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Myopia in investment: Seasoned manager's age and long-term investment distortion

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Abstract

Myopia in financial terms is included in the discussion of short-termism in investments. We analyze the effect of managerial age on investment policies taken by the top-level management with controlled variables consists of investment opportunity, firm size, profitability, leverage, and firm year effect. This study uses a fixed effect model estimation with data samples containing secondary data from 52 manufacturing firms listed in IDX. Data samples are selected through a purposive sampling method to filter and choose data that fit the study criteria. We found that the seasoned manager's age has a negative and significant effect on long term investment, which implies that the older the seasoned manager's age could increase the tendency of investment myopia. Controlled variables such as investment opportunity and firm size have a positive effect on long term investment, while the firm-year effect factor of 2013 and 2014 have positive effects but insignificant effect on long term investment.

Abstrak

Myopia dalam lingkup keuangan tercakup dalam pembahasan kecenderungan jangka pendek dalam investasi. Kami ini menganalisis efek kematangan umur manajerial pada kebijakan investasi yang diambil top-level management dengan variabel kontrol berupa investment opportunity, firm size, dan firm-year effect. Penelitian menggunakan estimasi fixed effect model dengan sampel data berupa data sekunder dari 52 perusahaan manufaktur yang terdaftar di BEI. Sampel data dipilih secara purposive sampling untuk menyaring dan memilih data yang sesuai dengan kriteria penelitian. Kami menemukan bahwa kematangan umur manajerial memiliki pengaruh negatif yang signifikan terhadap investasi jangka panjang, implikasinya adalah semakin tua usia manajer perusahaan maka dapat menaikkan kecenderungan myopia investasi. Variabel kontrol berupa investment opportunity dan firm size berpengaruh positif pada investasi jangka panjang, sedangkan faktor firm-year effect 2013 dan 2014 berpengaruh positif tetapi tidak signifikan terhadap investasi jangka panjang.

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1. Introduction

Investment decision-making is one of the most crucial abilities in the financial world, making optimal investments and increasing the firm's value is normatively a must, even more so when investors are included in this topic. Reilly, Souder, & Ranucci (2016) pointed out that investment concepts are closely related to the concept of 'time', opinions about the 'future' ought to be different across literature sources. Generally, this argument would lead into two main essences, which are the trace back view of 'where the firm position had been' and future view of 'where the firm position will be'. Looking through a financial standpoint, this time concept would evolve into two important aspects, namely 'risk' and 'uncertainty'.

This research is inspired from the theory of myopic loss aversion formed by Benartzi & Thaler (1999) as tested by them using psychological mind game through gamble and retirement plans scenarios. Then we found several recent and prior studies done by Thakor (1990; 1993), Noe & Rebello (1997), Lundstrum (2002), Graham, Harvey, & Rajgopal (2005), Chowdhury (2011), Reilly, Souder, & Ranucci (2016), and Garel (2017) which discussed about investment and the tendency on short-termism in their practice, so it is most interesting for us to study the influence of psychological biases in investments, especially in assessing the influence of the seasoned manager's age.

Thakor (1990) conducted a study using a comparative approach between the United States and Japanese managers. United States managers are deemed to be heavily oriented toward short-term investments and distorting investment policy because managers are busy with their short-term profit achievement. According to Noe & Rebello (1997) this phenomenon is called a 'myopia' in investment policy, like in medical terms where myopia is associated with 'nearsightedness'. In financial terms, myopia could be translated as managerial weakness in arranging and implementing long-term invest-

ment while too 'occupied' on boosting their short-term revenue (Docherty & Hurst, 2018).

Myopia in investment usually not perceived as consequences of managerial decisions, but consequences of stockholders. Jacobs (1991) argued that asymmetrical information between stockholders and firm managers is a prominent factor that drives myopia in investment. This stems from managerial uneasiness about their career position in the future, so managers would force themselves to meet work targets and achievements while still in their term of office. Conflicting opinion from Reilly, Souder, & Ranucci (2016) explained that short-term investing orientation conducted by firms is regarded as managerial efforts to fulfill their long-term investment targets, even though implementations carried by firm managers would appear to prioritize short-term investments. Those arguments above are implying that firm managers have equal consequences as stockholders on investment myopia.

As investment myopia occurred, there will be some distortions on both sides (managers and stockholders). Noe & Rebello (1997) explained that opportunistic managers tend to pick long-term investments to increase their influence and performance track records, this decision could raise managers' bargaining power to secure their positions through contract renegotiations including its compensation. Managers' influence can be so strong that they were able to make a threat gimmick to leave the firm, thus forcing stockholders to renegotiate. Thakor (1990) argued an optimal compensation contract is a contract that could assess managerial performance. However, this leads to overinvest in managerial compensation, and limiting capitals that could be invested somewhere to balance the scale financially. Both sides tend to avoid renegotiation as it will generate costs, physically and non-physically. Some examples like differences in contract value which considered as a trade-off, diminished trust between related parties, and arbitration cost (Love, 2010; Hart, 2009).

Myopia in investment: Seasoned manager's age and long-term investment distortion

Muhammad Madyan, Bayu Indra Kurniawan, Novian Abdi Firdausi

There is an interesting viewpoint in above discussion, which is the value of a manager inside the firm. Darrough (1987) explained if managers could easily observe investment opportunities of a firm, managers would feel secure as managers are averted from compensation contract's risks (in case of bad performance) and pushing managers to be eagerly leashed under employment contracts for more than one year, this could affect in reducing myopia in investments. But Narayanan (1987) argued if managers could not observe investment opportunities then managers would be inclined to take myopic investments to boost work achievements and thus raising the manager's wages since every information could not be observed by investors. These two statements form Darrough and Narayanan raising the need of CEO's capabilities and responsibility in assessing investment policy, whether the CEO would focus on short-term or long-term investments are the main concern.

Empirical evidence from Graham, Harvey, & Rajgopal (2005) is remarkable, 75% of financial executives in the United States who interviewed through in-depth interviews choose to reject long-term investment proposals which could be considered profitable since they calculate that the maturity took too long to yield. Moreover, 78% of financial executives chose to trade their firm value for the sake of increasing their revenue or meeting performance targets. Additionally, they believe the course taken is righteous and viewed as 'necessary evil' because they thought sacrificing long-term value is better for circumventing any short-term difficulties.

What drives firm managers to become myopic? Stein (1989) argued that myopic investment is an unbalanced priority scale between long-term and short-term investments. Thakor (1990) explained several factors that stimulate myopia. Firstly, the discrepancies between stockholders (who mainly care about stock return) and managers (who mainly care with present and future rewards). Secondly,

when managers propose several projects of equal value to stockholders, they tend to choose projects with the fastest profit return. This decision could increase managerial reputation under the assumption that stockholders are appreciating managerial performances in increasing their revenue. Thirdly, reputational problems could affect managers to behave conservatively, rejecting high profit but risky projects, and choosing less risky projects with smaller profits.

In addition, the longer a manager is in a firm, the higher the manager's expertise from his/her experience (firm-specific skills), and this would lead to a rise in manager's compensation value in the firm compared to manager's compensation value in labor market (Noe & Rebello, 1997). So CEO capabilities could be affected by how much experience the CEO had accumulated, because more experienced and older CEOs are expected to have been experienced and increasing the wisdom in choosing and planning investments. This view is in accordance with Chowdhury (2011), who found that CEO age have a significant effect in R&D investment policy. These theories drives us to research the effect of seasoned manager's age as a factor that pushes myopic investments, thus underlies the main independent variable in this research.

This research contributes to the literature with the scope of investment myopia on firm performance's side, several publications had discussed myopic investment in the scope of stock market movements (Noe & Rebello, 1997; Benartzi & Thaler, 1999; Docherty & Hurst, 2018), market pricing (Garel, 2017), organizational behavior (Benartzi & Thaler, 1999; Chowdhury, 2011; Reilly, Souder, & Ranucci, 2016; Garel, 2017), risk taking behavior (Talbi, 2017), and comparisons between private and public firms (Asker, Farre-Mensa, & Ljungqvist, 2015). Some similar studies in Indonesia have the topic of myopic loss aversion (a behavior which inclined to avoid losses than to gains) (Mustaruddin et al, 2017; Hidayat, 2017), and the

effect of asymmetrical information (Wendy & Asri, 2012). But the study of investment myopia with seasoned manager's age as the main factor in Indonesia has not been found in any literature until this study was conducted. So this study attempts to analyze manufacturing industry as manufacturing industry have the completeness and easier access in public disclosure of financial reports. Results of this study could also be taken into consideration for managers and stockholders in formulating investment policy which is being formulated or had been taken into effect.

2. Hypothesis Development

Myopia in investment becoming the main dependent variable, which measured using research and development (R&D) expenses divided with firm's total sales (therefore identified as variable MYOP). As this measurement had been used by several studies as an empirical proof and as a proxy of long-term investment (Lundstrum, 2002; Reilly, Souder, & Ranucci, 2016; Garel, 2017). Moreover, Lundstrum (2002) stated that R&D has the advantage over capital expenditure in three ways. Firstly, capital expenditure is recognized as expenses through depreciations, thus less impacting earnings than R&Ds. Secondly, firms greatly depend on internal financing than capital expenditures on R&Ds, because external financing would require firms to provide internal information to outsiders, thus increasing corporate risk. Thirdly, R&D expenditures are illiquid, so if R&Ds are unprofitable, recovering sunk costs would be unlikely juxtaposed with selling intangible assets. Reilly, Souder, & Ranucci (2016) stated that many literatures are treating R&D investment as the default measure for long-term investments and also used as a proxy of investment horizon. Empirical analysis from Garel (2017) also revealed that myopic firms tend to manage their earnings significantly more while cutting their R&D expenditures significantly, as this effect is economically meaningful. So, the focus of this study attempts

to examine the effect of seasoned manager's age on long-term investments that measured through R&D/Sales, as R&D/Sales is used as a proxy to assess whether the investment myopia is present or not. Based on theories above, the formulated hypothesis is:

H_1 : seasoned manager's age have a positive effect to R&D/Sales

3. Method, Data, and Analysis

Discussions about investment myopia are less frequently found in management's literature, but study scopes are varying and few studies could be found year-on-year, this study tries to encompass the importance of assessing the seasoned manager's age and its effects on myopia in investment, while controlling several variables. This study is using a quantitative approach with the main independent variable identified as the managerial age. Based on theories from Noe & Rebello (1997) and Chowdhury (2011), managerial age could be described as managers are getting older and experienced (seasoned), managers are expected to have better view and more knowledgeable in investment policy. So, the main independent variable used in this study is the seasoned manager's age which measured by the CEO age (therefore identified as variable ManAGE) (Chowdhury, 2011; Chevalier & Ellison, 1999). Chowdhury (2011) proved that CEO ages are significantly linked to investment policy, which prioritize operating performance at the expense of long-term value maximization. This practice manifested into lower capital expenditure, higher retained earnings, and lower investments especially in R&D investments. In addition, Talbi (2017) stated that CEO ages are associated with risk taking, CEO ages and characteristics also proved in impacting the discretion of investment policy, this is based on logical view as younger and older person is naturally different in both physically and ethically.

This study also using control variables to assess the effect of seasoned manager's age through

Myopia in investment: Seasoned manager's age and long-term investment distortion

Muhammad Madyan, Bayu Indra Kurniawan, Novian Abdi Firdausi

controlling some variables that are included in the financial environment. The first control variable is investment opportunity (therefore identified as variable IO) using theoretical basis from Narayanan (1987) and Darrrough (1987) in the introduction section. Variable measurement of market-to-book equity is based on Lundstrum (2002) who designed this approach as Q-theory of investment implies that investment opportunities are sufficient to explain all investment activity, also the usage of market-to-book equity ratio to control the variation in firm-year investment and making it a good proxy for investment opportunities. This variable is also used by Guidara & Boujelbene (2015) who stated greater investment opportunity (measured with market-to-book equity ratio) could make it costly to cut R&D expenditure, so controlling this variable could represent discretionary R&D expense treatment, as myopia in investment is calculated through R&D expense.

The second control variable is firm's size (therefore identified as SIZE) which measured with natural logarithm (ln) of total asset, because R&D is correlated with economics of scale. Spescha (2018) stated that firm size is a first and central determinant in assessing R&D, because larger firms have an advantage in easier access on financial resource. Choi & Lee (2017) also used this variable to assess the effect of firm size on R&D expenditure types through the shares of sales revenue spent on R&D investments, as small and large firms have different incentives on R&D investment. Furthermore, according to Guidara & Boujelbene (2015) large firm size could limit the discretionary decision of a firm, and this means that firm size could be a driver of investment myopia. Hovakimian (2009) and Chowdhury (2011) also measured firm size with natural logarithm of total assets to assess the effect of firm size to R&D expenditure.

Profitability is the third control variable which measured with the ratio of return-on-asset (which identified with ROA). Vanderpal (2015) found a correlation between R&D and firm profitability us-

ing ROA. Kiraci *et al* (2016) also found the effect of R&D investment to profitability in the long-run, in accordance with the dependent variable of this research. Mezghanni (2010) explained the aim of future oriented R&D will be in line with stockholders, which is pursuing long-term profitability. This caused by firm performance expectation that bound with investor's wealth and usually have unlimited time period. Xu & Jin (2016) concluded that several manufacturing industry are emphasizing technological innovation and pushing managers to fortify R&D while also boosting firm's competitive power. Because R&D results need additional time to be implemented, spent capital costs are considered as a long-term investment.

The fourth control variable is leverage which measured with debt-to-asset (identified as DTA). Min & Smyth (2016) found an influence of leverage that used firm's internal funding (and measured using debt-to-asset) to R&D. Chang & Song (2014) described firms which have high level of R&D investment tend to have lower leverage level, or even close to zero. Using the output of R&D in the form of patents, firms could use it as a collateral and loosening credit constraints. Ghosh (2012) also found a tendency of huge internal spending on R&D (deep pocket policy) could affect the level of leverage utilization, this also represent the discretionary ability of managers in managing finance and investment. The fifth and sixth control variables are firm year's effect on 2013 and 2014 (therefore identified as variable D13 and D14) which are dummy variables. This dummy variables are used to test whether investment myopia is a yearly spike or consistent throughout all-year study observation, as used by Lundstrum (2002).

Data used in this study consists of secondary data in the form of yearly financial statements from manufacture companies listed in Indonesian Stock Exchange (IDX). The population of manufacturing industry in IDX is consisted of 140 firms within the study period. This research uses 52 firms as samples which consisted from 3 sectors of manufacturing

industry in IDX. Samples are picked with purposive sampling method to find sample firms which fulfill research criteria. Those criteria are: 1) manufacture firms which issuing yearly financial statement routinely through the research period, 2) using Rupiah (Rp) as the unit of currency, 3) having complete and adequate information that corresponds with research variables. Filtered data used in this study consists of research and development (R&D) expenses, firm’s sales, CEO ages, firm’s total assets, return-on-asset ratios, debt-to-asset ratios, and lastly the market-to-book equity data.

After arranged to panel data, analysis steps are started with calculating every variable using each variables’ equations, followed by estimating regression model with pooled OLS (common effect), random effects using Hausman Test, and fixed effect using Chow Test. The next phase is checking autocorrelation using Durbin-Watson statistic. The analysis model is described as follows:

$$MYOP_{i,t} = \alpha + \beta_1 ManAGE_{i,t-1} + \beta_2 IO_{i,t-1} + \beta_3 SIZE_{i,t-1} + \beta_4 ROA_{i,t-1} + \beta_5 DTA_{i,t-1} + \beta_6 D13_{i,t} + \beta_7 D14_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where: MYOP_{i,t} = R&D expenditure of firm *i* in period *t* divided with total sales of period *t-1*; α = Regression constant; β = Regression coefficient; ManAGE_{i,t-1} = CEO age of firm *i* in period *t-1*; IO_{i,t-1} = Investment opportunity of firm *i* on period *t-1*; SIZE_{i,t-1} = Firm size of firm *i* in period *t-1*; ROA_{i,t-1} = Profitability of firm *i* in period *t-1*; DTA_{i,t-1} = Leverage of firm *i* in period *t-1*; D13_{i,t} = Dummy of firm *i* in period *t* (2013); D14_{i,t} = Dummy of firm *i* in period *t* (2014); $\varepsilon_{i,t}$ = Error term.

4. Results

The amount of manufacture industry data samples which fulfill study criteria have amounted to 156 observations. The mean value of R&D/Sales (MYOP) is 6.37% which indicates that few firms in the manufacturing industry allocate their funds for long-term investments, with 0.02% as the lowest value and the highest value as high as 3.19%. The mean of CEO age (ManAGE) showed the value of 56.29, which means that lots of CEOs who became top management are middle-aged (56-57 years old), while the youngest is 35 years old and the oldest is 74 years old. The average value of investment opportunity (IO) is 2.15, this shows the value of manufacture firms in the stock market is 2.15 times bigger than its firms’ equity. The mean of firm size natural logarithm (SIZE) showed the value of 12.018, while minimum and maximum values are 9.192 and 14.261 respectively. The range value of profitability (ROA) shows several firms had operational loss as low as -10.7% while the highest profit is at 35.6%. The value of leverage (DTA) means that firms have 44.8% debt composition on average, some firms even have debts twice as big as 216% from its assets. The standard deviations of CEO age (ManAGE) and investment opportunity (IO) shows that the manufacturing industry have varying range of CEO ages and investment opportunities. As shown in Table 2 below:

After variable data components are calculated using each own equation, data are processed using software Eviews. Hausman Test resulted in Chi-Square of 12.47 with 0.11 probability, while Chow

Tabel 1. Descriptive statistic

	Minimum	Maximum	Mean	Std. Dev.
MYOP	0.0002	0.0319	0.0637	0.007
ManAGE	35	74	56.29	8.23
IO	0.008	28.63	2.15	3.49
SIZE	9.192	14.261	12.018	0.727
ROA	-0.107	0.356	0.067	0.079
DTA	0.037	2.169	0.448	0.263
VALID N				156

Myopia in investment: Seasoned manager's age and long-term investment distortion

Muhammad Madyan, Bayu Indra Kurniawan, Novian Abdi Firdausi

Test resulted in Chi-Square of 175.63 with 0.00 probability. These results indicates that fixed effect is the best estimation in research model (lower than $\alpha = 0.05$). Then continued with autocorrelation test through Durbin-Watson statistic, from expanded Durbin-Watson test table of $\alpha = 5\%$, it is found that $dL=1.637$ and $dU=1.832$ from 150-200 total observations (n) with 7 regressors (k) (Savin & White, 1977). As Durbin-Watson from statistic result showed the value of $d=1.839$ with 156 observations, it could be concluded that there are no positive ($d>dU$) and negative autocorrelations ($4-d>dU$).

Tabel 2. Fixed Effect estimation result

Variable	Coefficient	Prob.
C	-0.008	
MANAGE	-0.0002	0.0002
IO	0.0005	0.0012
SIZE	0.0024	0.0010
ROA	0.0006	0.9387
DTA	-0.0053	0.0151
D13	0.0018	0.1718
D14	0.0006	0.8500
R-Squared		0.277
F		7.543
F Prob.		0.000

From Table 2 above, the resulted regression equation is:

$$MYOP = -0.008 - 0.0002 \text{ ManAGE} + 0.0005 \text{ IO} + 0.0024 \text{ SIZE} + 0.0006 \text{ ROA} - 0.0053 \text{ DTA} + 0.0018 \text{ D13} + 0.0006 \text{ D14} + e \quad (2)$$

Table 2 shows significant value on CEO age (ManAge), investment opportunity (IO), firm size (SIZE), and leverage (DTA). While profitability (ROA) and firm year effect (D13 and D14) are insignificant. Investment opportunity (IO), firm size (SIZE), profitability (ROA), and firm year effect (D13 and D14) have a positive effect on R&D/Sales (MYOP). While CEO age (ManAge) and leverage (DTA) have a negative effect to R&D/Sales. The

value of the determination coefficient (R-Square) showed the value of 0.277, which means that the dependent variable could be explained by 27.7% by its independent variables.

The last step is testing the robustness test. First robustness test aims to assess whether year variability could affect the robustness of managerial age to R&D/Sales while using same equation model above. The assessment uses yearly grouping of data. Table 3 infers that myopia in investment occur with negative effects throughout each observation year.

Tabel 3. Robustness Test on year variability

Year	Coefficient	Prob.
2012	-0.00008	0.0001
2013	-0.00012	0.0001
2014	-0.00034	0.0000

The next is assessing piece-wise robustness using formula based from Lundstrum (2002), this test aims whether the effect of managerial age could change through age grouping, and the grouping is done by quartiles. The formulated test model is as follows:

$$MYOP_{i,t} = \alpha + \beta_1 \text{ManAGE}_{i,t-1} + \beta_2 (\text{MQ2} \times \text{ManAGE}_{i,t-1}) + \beta_3 (\text{MQ3} \times \text{ManAGE}_{i,t-1}) + \beta_4 (\text{MQ4} \times \text{ManAGE}_{i,t-1}) + \beta_5 \text{IO}_{i,t-1} + \beta_6 \text{SIZE}_{i,t-1} + \beta_7 \text{ROA}_{i,t-1} + \beta_8 \text{DTA}_{i,t-1} + \beta_9 \text{D13}_{i,t} + \beta_{10} \text{D14}_{i,t} + \varepsilon_{i,t} \quad (3)$$

The description on above equation is the same with study model equation, with the addition on MQ variable that indicates managerial age quartile grouping, MQ2 designates managerial ages are on the second quartile range (56 years old), so as MQ3 on third quartile range (63 years old) and MQ4 on fourth quartile range (74 years old). The result from Table 4 shows negative effects on managerial age variable are not changing through age grouping.

Tabel 4. Piece-wise robustness result

Variable	Coefficient	Prob.
C	0.0005	
MANAGE	-0.0003	0.0269
ManAGE × MQ2	0.00004	0.1372
ManAGE × MQ3	-0.00006	0.1291
ManAGE × MQ4	-0.00005	0.2661
IO	0.0005	0.0001
SIZE	0.0017	0.0024
ROA	0.0012	0.8453
DTA	-0.0038	0.0301
D13	0.0011	0.2766
D14	0.0001	0.9302
Model Prob.	0.000	

5. Discussions

From overall point of view, the independent variable and several control variables are having a significant effect on investment myopia, except the dummy variables of firm-year effect 2013 and 2014 (D13 and D14), this means that firm-year factor on 2013 and 2014 have no significant effect to the analysis model. This result is in accordance with Lundstrum (2002), who found that firm-year effects are not affecting the level of long-term investments because the timeframe of dependent and control variables are taking whole years' timeframe, not taking each year timeframe. In summary, myopia in investments are consistent throughout research period and not considered as a yearly/seasonal spikes.

Managerial age variable has a negative effect, which means that the older the CEO's ages would reduce the amount of long-term investment taken, measured using the expenditures of R&D/Sales. The regression result does not fit with the study hypothesis, which hypothesized that the older the CEO's age (more seasoned) would affect positively to investment myopia. As strengthened by Garel (2017) and Graham, Harvey, & Rajgopal (2005), who stated that myopic firm managers tend to reduce expenses on R&D, because R&Ds are considered as some kind of investments that give long-term cashflows while reducing the expectations of short-

term revenue, there are even some evidence of R&D expenditure cuts are combined with selling firm assets to fulfill revenue targets. Serfling (2014) also found that the older the CEO's age would reduce investments that flow into R&Ds, with the basis that R&Ds are considered as risky investments where uncertainty about future benefits are relatively high. Even though several samples shows an increase in long-term investments as CEOs are getting older, Reilly, Souder, & Ranucci (2016) concluded this factor as a difference in conception of time across individuals resulted from the effect of social constructs that differs across cultures, so personal view of time orientation may constrain choices about time-related factors such as investment time-value. Moreover, prevailing collective firm's preference on both current manager's personal preference and their knowledge of firm's historical patterns could be viewed as a big factor of psychological discretion of said managers in addressing investments.

Study results also correspond with Docherty & Hurst (2018) who studied investment myopia on the international stock exchange level. They found out that investment myopia in 41 countries is inclined to happen in countries where firms' financial management is managed by professional and seasoned managers. This implies that agency problems have a significant impact on the international level, thus raising considerations on myopic investments which have been impacting stock momentums on international markets. Benartzi & Thaler (1999) in their study about a viewpoint on risk aversion and its instigations of myopic managerial policy uses 'narrow framing' as a term to conclude the majority of their research subjects who assume long-term investments as a gamble, with the reason of long-term investments are usually focused on just one investment at a time and did not split it into portfolios. Another result from their study is the wariness of risk calculations are prompting inability to appreciate long-term investments, which from the standpoint of aggregate statistical analysis can give

Myopia in investment: Seasoned manager's age and long-term investment distortion

Muhammad Madyan, Bayu Indra Kurniawan, Novian Abdi Firdausi

higher revenue into a firm than short-term investments. This means that the more seasoned, experienced, and older managers could decrease firm encouragements to take long-term investment policy.

In Indonesian case, this result is in accordance with Wendy & Asri (2012) who inferred that myopic investment is influenced by the amount of managers' experience and gender factor in Indonesian Stock Market, the existence of experienced investors also making it difficult to reduce investment myopia as experienced investors are having less frequent trade while having more consideration compared to inexperienced investors. Another result from Ariffianto & Adhariani (2018) showed a tendency on Indonesian state owned enterprises to invest myopically. Because the difficulties on future budgeting prediction, the complexity of bureaucracy process on institutional financing, and managerial discretionary policy which driven by personal interests. Christanti & Mahastanti (2011) found that young investors above 29 years old hadn't considered much factor in investment, the level of experience in investing also implies that older and experienced investors are considering less factors on making investment decision.

The positive effect of investment opportunity means the tendency of investment myopia would be smaller if the investment opportunity of a firm is increasing. When new projects appeared, firm managers shall analyze and determine the period of those projects. Reilly, Souder, & Ranucci (2016) stated about the requirement of managerial skill to assess long-term investments, through assessing projects with smallest initial fund and giving best profitability in the long run as thoroughly and routinely as possible, because managers are rarely having this skill and this could lead to an increase in firm's revenue in the future. Study results also matched Lundstrum (2002) who stated that market-to-book equity has a positive and significant effect on investment myopia. Study results also supported by Docherty & Hurst (2018), movements of stock mar-

ket momentum could lead to myopia in investments as firm value is affected by investor's perception of trust about stock's future value than its fundamental value, thus affecting market-to-book equity ratio of a firm. It should be noted that several manufacturing companies during the study experienced capital deficiency conditions in their financial statements and set aside priorities on R&D expenditures, even though Guidara & Boujelbene (2015) found that French companies that averaged 46% of the company's total sales for R&D investments were able to enjoy investment opportunities are almost double their market-to-book equity ratio, if R&D funding can be a priority within the company then the potential for this increase can also occur in the manufacturing industry in Indonesia.

The negative effect of leverage to R&D means that high debt level will reduce R&D funding, this could be considered as an inverted view on the loan rate will loosen financial constraint, and increasing R&D spending (Min & Smyth, 2016). One of the supporting factor is firms tend to solve their debts before considering R&D, R&D spending preference on manufacturing industry in Indonesia is done by firm's internal funding, in line with Lundstrum (2002) and Ghosh (2012). Moreover, according to Buchdadi et al. (2018) firms listed in BEI tend to sacrifice their profit (internal funding) to fund their big R&D spending with the goal to expand business.

Profitability variable which has a positive effect and measured by ROA is in accordance with Kurniawan & Mertha (2016) on the level of R&D in the manufacturing industry in Indonesia. Profitability could be a tool of investment evaluation because measuring firm ability on making profits. The insignificant effect of profitability shows that even firms in the manufacturing industry are having high profitability, but the funding from said profitability is not prioritized on R&D investment. This argument supported by Kiraci *et al* (2016) who stated that profitability which consisted of gross profit,

operational profit, and net profit are not affected significantly and usually happened on manufacturing industry.

The positive influence value of the firm's size corresponds with Hovakimian (2009) who explained that firm size could alter a firm's cash flow, where financial obstacles are commonly found in a smaller firm, so that firm's cashflow becomes smaller and making it more sensitive to negative cashflow. The cashflow obstruction could also affect expense flow on R&D, Kim, Kim, & Flacher (2012) stated that firm size could imply indirect financial capacity and its resources, so the conceptual cost-spreading effect on the firm's R&D would increase even their productivity is decreasing along with the increase of firm's size. Study results also in line with Guidara & Boujelbene (2015) as large firms are more capable to spend and less likely to cut on their R&D expenses, so firm size have a positive effect to R&D spending. Another findings from Park (2011) suggested that smaller firm might be more innovative than large firms, but they lack the funds to turn their R&D into profit, thus addressing the importance of firm size in regards to make R&D investments more profitable.

6. Conclusions, Limitations, and Suggestions

Conclusion

Myopia in investment is a term where firm managers are too focused on short-term investments and neglecting long-term investments. Several factors which caused myopic investment are stockholder demands, investment risk aversion, pursuing personal career, and so on. One of the factors that drives myopia in investment is the managerial age, and there will be changes on investment standpoint when managers are getting older (more seasoned). After analyzing 52 listed manufacturing firms in Indonesian Stock Exchange which fulfills study criteria through fixed effect estimation, study result showed dependent variable managerial age

have a negative significant negative effect to R&D spending which acts as a proxy for long-term investment. The implication is the older the firm managers, the tendency of myopia in investment will increase. The effect of firm year effect control variable of 2013 and 2014 has a positive effect, but both are not significant. This means that myopia investment is not an annual spike, but is consistent throughout the year. The control variable of investment opportunity, firm size, and profitability have positive effects, but the profitability variable is not significant on R&D expenditure. The leverage variable has a negative and not significant effect on R&D expenditure.

Limitation and suggestions

This study only analyzes the manufacturing industry, and only at the level of the Indonesian Stock Exchange and using small samples from the population, so the predictive strength of the analysis result may not be strong. Results may vary if we change the object of study into various sectors, industries and levels between countries. In addition, the variables used in this study can be expanded in various perspectives, using other variables that do not contain company size, investment opportunities, profitability, leverage and managerial age maturity. Or adding some variables in the analysis model, thereby adding insights into the investment myopia literature. This study shows that myopia in investing must be considered in assessing firm and its stocks performance. What's more, the literature on myopia in investment is rarely found, and triggers the importance of research on myopia in investment. Improving firm specific performance can also reduce investment myopia as found in the study results, this strategy can be implemented by increasing company investment opportunities through increasing company performance in the stock market and increasing company size to generate more revenue. It is important for companies to maintain fu-

Myopia in investment: Seasoned manager's age and long-term investment distortion

Muhammad Madyan, Bayu Indra Kurniawan, Novian Abdi Firdausi

ture investment valuations as a contingency plan to reduce myopia in investment. Rolling the manager's term of office is also one of the proven options as in this study that the age of the manager is negatively

correlated with long-term investment, so that this strategy can refresh investment decision making with newer and more innovative ideas that can increase R&D investment.

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Myopia in investment: Seasoned manager's age and long-term investment distortion

Muhammad Madyan, Bayu Indra Kurniawan, Novian Abdi Firdausi

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