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Managerial Characteristics and Investment Efficiency: Evidence from Indonesian Listed Companies

Sansaloni Butar-Butar*

Universitas Katolik Soegijapranata, Semarang, Indonesia

*Corresponding author: sansaloni@unika.ac.id

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ABSTRACT

This study examines the effect of managerial characteristics on investment efficiency. More specifically managerial capabilities, reputation and its interaction effect are expected to increase investment efficiency. For the test of hypothesis, firms were selected from Indonesia Stock Exchange from 2015-2019. The results show that reputation is not significantly associated with investment efficiency. Meanwhile, managerial ability (proxied by MBA/MM degree) is negatively related to investment efficiency at a significance level of 1%. The findings show that companies run by managers with good skills and knowledge tend to be less efficient. In addition, the interaction variable is positively related to investment efficiency at a significance level of 1%. Prior to the inclusion of interaction variable, the result shows that firms with high managerial reputation are more likely to manage assets efficiently which leads to higher investment efficiency. Managerial skills are either insignificantly associated or negatively associated with investment efficiency. When the interaction variable is included into regression model, the relationship between managerial reputation and investment efficiency becomes insignificant but managerial ability turns out to be highly significant. The practical implication of this study is that public companies in Indonesia should consider more on managerial reputation rather than their educational degree.

Karakteristik Manajerial dan Efisiensi Investasi: Bukti Empiris dari Perusahaan yang Terdaftar di Bursa Efek Indonesia

ABSTRAK

Penelitian ini menguji pengaruh karakteristik manajerial terhadap efisiensi investasi. Lebih khusus lagi, kemampuan manajerial, reputasi dan pengaruh interaksinya diprediksi meningkatkan efisiensi investasi. Untuk menguji hipotesis, perusahaan dipilih dari Bursa Efek Indonesia tahun 2015-2019. Hasil penelitian menunjukkan bahwa reputasi tidak berhubungan secara signifikan dengan efisiensi investasi. Sedangkan kemampuan manajerial (diproksikan dengan gelar MBA/MM) berhubungan negatif dengan efisiensi investasi pada tingkat signifikansi 1%. Temuan menunjukkan bahwa perusahaan yang dijalankan oleh manajer dengan keterampilan dan pengetahuan yang baik cenderung kurang efisien. Selain itu, variabel interaksi berhubungan positif dengan efisiensi investasi pada tingkat signifikansi 1%. Sebelum dimasukkannya variabel interaksi, hasilnya menunjukkan bahwa perusahaan dengan reputasi manajerial yang tinggi lebih mungkin untuk mengelola aset secara efisien yang mengarah pada efisiensi investasi yang lebih tinggi. Keterampilan manajerial tidak berhubungan secara signifikan atau negatif dengan efisiensi investasi. Ketika variabel interaksi dimasukkan ke dalam model regresi, hubungan antara reputasi manajerial dan efisiensi investasi menjadi tidak signifikan tetapi kemampuan manajerial menjadi sangat signifikan. Implikasi praktis dari penelitian ini adalah bahwa perusahaan publik di Indonesia harus mempertimbangkan reputasi manajerial lebih dari gelar pendidikan mereka..

1. Introduction

Rational investors require relevant and reliable financial reports to assess the amount and uncertainty of future cash flows (FASB, 1980). Future cash flows reflect the effectiveness and efficiency of the company in managing resources. Thus, reliable financial reports help investors in making optimal decisions. Unfortunately, managers' vested interests obscure the reported financial statements, leading to an unfair presentation of the true business reality and potential of the company. As suggested by agency theory, conflicts of interest between managers and shareholders resulting from information asymmetry spur opportunistic behavior. Having superior information, managers may feel compelled to hide true financial performance and prospects through inappropriate financial reporting choices. Unreliable financial reports hinder investors from making informed decisions. As a result, optimal investment decisions cannot be made and resource allocation becomes inefficient (Gomariz & Ballesta 2013; Cheng, Dhaliwal, & Zhang, 2013; Lai & Lu, 2017; Chen et al. 2021).

Applying inappropriate accounting practices erodes earnings informativeness. As a result, Investors may find it difficult to determine the intrinsic value and ultimately reduce the quality of investment decision making. When this happens, investors are more likely to buy the stock at a price higher than its intrinsic value. Alternatively, they may decide not to buy the stock even if its price is lower than the intrinsic value. In both scenarios, resource allocation becomes inefficient (Jensen & Meckling 1976; Jensen 1986; Blanchard et al. 1994). Firms with unpromising prospects generate excessive funds from the capital market and vice versa. Such situations can lead to opportunistic behavior that urges managers to spend excess funds on investment projects that do not provide adequate returns. As a result, companies will be trapped in investment activities that lead to overinvestment (Jensen, 1986).

In a perfect market, firms will invest in projects that generate a positive Net Present Values (NPV) (Modigliani & Miller, 1958) in Biddle, Hilary, & Verdi (2009). But in reality, some managers may overlook projects with positive NPV due to lack of internal funding and risky debts. Myers and Majluf (1984) show that in conditions where firms have superior information than investors and no longer have the ability to issue low-risk debt, the right choice is to forego good investments rather than issue risky securities to fund projects. The conditions will trigger underinvestment and reduce the value of the company. In sum, underinvestment or overinvestment occurs due to inefficient allocation of resources in the capital market triggered by differences in perceptions about the company's prospects between investors and managers. The differences arise because of information asymmetry.

More specifically, agency theory suggests that information asymmetry promotes moral hazard and adverse selection (Jensen & Meckling, 1976). Moral hazard occurs when managers know that their actions cannot be monitored by shareholders, thus creating a stronger incentive to maximize their wealth than shareholder wealth (Jensen, 1986; Biddle, Hilary, & Verdi, 2009). A large amount of idle cash entices managers to invest in various high-risk projects, which results in overinvestment. However, it should be noted that capital providers can anticipate this by increasing the cost of capital. The high cost of capital is reflected in the low confidence of investors in the company's shares. The amount of funds collected from the sale of shares is far from the manager's expectations. Lack of capital limits managers from investing in projects that generate positive cash flow and tends to be very careful in allocating company resources (Lambert, Leuz, & Verrecchia, 2007). Under these conditions, the company is likely to experience underinvestment. Thus, moral hazard can cause underinvestment or overinvestment depending on the company's financial condition and the market's ability to anticipate moral hazard by managers.

Similarly, Biddle, Hilary, & Verdi (2009) argue that moral hazard triggers overinvestment or underinvestment.

Adverse selection occurs when investors misjudge the company's prospects which results in buying shares at a higher price than it should be. This is triggered by information asymmetry about the company's true prospects. In contrast to investors who have limited information about the condition of the company, managers on the other hand have inside information relating to the actual condition of the company and future prospects. Information advantage is then exploited by managers by selling securities that are more expensive (overpriced) than they should be (Cheng, Dhaliwal, & Zhang, 2013). If successful, the manager can use the excess funds to invest in high-risk projects which will eventually trigger overinvestment. Just like moral hazard, investors can also respond by increasing the cost of capital so that it has an impact on the availability of funds to be allocated for new projects. In this situation, the company will experience underinvestment (Biddle, Hilary, & Verdi, 2009). Thus, adverse selection can also trigger underinvestment or overinvestment.

Several previous studies have been conducted to examine the relationship between firm characteristics and investment efficiency. These characteristics are the level of operating cash flow, leverage, and firm size. Biddle, Hilary, & Verdi (2009) reported that the standard deviation of operating cash flow is positively related to investment efficiency. Lobo, Ranasinghe, and Yi (2020) find that firm size is positively associated with under investment and negatively associated with over investment. Boubaker et al. (2018) find that firm size is negatively related to investment efficiency. Gomariz & Ballesta (2013) provide evidence of a positive relationship between debt maturity and investment efficiency. Azhar et al. (2019) reported that leverage is negatively related to investment efficiency. Linhares, Da Costa, & Beiruth (2018) show that firm size is positively related to investment efficiency. Cheng, Dhaliwal,

& Zhang (2013) find that firm size has a negative effect on investment efficiency and the standard deviation of operating cash flow is positively related to investment efficiency. Chen, Hao-Chang, & Jingjing (2017) find that operating cash flow and leverage have a positive effect on investment efficiency.

This study examines the association between managerial characteristics and investment efficiency. Results of prior studies will be included as control variables. The control variables are operating cash flow, leverage, and firm size. More specifically, this study relates managerial ability and managerial reputation with investment efficiency. Managers with higher managerial skills and good reputation are expected to be able to make effective strategic decisions in identifying projects with positive Net Present Value (NPV), thereby increasing investment efficiency.

In addition, this study also examines the interaction effect of managerial ability and managerial reputation on investment efficiency. The rationale behind testing the interaction variables is related to Fama's (1980) view that managers with high reputations tend to refrain from taking opportunistic actions that may damage their reputation. Hirshleifer (1993) argued that managers with high managerial ability tend to anticipate the impact of decisions on their reputation. Thus, it is reasonable to assume that the reputation and managerial abilities will interact with each other to produce higher quality managerial decisions.

This study adds to our understanding of the important role of managers in helping the efficient allocation of resources which is the main function of the capital market. If the capital market runs efficiently, investors can make right investment decisions and the funds obtained from the capital market flow to productive companies with promising future prospects. Efficient allocation of resources will reduce underinvestment or overinvestment and may lead to increased national economic growth. Accordingly, the results of this study are useful for companies, investors, and other

business people to make the right investment decisions so that underinvestment and overinvestment can be avoided.

2. Literature review and hypothesis development

Investment efficiency

Making the right investment decisions will increase cash inflows and ultimately have a positive impact on company value. More specifically, firm value will increase if the marginal return on investment is higher than the marginal cost (Biddle, Hilary, & Verdi, 2009). In a perfect market, companies will invest only in projects that generate positive NPV (Modigliani & Miller (1958) in Biddle, Hilary, & Verdi (2009). However, friction in the market prevents companies from making appropriate resource allocation decisions. It is not uncommon for funds to be allocated to projects that do not generate a positive NPV. Managers are trapped to invest in projects because of failure to do a rational calculation of project value. Under these conditions, the company is most likely to experience overinvestment (Jensen, 1986). On the other hand, companies can also be in a situation where projects that have the potential to generate positive NPV are neglected due to a lack of internal funds. This situation will cause the company to experience underinvestment. Thus, investment decisions that are not optimal lead to overinvestment and underinvestment which ultimately have a negative impact on firm value.

Companies that experience overinvestment and underinvestment can be explained by agency theory. First, the overinvestment condition occurs because of information asymmetry that encourages managers to use company resources for personal gain (Jensen & Meckling, 1976; Jensen 1986). Managers make use of excess cash to invest in risky projects that are not in the best interests of shareholders. Jensen (1986) states that there is a tendency for managers to pursue growth that exceeds its optimal size. The motivation behind this is to increase personal wealth through various

investment projects which compels managers to over-allocate company resources to high-risk projects. Excessive investment beyond the optimal level will lead to overinvestment (Morgado & Pindado, 2003). Second, underinvestment occurs due to lack of capital and high levels of debt, which causes companies to be careful in allocating limited resources (Myers, 1977). Some investment projects that actually promise profits were not selected because of the lack of capital to finance and the company's debt level was at an alarming level. Having high-risk debt has a negative effect on investment decision making (La Rocca, et al. 2007). Companies choose to invest only in projects that promise high returns and relatively low risk. Therefore, companies that invest less than the optimal level will experience underinvestment (Morgado & Pindado, 2003). Lack of funds stems from low market confidence in the company's prospects. Managers' beliefs about future prospects are not in line with shareholder beliefs because shareholder's access to information is very limited. As a result, the amount of funds generated from the sale of shares is not as expected and insufficient to finance projects with positive NPV. Lack of capital causes companies to be very selective in choosing investment projects and tend to refrain from investing. If this condition occurs, the company will experience underinvestment.

Managerial characteristics

According to upper echelon theory, managerial characteristics reflect strategic choices and levels of organizational performance. The theory states that managers' strategic decision-making is influenced by managers' personal characteristics such as cognitive style, values, and knowledge base (Hambrick & Mason, 1984). These personal characteristics will shape managerial abilities and managerial reputation.

Managerial ability and investment efficiency

Chemmanur, Paeglis, & Simonyan (2009) argued that high-quality managers are able to

reduce information asymmetry and boost market confidence in firm value. In turn, reduced information asymmetry affects various investment projects and corporate financial policies. In a similar vein, Yung & Chen (2017) argued that managerial ability will influence the direction of company policy. Managers who have high managerial abilities tend to be more willing to take risks and have relatively better performance than other managers.

Knowledge and education of management team members reflect managerial qualities. Managements with higher levels of education have the ability to identify positive NPV projects (Lai & Liu, 2017). Furthermore, management teams with high levels of education have the ability to enhance the company's reputation, reduce information asymmetry and reduce financial constraints. Barker & Mueller (2002) show that top managers who have higher levels of education are more skilled at finding appropriate solutions to complex problems and are more receptive to innovation. Similarly, surveys from Graham & Harvey (2001) show that managers with MBA degrees use more complex assessment techniques. Thus, it can be expected that education level is correlated with managerial ability.

Gan (2018) reports that managers who have high managerial abilities allocate resources more efficiently. Managers with high abilities always focus on efforts to prevent wasting resources on unprofitable projects and allocate higher resources to Research and Development (R&D) activities and reduce acquisition expenditures. Consistent results were also reported by Khurana, Moser, & Raman (2018).

Based on the preceding discussion, the relationship between education level and investment efficiency can be stated in the following hypothesis:

H₁: Managerial ability is positively related to investment efficiency.

Managerial reputation and investment efficiency

According to upper echelon theory, managerial characteristics reflect the strategic choices and performance levels of an organization. The theory states that strategic decisions are influenced by managers' personal characteristics such as cognitive style, values, and knowledge base (Hambrick & Mason, 1984). These characteristics will shape a manager's reputation. Managers with high reputations are more likely to provide credible information about the future benefits of investment projects to external parties (Lai & Liu (2017). In the similar vein, Jian & Lee (2011) say that managers with good skills and high reputation convey the company's conditions more transparently to outsiders, thereby reducing information asymmetry in the equity market. Since credible and transparent information reduces information asymmetry and encourages managers to make rational investment decisions, reputable managers are more likely to make rational investment decisions based on positive NPV and avoid projects with negative NPV. Thus, managers with high reputations are expected to identify projects with positive NPV (Chemmanur, Paeglis, & Simonyan, 2009).

Based on the preceding arguments, the relationship between manager reputation and investment efficiency is stated as follows:

H₂: Managerial reputation is positively related to investment efficiency.

Interaction between managerial ability and reputation

Reputation stems from the public's appreciation of the ability of a manager to manage a company successfully. Therefore, the managerial ability is closely related to managerial reputation Francis et al. (2021). Fama (1980) argues that managers with high reputations will refrain from taking opportunistic actions that can damage their reputation. Similarly, Hirshleifer (1993) argues that managers with high capabilities always consider the impact of decision making on their reputation. Thus, managers with good managerial skills and

high reputations are more likely to do the best to maintain their reputation and to be sincere and honest. However, it is less likely for managers who lack a reputation in the labor market to be more transparent and adopt decent policies. Thus, it can be expected that the interaction between the two managerial characteristics will ultimately affect the company's resource allocation decisions and investment efficiency.

Based on the preceding discussions, the interaction between managerial ability and managerial reputation is formulated in the following hypothesis:

H₃: The interaction between managerial ability and managerial reputation has a positive effect on investment efficiency.

3. Research method

The sample was selected from public companies listed on the Indonesia stock exchange (IDX) from 2015-2019 based on certain criteria. The criteria are as follows: 1) Publish annual reports from 2015-2019. 2) Annual reports are available on the official website of the Indonesia Stock Exchange at www.idx.co.id 3) Not belonging to the financial and insurance industry. Firms belonging to financial and insurance industries are excluded from the sample because of different investment characteristics. 4) Annual reports provide the necessary data to measure the research variables. Detailed sample selection procedure is presented in Table 3.1. The table shows that during the study period, 2295 observations were available for the test of hypothesis.

Table 1. Sample selection

	2015	2016	2017	2018	2019	All
Companies listed on the IDX	502	516	553	608	663	2842
Annual reports are not accessible	(17)	(10)	(10)	(15)	(29)	(81)
Within finance and insurance industry	(86)	(90)	(93)	(97)	(100)	(466)
Total samples	399	416	450	496	534	2295

Variables measurements

Investment efficiency

Investment efficiency is a condition where the investment made by the company is in accordance with the needs and availability of capital (Biddle, Hilary, & Verdi, 2009). Under ideal conditions, investment efficiency occurs when sales growth proportionally follows an increase in investment. If investment increases but is not followed by an increase in sales, inefficiency occurs. In this study, investment efficiency is reflected in the residuals from a regression model that relates total investment and sales growth as in Gomariz & Ballesta (2013). The following is a regression model to measure investment efficiency:

$$INV_{it} = \beta_0 + \beta_1 GROWTH_{t-1} + \mu_{it}$$

Where INV_{it} is the total investment of company I in year t, measured as the net increase

intangible assets and intangible assets and scaled by lag total assets. $GROWTH_{t-1}$ is the change in sales of firm I from t-2 to t-1.

The residuals from the estimation regression model reflect how efficiently the company uses the cash flows generated from sales to reinvest in profitable projects. If the proportion of sales growth is equal to the proportion of investment growth, then the regression equation produces zero residual which means that investment efficiency is achieved. On the other hand, a negative (positive) residual indicates underinvestment (overinvestment).

In order that overinvestment and underinvestment do not cancel out, the residuals obtained from the regression equation are transformed into absolute values. Then, for ease of interpretation, the absolute residuals are multiplied

by -1. Higher value reflects higher investment efficiency (Gomariz & Ballesta, 2013).

Managerial ability

Following Chemmanur, Paeglis, & Simonyan (2009), managerial ability is measured as the percentage of executives with MBA (Master of Business Administration) degree. Adjusting to conditions in Indonesia, this study measures managerial ability as a percentage of directors with MBA (Master of Business Administration) and M.M (Master of management) degrees. Note that the term 'director' used in Indonesia refers to a member of top management. The higher the percentage of directors who have MBA or M.M degree, the higher the managerial ability of the firm.

Managerial reputation

Managerial reputation refers to the reputation that the Board of Directors has in the business community. Managerial reputation measurement is adopted from Chemmanur, Paeglis, & Simonyan (2009) after making adjustments to Indonesian capital market law. Slightly different from Chemmanur, Paeglis, & Simonyan (2009) which uses the percentage of directors who hold the same position in other companies, this study uses the percentage of directors who serve as members of the board of commissioners in other companies. It includes subsidiaries in which a director served as a

commissioner. Note that Indonesian capital market regulations prohibit a person from being a member of the board of directors in two public companies. Directors who serve as members of the Board of Commissioners in other companies indicate a good managerial reputation because they are trusted by other companies. The more directors who serve as commissioners in other companies, the higher the managerial reputation of the company.

Control variables

Control variables were included into the regression model to control for differences in firm characteristics. The following are control variables included in the regression model: 1) leverage as measured by the ratio of total debt to total equity. 2) firm size as measured by the logarithm of total assets. 3) operating cash flows scaled by total assets. Previous findings show that leverage, firm size, and operating cash flow significantly affect investment efficiency (Biddle, Hilary, & Verdi (2009), Gomariz & Ballesta, (2013); Jiang et al., 2018; Boubaker et al (2018); Linhares et al. al., 2018; Chen, Hao-Chang, & Jingjing, 2017; Navissi et al., 2017).

Model specification

The following is a regression model to assess the effect of managerial ability and managerial reputation on investment efficiency:

$$EFF_{it} = \beta_0 + \beta_1 ABLE_{it} + \beta_2 REPUT_{it} + \beta_3 ABLE * REPUT_{it} + \beta_4 DER_{it} + \beta_5 SIZE_{it} + \beta_6 CFO_{it} + \mu_{it}$$

Where EFF_{it} is the investment efficiency of firm i in year t . $ABLE_{it}$ is the managerial ability of firm i in year t . $REPUT_{it}$ is the managerial reputation of firm i in year t . $ABLE * REPUT_{it}$ is the interaction variable. DER_{it} is leverage of firm i in year t . $SIZE_{it}$ is the firm size of firm i in year t . CFO_{it} is the operating cash flow of firm i in year t .

4. Results and discussion

Descriptive statistics

As described previously, the number of observations obtained after imposing the sampling criteria was 2.295 observations. To reduce the effect of extreme values on the validity of the results, 546 observations that fell outside the three standard deviations from the mean were excluded, resulting in a final sample of 1749 observations. Descriptive statistics for each variable are presented in Table 1.

Table 2. Descriptive statistics analysis

	N	Minimum	Maximum	Mean	Std. Deviation
EFF	1.749	-0.135	0.000	-0.0376	0.01966
ABLE	1.749	0.00	1.00	0.1516	0.19349
REPUT	1.749	0.00	2.00	0.2266	0.29054
DER	1.749	-5.12	5.98	1.1039	1.04541
SIZE	1.749	23.44	33.49	28.6568	1.65055
CFO	1.749	-17.20	21.81	-0.0019	1.21223

Table 1 shows that the mean for investment efficiency (EFF) is -0.0376. It has been explained previously that this variable is the residual of the regression model which has been converted into an absolute value and multiplied by -1 for ease of interpretation. The mean value is slightly different from that produced by Gomariz and Ballesta (2013) and Chen, Hao-Chang, & Jingjing (2011). The mean for managerial ability (ABLE) is 0.1516, indicating that 15.16% of the sample firms are managed by managers who have an MBA or M.M. Note that an MBA or M.M degree is a proxy for managerial ability. The mean for managerial reputation (REPUT) is 0.2266, indicating that 22.66% of the company's directors hold director positions in other companies. For control variables, statistical figures suggest that the sample firms come from a medium-sized company that prioritizes debt over equity with a ratio of 110.39% and generates negative operating cash flow of 0.19% of total assets.

Correlation coefficients

The pattern of the relationship between variables is presented in Table 2. While the

managerial reputation (REPUT) is significantly related to EFF, managerial ability (ABLE) is not significantly related to EFF. The correlation provides preliminary evidence to reject H1 and accept H2. An interesting finding is the fact that REPUT and ABLE are significantly correlated, indicating that managers who have good managerial abilities tend to have good reputations as well. Thus, the significant correlation justifies the inclusion of interaction variables in the regression model.

Of the three control variables, only firm size (SIZE) is significantly related to investment efficiency (EFF). The significant correlation suggests that the larger the size of the company, the more efficient it is in allocating resources for investment projects. In summary, the correlation coefficient of the control variable with other independent variables shows that: 1) Firms with good managerial abilities tend to be large in size, have higher debt levels, and generate higher operating cash flows. 2) Firms with high managerial reputation tend to manage large companies with higher debt levels.

Table 3. Pearson Correlation Matrix

	EFF	ABLE	REPUT	DER	SIZE	CFO
EFF	1	0.003	0.130**	0.030	0.198**	0.025
ABLE	0.003	1	0.152**	0.051*	0.167**	0.057*
REPUT	0.130**	0.152**	1	0.050*	0.277**	0.018
DER	0.030	0.051*	0.050*	1	0.166**	-0.011
SIZE	0.198**	0.167**	0.277**	0.166**	1	-0.030
CFO	0,025	0,057*	0,018	-0,011	-0,030	1

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Table 3 presents the estimation results of the regression coefficients (t-statistics) using pool cross-sectional time series data. It should be noted that model (4) is a complete model that includes all research variables. The model is used as the basis for making decisions to reject or accept the hypotheses. On the other hand, the estimation of model (1), model (2) and model (3) were presented to assess the effect of each variable that is included into the model sequentially. Model (1) only includes managerial ability and control variables. The estimation results show that managerial ability (ABLE) is not significantly related to investment efficiency with t value of -1,396. The estimation of Model (2) which only includes managerial reputation and control variables shows that managerial reputation is positively related to investment efficiency at a significance level of 1% and t value of 3,289. Slightly different results were obtained from the estimation of model (3) which includes the variables of managerial ability and reputation (REPUT) together. The results show that managerial reputation and investment efficiency are significantly associated at 1% level and t value of 3,466. The finding is consistent with the estimation of model 2. As for managerial ability,

the results show that managerial ability and investment efficiency are significantly associated at 10% level and t value of -1,773. The finding is not consistent with the estimation of Model 1. Overall, the results provide an early indication to include interaction variables between managerial ability and reputation into model 3. Therefore, the next analysis is to examine the effect of the interaction of the two variables on investment efficiency as shown in Model (4).

The estimation results of Model (4) shows that managerial ability has a significant negative relationship with investment efficiency at 1% level and t value of -2,822. However, the direction of the coefficients is not consistent with the predictions leading to the rejection of hypothesis one. Surprisingly, managerial reputation which was consistently associated with investment efficiency now becomes insignificant after the interaction variables are included in the model. As for interaction variable (MBA*REPUT), the results show that MBA*REPUT is significantly associated with investment efficiency at 5% level and t value of 2,041. For control variables, only firm size (SIZE) is significantly related to investment efficiency at 1% level and t value of 7,299.

Table 4. Managerial characteristics and investment efficiency

	Model 1 _a	Model 2 _b	Model 3 _c	Model 4 _d
ABLE	-0.0034 (-1.396)		-0.0043* (-1.773)	-0.0091*** (-2.822)
REPUT		0.0054*** (3.289)	0.0057*** (3.466)	0.0028 (1.310)
ABLE*REPUT				0.0161** (2.041)
DER	-0.0004 (-0.081)	-0.0001 (-0.129)	-0.0004 (-0.087)	-0.0001 (-0.193)
SIZE	0.0024*** (8.481)	0.0021*** (7.165)	0.0022*** (7.338)	0.0022*** (7.299)
CFO	0.0005 (1.401)	0.0005 (1.229)	0.0005 (1.335)	0.0005 (1.421)
R2	0.041	0.046	0.048	0.05

Obs	1749	1749	1749	1749
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*** Significant at the 0.01 level; **Significant at the 0.05; *Significant at the 0.10 level. All are 2-tailed tests.

- Regression equation: $EFFit = \beta_0 + \beta_1ABLEit + \beta_2DERit + \beta_3SIZEit + \beta_4CFOit + \mu it$
- Regression equation: $EFFit = \beta_0 + \beta_1REPUTit + \beta_2DERit + \beta_3SIZEit + \beta_4CFOit + \mu it$
- Regression equation: $EFFit = \beta_0 + \beta_1ABLEit + \beta_2REPUTit + \beta_3DERit + \beta_4SIZEit + \beta_5CFOit + \mu it$
- Regression equation: $EFFit = \beta_0 + \beta_1ABLEit + \beta_2REPUTit + \beta_3ABLE*REPUTit + \beta_4DERit + \beta_5SIZEit + \beta_6CFOit + \mu it$

Result discussion

Test of hypothesis one (H₁)

Hypothesis one predicts that the higher the managerial ability, the higher the investment efficiency. Companies with high managerial capabilities are expected to be able to manage investment projects more efficiently than companies with low managerial abilities. Although statistically significant, the estimation results of Model (4) are not consistent with H₁ because the direction of the coefficient is negative. Remember that managerial ability is measured by the percentage of MBA (M.M) degrees held by members of the Board of Directors. The negative direction suggests that firms with higher managerial abilities experience higher investment inefficiency. In other words, companies that have directors with MBA (M.M) degrees are more likely to experience investment inefficiency. This somewhat counter-intuitive finding is quite surprising given the importance of managerial knowledge for allocating company resources efficiently and productively. The finding contradicts the conceptual arguments and empirical findings about the superiority of managers who have managerial knowledge through formal education as stated in Graham & Harvey (2001), Barker & Mueller (2002), and Lai & Liu (2017).

There are several possible explanations for the counter intuitive results. First, managers with good managerial skills and knowledge do not necessarily use it for the benefit of the company but may use it for personal gain as implied in agency theory. Managers who have unrestricted control and access to the company's business develop opportunistic behavior to increase their personal wealth through investing in risky projects. Improper allocation of a firm's resources leads to investment inefficiency.

Second, research conducted abroad such as in Chemmanur, Paeglis, & Simonyan (2009) and Lai & Liu (2017) use the MBA degree as a proxy for managerial ability while this study uses the MBA degree for managers who graduated abroad and the MM (Master in Management) for managers who graduated domestically. It is possible that the quality of managers with an M.M degree from local universities is not equivalent to the quality of managers with an MBA degree from abroad. This study also includes managers with M.M degrees because the number of managers in public companies with MBA degrees is so small that the validity of the results is questionable.

Test of hypothesis two (H₂)

Hypothesis two predicts that managers with higher reputation are expected to allocate resources efficiently, thereby increasing investment efficiency. The evidence in Jian & Lee (2011) and Chemmanur, Paeglis, & Simonyan (2009) are consistent with predictions suggesting that managers with good reputations tend to choose investment projects with positive NPV and greater value. The estimation results of Model (4) are consistent with H₂.

According to Chemmanur, Paeglis, & Simonyan (2009) managers with good reputations are able to credibly disclose the intrinsic value of the company to outsiders so as to reduce information asymmetry in the capital market. Past success in managing company resources through adopting appropriate funding policies, and healthy cash flow management enhances their reputation among the business community. Well-known managers will continue to strive to maintain their reputation by showing above-average managerial performance. Furthermore, Chemmanur, Paeglis, &

Simonyan (2009) state that managers are always aware that one day they are expected to change the company and are ready to accept greater responsibility. Impressive past performance is likely to increase their chances of being accepted to work in another company that offers higher incentives than the current company. In addition, managers who are widely known among investors are expected to suppress information asymmetry through disclosure of financial statements that are consistent with the economic reality of the company. They are fully aware that dysfunctional behaviors such as hiding the true financial results will ruin their reputation. Thus, reducing information asymmetry affects various aspects of corporate finance and investment policies and improves investment efficiency.

Test of hypothesis three (H₃)

Managerial ability and reputation are inherent qualities of a manager and the two are closely related (Francis, et al, 2021). Hypothesis three predicts that the interaction between managerial ability and managerial reputation is positively related to investment efficiency. The estimation of Model (4) shows that the interaction variable is positively related to investment efficiency effect and consistent with H₃. Managers with good managerial skills and a high reputation are able to carry out managerial tasks very well. These characteristics enable managers to perform managerial functions well and maintain their reputation among the business community and thereby increase their value in the labor market.

Although the estimation of Model (4) shows that the effect of the interaction variable on investment efficiency is consistent with the predictions, unexpected results are found for managerial ability and managerial reputation as main variables. Although the estimates of Model (2) and Model (3) show that managerial reputation is significantly related to investment efficiency, the relationship between the two variables in Model (4) is not significant. However, the estimation of

Model (4) shows that managerial ability is significantly negatively related to investment efficiency. The findings are consistent with results found in Model (3) but inconsistent with the estimation of Model (1). In summary, the estimation of Model (4) shows that: 1) the interaction variable (MBA*REPUT) changes the initial relationship between managerial ability and managerial reputation with investment efficiency. 2) The positive direction of the interaction variable shows that the influence of managerial reputation on investment efficiency is more dominant than managerial ability in motivating managers to allocate resources more efficiently so as to increase investment efficiency.

5. Conclusions

Investors require relevant and reliable financial reports to make accurate investment decisions. However, agency theory suggests that managers tend to be opportunistic and selfish, creating conflict between managers and shareholders. The conflict is triggered by information asymmetry. Information asymmetry induces moral hazard and adverse selection, and leads to incorrect decisions making. Investors tend to buy higher than intrinsic value stocks and overlook lower than intrinsic value stocks. When this happens, resource allocation becomes inefficient. Companies with good prospects that should have received sufficient funds from the capital market, were unable to generate sufficient funds and became more selective in financing investment projects. The situation may lead to underinvestment. On the other hand, companies with less promising prospects receive abundant funds from capital market investors, resulting in less rational resources allocation and potentially fall into overinvestment. This study expects that managerial characteristics are associated with investment efficiency.

Specifically, this study examines the effect of managerial ability and managerial reputation on investment efficiency. Proxy for managerial ability is MBA/M.M degree and proxy for managerial

reputation is the percentage of directors who also serve as commissioners in other companies. In addition, the interaction effect of these two variables on investment efficiency is also tested. To control for differences in company characteristics, the model included three control variables: leverage, company size, and operating cash flow.

The results show that companies that have good managerial skills tend to be less efficient in managing company resources, thereby reducing investment efficiency. In other words, managers who have an MBA/M.M degree are more likely to fail to manage resources efficiently. On the other hand, managerial reputation is positively and significantly related to investment efficiency. However, incorporating the interaction variables into the model changes the relationship between managerial reputation and investment efficiency. The relationship between the two variables becomes insignificant. The interaction variable itself is positively related to investment efficiency. The positive direction of the interaction coefficient indicates that the influence of managerial reputation on investment efficiency is more dominant than managerial ability.

The negative relationship between managerial ability and investment efficiency is counter-intuitive which raises questions about the use of an MBA/M.M degree as a proxy for managerial ability in the context of public companies in Indonesia. Therefore, further research is suggested to re-examine the relationship between managerial ability and investment efficiency by using alternative managerial quality proxies as suggested in Demerjian, Mcvay, & Lev (2012).

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