system of a pyramid ownership structure. According to their research, the possibility of the existence propping in business groups is generally depicted on a

pyramid structure. It implicitly gives external investors the impression that there are inter-corporate guarantees within the group (or inter-corporate insurance), particularly when the problem of financial distress exists. In this case, investors would be presumably expropriated to some extent through tunnelling, with the hope that their compensation gains greater probability in realising a positive return in the future. Therefore, we build the fourth hypothesis: Companies with block-holding shareholders in a business group are more likely to experience tunnelling.

According to a study by Gao and Kling (2008), most Chinese public companies are settled as the result of the transformation from state-owned enterprises (SOE). Indonesia is reported to be similar in that respect. Government companies that have a good performance presumably tend to be privatised. In the case of privatisation, the unit of businesses that have a good performance are separated from the other companies and submitted to the stock exchange, and the remaining company, which has an ordinary performance, acts as a holding company. Consequently, when the parent company is in trouble, it uses the resources from the listed companies to maintain its operations. Bai, Liu, Lu, Song and Zhang (2004) note that companies that are controlled by the state are more likely to experience tunnelling. Thus, we develop hypothesis five: A company will experience more serious tunnelling if its block shareholder is the government.

Jarrell and Poulsen (1987), Shleifer and Vishny (1986), McConnell and Servaes (1990), and Brickley, Lease and Smith (1988) report that institutional investors tend to use corporate management actions that would destroy the shareholder's value. In contrast to the findings in other countries, Tang, Luo and Wang (2004) note that if the second largest Chinese public company's shareholder is an institution, it will be inclined to experience tunnelling in severe conditions. Given this condition, we develop hypothesis six: A greater percentage of institutional investors will increase the practice of good corporate governance, thereby decreasing the practice of tunnelling.

In general, public accounting firms with an international reputation will offer a reliable and superior audit opinion. With respect to signalling games, when a public company hires an accounting firm that requests a higher fee and offers a high-quality audit opinion, it indirectly provides a signal that the company has a good structure and implementation of corporate governance. Obviously, selecting one of the top five accounting firms can help the company avoid the possibility of tunnelling and signal to the investor that the company has a good implementation of good corporate governance. Therefore, we design the hypothesis seven: The possibility of tunnelling is reduced if the accounting firm is determined from one of the top five leading international auditing companies.

The large-cap companies generally tend to have more power and methods in implementing the tunnelling activity. A company with a high leverage ratio typically requires substantial cash to meet its obligations. This problem can be solved if the company has a great performance and many subsidiaries to control. It can also utilise funds from its subsidiaries to fulfil the debt. For this reason, hypothesis eight is formulated: Companies with high leverage will show more tunnelling.

RESEARCH METHOD

Data and Samples

Our study uses annual reports and a database from the CD-ROM of the Indonesian Capital Market Directory (ICMD) to obtain data related to the characteristics of companies (sales and financial leverage), operational practices of tunnelling, and the variables used to examine the tunnelling mechanism in the IDX. We further process the secondary data, which are obtained by collecting additional information traced by ICMD during the period 2005–2012 using the pooled least square model.

There are more than 500 public listed companies (PLC) in the Indonesia Stock Exchange. However, we use 276 PLCs that are supposed to be connected with the phenomenon of tunnelling. The measurement of tunnelling is not directly conducted; the direct measurement cannot be commenced using public information (annual reports). Therefore, the sampling refers to Johnson et al. (2000b) regarding the related party transaction for quantifying the degree of tunnelling using the information related to accounts payable (AP) and accounts receivable (AR). Because the related transaction has a particular connection with the PLC, we first need to divide the difference between AP and AR with the total assets. The related party transaction is supposed to exist in the PLC that has shown a high imbalance between AP and AR. Therefore, it indicates that the dependent PLC is inclined to experience loss in this transaction.

Finally, using the purposive sampling method, we collected 276 PLC as the final sample. The number of samples is consistently determined by employing the same sample for the 7-year period (from 2005 to 2012). By utilising the same firms, this study leads to the issue of survivorship. This condition is clearly intended to reach our main goals, which focus on the particular characteristics of a population that are of interest, which will best enable the researchers to answer and generalise the research question about the existence of tunnelling activity that has been conjectured in the related party transactions as reflection of tunnelling activity. Additionally, 276 PLCs are used for homogenous sampling. These units

are selected based on the fact that the sample has similar characteristics because such characteristics are of particular interested to the researchers in justifying the generalisation of tunnelling practice in Indonesia.

Operationalisation Variables

This research is conducted using 11 variables. The dependent variable is tunnelling, and the remaining variables are independent and control variables. Moreover, the categorisation of companies audited by public accountant firms is justified by utilising bona fide representatives of the four major public accountant firms: Deloitte Touche Tohmatsu, which is surrogated by Osman Bing Satria, PwC (Price Waterhouse Cooper), which is represented by Tanudiredja, Wibisana & Partners, Ernst & Young, which is proxied by Purwantono, Suherman & Surja, and KPMG, which is represented by Sidhartha & Widjaja's accounting firm. Anderson's accounting firm was not included in this study because in 2002, Anderson was out of business due to the Enron case. Thus, we focus on the remaining four international accounting firms. Table 1 shows the definitions and the measurements of every variable used.

Table 1
Definitions of variables

Variables	Definition and measurement	Type of data
TUNNELING	The difference between accounts payable and accounts receivable divided by total assets. Here, accounts payable and accounts receivable is a transaction with a related party (related parties transactions) mainly the flows from companies which operates from the lower level to the higher level.	Continuous
SINGLE	Dummy variable, equal to 1 if one shareholder controls more than 50% equity. If the shareholding is between 40% and 50%, and higher than the percentage of shares held by the owner of the second to fifth, then we would still regard this as a major single shareholder and given a value as 1. Hereby, SINGLE is intended to classify the firm which is categorised and dominated by the structure of family ownerships.	Dummy (0;1)
MULTI	Dummy variable, if the largest shareholder holding shares of 10%–50%, the second largest holding at least 10% and the percentage ownership of the owner on the second to fifth larger than the percentage ownership of the first owner. In particular, MULTI is intended to classify the firm which is categorised and dominated by non family ownerships structure (publicly traded).	Dummy (0;1)

Table 1 (*continued*)

Variables	Definition and measurement	Type of data
BOARD_SIZE	The number of members in the board of directors.	Continuous
OUTSIDER	The percentage of outsiders in the board of directors.	Continuous (0–1)
SHARE	The percentage of shares held by senior managers (members of the board of directors and senior management).	Continuous (0–1)
BIG FIVE	Dummy variable, equal to 1 if the firm audited by the big five accounting firms, and 0 if not.	Dummy (0;1)
STATE	Dummy variable, equal to 1 if the government becomes the ultimate control of the company, and 0 if otherwise.	Dummy (0;1)
GROUP	Dummy variable, equal to 1 if the firm is under a business group, and 0 if otherwise.	Dummy (0;1)
INST	The percentage of shares held by the institutional investors.	Continuous (0–1)
SALES	Logarithm natural of net sales as a proxy of the company size.	Continuous
LEVERAGE	Long Term Debt to Total Asset is a proxy of capital structure.	Continuous
TR	Trade receivable obtained from the annual report of sample.	Continuous
TP	Trade payable obtained from the annual report of sample.	Continuous
TA	Total asset, the accumulation of all assets obtained from the annual report of sample.	Continuous
CASH	Cash is a number of money, which is provided to anticipate the need of cash in short time period.	Continuous

Note: The operationalisation of variables was processed from various sources.

Predictive Panel Model Regression

The analysis is commenced by exploring the descriptive statistics for each research variable. We meticulously provide general information regarding the mean, the minimum, the maximum and the number of observations. Then, we identify the most appropriate model. We thoroughly determine to use the PLS model (pooled least squares) with a panel data regression to examine the developed hypotheses. The mathematical model employed in the statistical tool is shown as follows.

$$
\begin{aligned}
\text{TUNNELING} = {} & \alpha + \beta_1 \text{SINGLE}_{i,t} + \beta_2 \text{MULTI}_{i,t} + \beta_3 \text{BOARD\_SIZE}_{i,t} \\
& + \beta_4 \text{OUTSIDERS}_{i,t} + \beta_5 \text{SHARES}_{i,t} + \beta_6 \text{BIGFIVE}_{i,t} \qquad (1) \\
& + \beta_7 \text{STATE}_{i,t} + \beta_8 \text{GROUP}_{i,t} + \beta_9 \text{INST}_{i,t} + \beta_{10} \text{SALES} \\
& + \beta_{11} \text{LEVERAGE}_{i,t} + \varepsilon
\end{aligned}
$$

Statistical model 1 is particularly important for describing the arrangement of conducting the panel data regression. TUNNELING notably denotes the difference between accounts payable and account receivable divided by total assets. Here, accounts payable and accounts receivable are a transaction with the related party. $\text{SINGLE}_{i,t}$ is composed of a dummy that is equal to 1 if the shareholder controls more than 50% of the equity. If the ownership ranges from 40% to 50% and is higher than the percentage of shares held by the second to the fifth, then we would still regard this as a major single shareholder and give it a value of 1. $\text{MULTI}_{i,t}$ is also composed of a dummy. The data are determined to be 1 if the largest shareholder holds at least 10 to 50%, the second largest holds at least 10%, and the percentage of ownerships of the owner on the second to the fifth is larger than the first owner. $\text{BOARD\_SIZE}_{i,t}$ denotes the number of members on the board of directors. We also use $\text{OUTSIDERS}_{i,t}$ as the percentage of outsiders on the board of directors. $\text{SHARES}_{i,t}$ is the percentage of shares held by senior managers. $\text{BIGFIVE}_{i,t}$ is also composed of dummy data regarding whether the company uses highly reputed public accounting firms. $\text{STATE}_{i,t}$ is equal to 1 if the government becomes the ultimate controller of the company and 0 otherwise. $\text{GROUP}_{i,t}$ is equal to 1 if the samples involve a business group and vice versa. $\text{INST}_{i,t}$ denotes the percentage of shares held by the institutional investors. Sales denotes the logarithm natural of net sales as a proxy of the company size. $\text{LEVERAGE}_{i,t}$ is composed by dividing the long term debt (LTD) with total assets (TA) as the proxy of capital structure.

In addition to building a robust test result, we employ dummy variables to test the existence of tunnelling in every industry dummy. We use 0 and 1 in more than two groups to separate the eight industries with the rule of thumb $n - 1$, as observed in Table 4. The reason for using eight industries in this study focuses on controlling and investigating the different conditions of tunnelling, particularly in specific industrial groups of the Indonesia Stock Exchange.

Summary Statistics

We start the investigation of the tunnelling phenomenon by utilising summary statistics. We show the general information for the dependent and independent variables. The samples used in our study were divided into several groups of industries. The objective of the categorisation is to determine the effects of industries obtained by testing the statistical models in the panel data analysis. The samples are classified into several industrial groups as shown in Table 2.

Table 2
Companies classification based on industrial groups

Industry categories	Number of companies	Number of observations
Agricultural	22	176
Mining	15	120
Manufacturing	149	1192
Finance	9	72
Property	36	288
Service	11	88
Retail	18	136
Other industry	17	144
Total	276	2216

To describe the particular groups of the industry, Table 3 also presents specific information in regard to the characteristics of the samples. It focuses on the elaboration with respect to the variables that can be observed from the use of several variables, including SINGLE, BOARD_SIZE, OUTSIDERS, BIG FIVE, STATE, GROUP, INST, and LEVERAGE, from each company.

Table 3 clearly illustrates the summary statistics output obtained from eight independent variables, three control variables and a dependent variable. It is discernible that there are several variables that employ a dummy model (0 and 1) to distinguish the characteristics and classify the data. These variables are SINGLE, MULTI, BIG FIVE, STATE and GROUP.

To identify the tunnelling activity in the Indonesia Stock Exchange, it is necessary to investigate the comparison of the industrial effects caused by each industry. Moreover, research conducted by Claessens et al. (2000) divides the firm specifics into several stages, such as size, age, and pyramid ownership in 9 East Asian stock exchanges. However, we focus on differentiating the sensitivity of every independent variable used as the dependent variable in determining the magnitude and the contribution of industrial groups in the Indonesia Stock Exchange, as shown in Table 4.

Conversely, there are several groups of industries for which none of its independent variables significantly contributes to the dependent variable. These groups are property and service. We conjecture that this circumstance is considerably triggered by the behaviour of data from both sectors, which do not show consistent results from year to year. It is important to note that most of the data we use in this study have a large variation. This variation can be investigated when we conduct the process of tunnelling measurement, in which the accounts receivable, accounts payable, and total assets of the samples incline to show high variation from year to year during the observation period from 2005 to 2012.

Table 3
Summary statistics of dependent variable, independent and control variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Panel A: Dependent variables					
TUNNELING	2216	–38.323	10.174	–0.052	1.113
Panel B: Independent variables					
SINGLE	2216	0.000	1.000	0.586	0.495
INST	2216	0.000	0.865	0.192	0.192
BOARD_SIZE	2216	0.000	11.000	4.417	1.879
OUTSIDERS	2216	0.000	1.000	0.172	0.288
LEVERAGE	2216	0.000	4.016	0.584	0.412
BIG FIVE	2216	0.000	1.000	0.345	0.477
STATE	2216	0.000	1.000	0.821	0.382
GROUP	2216	0.000	1.000	0.779	0.423
Panel C: Control variables					
MULTI	2216	0.000	6.000	0.443	0.564
SHARE	2216	0.000	0.354	0.213	0.055
SALES	2216	0.000	18.687	13.174	2.122

Moreover, the output from Table 4 clearly shows that the retail industry performed the largest tunnelling activity of all industry groups. We find that the highest value of the coefficient determination (R^2) is in the retail industrial group, approximately 64.2%. Finance follows with 63.6%, and in third place mining with 43.4%. We also show that these results relate to conglomeration activity, which is suspected to exist in Indonesia. We have investigated that there are relationships among the companies with the other group of industries. In Indonesia, it is legal for family firms to own more than one firm. They can have majority ownerships and then control a company while performing the same action to own several companies in the same or the other industries.

In addition to the industrial groups analysis results, we employ a correlation table that reflects the correlation of every variable used in investigating the phenomenon of tunnelling in the Indonesia Stock Exchange. The tendency of the correlation between the main variable is shown in Table 5.

Table 4
Tunneling sensitivity based on the industrial effects (dummies industries) on 276 public listed companies in Indonesia Stock Exchange (Data period 2005–2012)

Variables	Industrial groups effects															
	Agricultural		Mining		Manufacturing		Finance		Property		Service		Retail		Other Industry	
	βD_0	t	βD_1	t	βD_2	t	βD_3	t	βD_4	t	βD_5	t	βD_6	t	βD_7	t
(Constant α)	0.237**	2.569	2.634	1.557	−0.280	1.557	0.559***	2.849	0.028	0.608	−0.091	−0.281	−0.905***	−4.094	0.484**	2.030
BOARD_SIZE (X_1)	−0.011**	−2.504	−0.034	0.215	−0.007	−0.301	0.149***	5.037	0.004	0.922	0.013	0.292	0.057***	3.117	0.038**	2.240
OUTSIDERS (X_2)	−0.212***	−4.468	0.118	0.170	0.558***	3.326	−0.318***	−3.088	0.048	1.736	0.110	0.491	0.205**	2.424	0.176	1.217
SINGLE (X_3)					0.035	0.071	0.012	0.149	−0.003	−0.159			−0.292**	−2.200	−0.220	−1.539
GROUP (X_4)	−0.046*	−1.820	−1.275***	−3.342	−0.090	−1.648	0.027	0.446	−0.017	−0.848	0.006	0.051	0.332***	6.551	−0.089	−1.524
STATE (X_5)	0.017	0.730	−0.331	−0.631	0.186	1.859	−0.205	−1.474	0.019	0.573	0.037	0.190	−0.074	−0.845	−0.132	−1.608
INST (X_6)	0.009	0.099	−1.411	−1.465	0.345	1.388	0.177	0.510	0.021	0.428	0.242	1.178	−0.302***	−2.831	−0.473***	−4.029
BIG FIVE (X_7)	0.046	1.608	1.993***	5.501	0.092	1.012	0.100	1.319	0.003	0.197	−0.201	−1.640	−0.134***	−2.896	−0.149***	−2.705
Variables							*Industrial groups effects*									
LEVERAGE (X_8)	0.092***	0.206	2.110***	2.699	0.208	2.270	−0.224***	−2.928	0.017	0.053	−0.206	−1.304	0.622***	11.284	0.076	−1.807
							Controlling variable:									
SHARE	0.634	1.426	0.091	0.027	−2.824***	−3.339	0.336	1.531	−0.030	0.185	1.826	2.064	−2.363***	−3.313	−0.772	−0.718
MULTI	−0.068**	−2.186	1.515***	3.578	−0.245	−0.504			0.002	0.251	0.014	0.146	0.052	0.506	−0.094	−0.831
SALES	−0.014**	−2.493	−0.240**	−2.569	0.001	0.052	−0.072***	−7.356	−0.008**	−2.043	−0.005	−0.195	0.039**	2.349	−0.019	−1.240
F Test	6.363		8.335		2.636		10.661		0.885		2.089		21.520		5.932	
R^2	27.8%		43.4%		2.4%		63.6%		3.4%		21.3%		64.2%		34.5%	

Description: Dependent Variable: TUNNELING; *** Statistically significant at 1% level; **Statistically significant at 5% level; * Statistically significant at 10% level. The magnitude of every industry in Table 4 is calculated by employing dummy for industries. The statistical models for dummy industries are written on predictive panel model regression

Table 5
Descriptive statistics and correlation matrix of the tested portfolios

Panel A Descriptive	Market	By Size			By Value			By Liquidity		
		small	medium	big	low	medium	high	illiquid	medium	liquid
Mean	0.5154	−0.0077	1.1766	0.9689	0.4128	−0.3948	−0.8515	0.1292	0.5857	0.3182
Maximum	40.5781	42.5565	36.0570	30.1742	38.5114	45.7640	46.2644	43.4093	47.2187	36.6472
Minimum	−35.9522	−42.9509	−28.7550	−27.4367	−39.3425	−36.6880	−39.1413	−43.6491	−34.6210	−33.8494
Stdev	8.6968	10.6297	8.6433	7.8616	9.6084	10.4371	11.3020	10.4377	10.7638	10.8941
Skewness	−0.2022	0.1513	0.1260	0.2003	0.1044	0.3418	0.4224	0.0938	0.2104	0.2194
Kurtosis	7.2064	6.5261	6.5157	5.6557	6.7332	6.3392	6.0211	6.8037	5.8960	4.3372
Normality	174.1090	122.1203	121.1316	70.3307	136.3088	113.2699	95.9451	141.4084	83.4951	19.3099
	(0.0000)*	(0.0000)*	(0.0000)*	(0.0000)*	(0.0000)*	(0.0000)*	(0.0000)*	(0.0000)*	(0.0000)*	(0.0001)*
Panel B Correlation										
Market	1.0000									
Size (small)	0.8037	1.0000								
Size (average)	0.8881	0.8974	1.0000							
Size (big)	0.8610	0.7472	0.8685	1.0000						
Value (low)	0.8352	0.9928	0.9218	0.7857	1.0000					
Value (medium)	0.8019	0.9864	0.8917	0.7471	0.9807	1.0000				
Value (high)	0.7862	0.9809	0.8815	0.7353	0.9723	0.9793	1.0000			
Liquidity (illiquid)	0.0920	0.1034	0.0742	0.1207	0.1078	0.0971	0.0678	1.0000		
Liquidity (normal)	0.0807	0.0834	0.0614	0.1216	0.0882	0.0797	0.0554	0.9377	1.0000	
Liquidity (liquid)	0.1130	0.0975	0.0884	0.1355	0.1005	0.0946	0.0735	0.8859	0.9128	1.0000

Note: Figures in parentheses are probabilities. Stdev is standard deviation. The normality test is the Jarque-Bera test. * denotes significance at the 1% level.

Panel Data Analysis and Hypotheses Testing

The hypotheses are also tested partially towards the dependent variable. In this step, we aim to identify the magnitude and signs of the effects in every independent variable on the dependent variable. Table 6 presents the results of the hypothesis testing by employing the pooled least square (PLS) model, as follows.

Table 6
t-test output for hypothesis testing using consolidated data

Variables	Unstandardised coefficients			t	Sig.
	Expected signs	β	Std. error		
(Constant) α		0.070	0.191	0.368	0.713
BOARD_SIZE (X1)	–	0.000	0.014	–0.015	0.988
OUTSIDERS (X2)	–	0.226	0.097	2.317**	0.021
SINGLE (X3)	+	0.055	0.096	0.571	0.568
GROUP (X4)	+	–0.135	0.063	–2.148**	0.032
STATE (X5)	+	0.159	0.065	2.455**	0.014
INST (X6)	–	–0.024	0.140	–0.174	0.862
BIG FIVE (X7)	–	0.135	0.054	2.506**	0.012
LEVERAGE (X8)	+	0.199	0.058	3.445***	0.001
Controlling Variables:					
SHARE		–1.615	0.521	–3.100***	0.002
MULTI		0.026	0.079	0.325	0.745
SALES		–0.027	0.013	–2.048**	0.041
Dependent Variable: TUNNELING					
F test : 3.585	Sig (0.000)		R2 : 0.018		

The output of the first hypothesis test performs the contribution of variable X1 (BOARD_SIZE) towards tunnelling. Table 6 reflects that the value of the coefficient regression BOARD_SIZE signals a positive contribution but is insignificant at the 5% alpha. We conclude that the first hypothesis is unsupported. The second hypothesis examines the effect of variable X2 (OUTSIDERS) on variable Y (TUNNELING). It shows that the result is inconsistent with the theory and the developed hypothesis, in which the increased number of BOD outsiders helps reduce tunnelling. The output is not in line with

the hypothesis that the coefficient regression of X2 (OUTSIDERS) shows a positive sign. Therefore, the second hypothesis is statistically unsupported.

The third hypothesis conjectures that companies with shareholders who are concentrated in single block-holding show more tunnelling than if the company has a principal shareholder. In accordance with the output, the third hypothesis, which assumed that there is a positive contribution from X3 (SINGLE) towards Y (TUNNELING), is supported. However, this result is statistically insignificant at the 5% level. Furthermore, in the fourth hypothesis, we assume that companies with block-holding shareholders in a business group tend be more likely to experience tunnelling. Our notion is not in line with the estimation result obtained using the pool data. The examination of using industrial effects shows various results. The financial, service, and retail sectors show the positive signs, but particularly in manufacturing, property, and other sectors, the variable GROUP negatively contributes to TUNNELING. The previous empirical testing using industrial effect describes different circumstances with the pool data. The output also indicates that the coefficient regression of variable X4 (GROUP) generates a negative sign. Therefore, the fourth hypothesis is unsupported. Furthermore, the fifth hypothesis exhibits a positive sign and significantly contributes towards TUNNELING. This is similar to the developed notion for the fifth hypothesis that has been explained in the hypothesis development. We note that the company will experience more serious tunnelling if its block shareholder is the government. Then, we note that the fifth hypothesis is statistically supported.

Next, in the sixth hypothesis, it can be observed that the coefficient regression of INST shows a negative sign towards TUNNELING. This result is in line with the previously designed hypothesis, in which the sixth hypothesis conjectures that a greater percentage of institutional investors will increase the practice of good corporate governance, which leads to less practice of tunnelling. Therefore, companies will experience less tunnelling. Hypothesis seven depicts that companies that are audited by reputable public accounting firms (BIG FIVE) show no negative influence on TUNNELING activity in the Indonesian Stock Exchange. Furthermore, the hypothesis testing is done by comparing the final output of the estimation, specifically hypothesis eight. The output indicates that the variable LEVERAGE shows a positive and significant contribution towards TUNNELING. Thus, it can be concluded that hypothesis eight, which conjectures that large companies with high leverage are expected to show more tunnelling, is statistically supported.

In the next step, we focus on elaborating the goodness of fit model. The importance of the goodness of fit model is to discover the extent to which a statistical model can explain the variation in its dependent variable. To identify

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the goodness of a model, we use the criterion called the coefficient of determination (R^2). Table 6 describes that the R^2 value for consolidated data is relatively small, 1.8%. It means that the ability of independent variables to explain the variation of the dependent variable is only 1.8%, and 98.2% can be explained by factors beyond the model used. This result leaves a question because the value of the coefficient determination is slightly inconsistent with the value of the coefficient determination in eight industrial groups.

However, there are some explanations that can be presented to explain the relatively small value of R^2. The contribution of firms-specific effects arises in the process of examination, particularly when we perform it simultaneously without relating it to any industrial effect. The behaviour of data also indicates that all data in a single-pool distribution tend to cause the variation to be diverse. Thus, the effect of outliers occurs in some data of specific variables. However, the most important thing is regarding to our research objective. Our study intends not to create a predicted model but to focus on building a model that aims to explain and identify a phenomenon. Therefore, the small alteration in R^2 clearly shows the variation of the real tunnelling activity measured in the IDX.

Robustness Test

In addition to performing the robust results, we conduct a robustness test to gather the compelling output related to the testing of tunnelling activity. We employ additional continuous variables: trade payable (TP) as the representation of debt in a sample, trade receivable (TR), total assets (TA), and variable cash (CASH). We also add the previous continuous variables such as BOARD_SIZE, OUTSIDER, SHARE, INST, SALES, and LEVERAGE in the mathematical model that follows.

$$
\begin{aligned}
\text{TUNNELING} = \alpha &+ \beta_1\text{BOARD\_SIZE}_{i,t} + \beta_2\text{OUTSIDERS}_{i,t} \\
&+ \beta_3\text{SHARE}_{i,t} + \beta_4\text{INST}_{i,t} + \beta_5\text{SALES}_{i,t} \\
&+ \beta_6\text{LEVERAGE}_{i,t} + \beta_7\text{TR}_{i,t} + \beta_8\text{TP}_{i,t} + \beta_9\text{TA}_{i,t} \\
&+ \beta_{10}\text{CASH} + \varepsilon
\end{aligned} \tag{2}
$$

Each of those ten variables in model 2 is employed to gain the robust results. The effect of every single continuous variable is almost the same and consistent with the model. The additional variables TR, TP, TA and CASH are included to control and purify the possibility that each variable has a direct contribution to TUNNELING activity. Based on the estimation using a consolidated sample, we note that six variables (OUTSIDERS, SHARE, LEVERAGE, TR, TA, and CASH) consistently and significantly contribute to the tunnelling activity. Meanwhile, the remaining variables (BOARD_SIZE,

INST, SALES, and TP) insignificantly contribute to the tunnelling activity, as observed in Table 7.

Table 7
Robustness test output using continuous variables on consolidated data

Variables	Unstandardised Coefficients			
	β	Std. Error	t	Sig.
(Constant) α	–0.145	0.107	–1.351	0.177
BOARD_SIZE	–0.013	0.018	–0.691	0.490
OUTSIDERS	0.004	0.001	2.849***	0.004
SHARE	–0.022	0.007	–3.154***	0.002
INST	–0.001	0.002	–0.412	0.680
SALES	1.972	0.000	0.213	0.831
LEVERAGE	0.189	0.076	2.472**	0.014
TR	–2.040	0.000	–7.017***	0.000
TP	7.521	0.000	0.883	0.378
TA	6.912	0.087	2.171**	0.034
CASH	1.591	0.076	2.385***	0.004
Dependent variable: TUNNELING				
F test : 6.954	Sig (0.000)		R2 : 0.043	

RESULTS AND DISCUSSION

Institutional ownership is clearly depicted by the implications of this study. We note that the imbalance transaction between accounts payable and accounts receivable with its total asset displays a related party transaction between the owners of companies. Recall that the study of Dwinanto (2012) reveals the low proportion of public ownership in the Indonesia Stock Exchange. His study is obviously in line with our findings, in which the high number of listed public companies in the Indonesia Stock Exchange indicated tunnelling. Thus, the lowest public involvement inclines to result in a high existence of tunnelling, where we find that there is an expropriation conducted by the majority shareholders to the minority shareholders. This phenomenon can be observed in the results of SINGLE ownership in Indonesia, which shows that public ownership is concentrated as 27.6% on average, and the institutional ownerships is approximately 72.4% on average.

In accordance to the statistical results, only a few variables have consistently shown the same signs with the proposed hypothesis. These variables are observable in hypotheses five, six and eight. However, there is a hypothesis that is in line with the proposed hypothesis but is statistically insignificant at a 5% alpha; this hypothesis is hypothesis three. The other four hypotheses, which consist of hypotheses one, two, four, and seven, made no contribution to the dependent variable (TUNELLING).

Furthermore, some results are not in line with the a priori expectation and the findings in previous studies. The influence of BOARD_SIZE on TUNNELING illustrates a positive sign and is statistically insignificant at a 5% alpha. This result is contrary to the findings of Denis and McConnell (2003), who note that internal mechanisms including the structure of the board of director (BOD), senior management incentive systems, the ownership structure, the type of block-holding shareholder, institutional ownership, and corporate transparency are useful in reducing the tunnelling activity. La Porta et al. (1998), as cited by Bae, Kang and Kim (2002), from their sample of 49 companies report that ownership concentration in the largest public company is negatively related to investor protections, suggesting that a minority shareholder is less likely to be important in countries with poor investor protection. We conjecture that a similar result apparently exists in the Indonesia Stock Exchange, in which their notion is in line with the previous condition of Indonesian companies, and this circumstance commonly occurs in less developed capital markets.

On the other area, our findings reportedly confirm the results of research conducted by Gomes and Novaes (2001). In their study, they found that concentrated ownerships clearly facilitate the appropriation of assets; majority shareholders not only dominate the stockholder meetings and the board of directors (BOD) but also determine the details of daily operation by placing a CEO and senior management. Research conducted by Gomes and Novaes (2001) produces results similar to our empirical result, which is done in the context of the emerging market. In Japan, several studies note that the strategy for implementing appropriation assets is not only performed by BOD and CEO but it is commonly also exhibited by the main banks. Sheard (1989) notes that banks play an essential role in reducing the agency problems of its client firms and that it acts as an alternative governance mechanism to the capital market-cantered corporate governance systems of Anglo-Saxon countries.

A company that is controlled by the government (STATE) will likely experience more serious tunnelling than a company that is controlled under a business GROUP. Such condition considerably exists due to the high ability of company to provide sufficient funds in funding the operational activities of its counterparts. In addition, the government companies that have shown a better

performance and positive trends tend to be privatised. Privatised companies will be submitted to the stock exchange, and the remaining firms that just have ordinary performance operate under its parent company. Consequently, if the parent company faces financial difficulties, it will use the resources from its subsidiaries to keep the operational activities running well. Moreover, Bae et al. (2000) argue for a similar notion. They empirically test corporate actions such as merger activity from 1981 to 1997 to explore the nature of business groups in emerging markets. Their study examines two competing views, i.e., the Khanna-Palepu view that business groups in emerging markets add value to their member firms (called the value-addition view) and the Johnson et al. view that business groups in emerging markets provide controlling shareholders with an opportunity for wealth transfer from the firm for their own benefit (called the tunnelling view). Then, the empirical study conducted by Bae et al. (2002) supports the tunnelling view that firms that belong to a business group pay less attention to maximising individual firm value and make takeover decisions that are beneficial to only controlling shareholders.

Our results exhibit empirical evidence in regard to the phenomenon of tunnelling activity in Indonesia. We conclude that our findings contribute to revealing this phenomenon. As reported by Claessens et al. (2000), Indonesian companies performed the tunnelling activity in its capital market. This finding is observable with the high ratio of family ownerships compared to public ownerships. We hereby confirm the Claessens et al. (2000) study by showing that more than 50% of companies in Indonesia have performed the same method in process of managing their companies. As documented by Claessens et al. (2000), Indonesian companies are expected to perform the expropriation, in which Indonesia is in second place and Hong Kong is in first place. Korea, Malaysia, The Philippines, Singapore, Taiwan, and Thailand follow, respectively.

Furthermore, the owners of large-cap companies in the Indonesia Stock Exchange that perform a high ratio of LEVERAGE are suspected of practicing tunnelling activity. This notion is supported by confirming our study on hypothesis eight. Logically, the high leverage will require high funds with respect to fulfilling the maturity of obligations. When the large company has many subsidiaries, then it has no problems utilising funds from its subsidiaries in fulfilling the obligations. As discussed by Bae et al. (2002), the top 30 businesses' expansion in Korea has come from excessive borrowing. As of the end of 1997, the average leverage ratio (debt over the sum of debt plus the market value of equity) of the top 30 amounted to 90.6%. This result has a correlation with the situation in the Indonesian capital market, where we find that the use of high leverage presumably leads to the existence of tunnelling activity.

CONCLUSION

Our results make an important contribution in revealing the existence of tunnelling activity in the IDX. We conjecture that tunnelling is a manifestation of expropriation conducted by the controlling shareholders. Hereby, we focus on the phenomenon of the agency problem between the minority shareholders and the majority shareholders as the controlling shareholders. Our data agreed with the predicted model and the robustness test model, but the results show a slightly conflicting result with the a priori expectation, as explained before. However, we empirically show that tunnelling activity generally exists in the Indonesia Stock Exchange from the observed time period of 2005 to 2012, like the other emerging capital markets in Asia.

Moreover, the implication of this study shows that the existence of tunnelling in Indonesia results in the inefficiency of operational activity. Specifically, the transaction between the related parties shows that the flow of funds clearly intends to support the other affiliation of partner firms. Our evidence indicates that concentrated ownerships—either the single ownership reflected by the domination of family firms or ownership with the domination of a state-owned company—displays that expropriation with highly concentrated ownership seems to harm the minority shareholder. This finding suggests that the mechanism of good corporate governance is not well implemented. Therefore, a majority shareholder tends to expropriate the minority shareholder by transferring the welfare from the small firm to the larger firm in terms of financial support.

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