
Understanding window dressing practices among Indonesian construction companies: an effort to minimise investment risks

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Abstract: The current focus of Indonesian government on infrastructure development provides an opportunity for funding agencies to invest in construction and building companies. This opportunity, however, is not always directly proportional to the share performance of these Indonesian building and construction companies. This study examines window dressing practices conducted by some construction and building companies as an attempt to manipulate their financial status. Companies carry out this manipulative practice to attract possible investors and other funding agencies in their business. To detect and avoid this fraudulent practice, investors need to carefully calculate the cash holdings and stock performance of these companies. The study found different result of calculation between the two techniques. Cash holdings technique confirms the fact that most companies perform window dressing to attract investors. Meanwhile, showing the real firm performance, stock performance technique is only adopted by a small number of companies. This finding is expected to contribute to risk management, in relation to identifying a risk.

Keywords: cash holdings; investment risk; stock performance; window dressing; Indonesia.

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1 Introduction

As a developing country, Indonesia has to continuously maintain its economic stability and growth for more global competitiveness. One supporting factor for the economic development of a country is high interest rate of funding agency to invest in the country. To achieve this, the Indonesian government continuously boost infrastructure development so that it can attract foreign investors to invest their funding in the country. This focus on infrastructure development serves as an effort to boost the development of Indonesia. Started in 2014, this focus of infrastructure development has shown some good results, as they can be seen from some reports. For instance, Global Competitiveness Report (2016–2017) shows how infrastructure development has increased Indonesia's position from 78th to 60th out of 138 countries during 2012–2013 period. Another goal the Indonesian government has set from this infrastructure focus is to connect the economic pathway to achieve equitable development. The development of connectivity infrastructure is carried out to facilitate people's mobility in working and business, increase their productivity, competitiveness, and food availability (Kuwado, 2018). Moreover, sub-sector construction and building companies have also positively contributed to the country by increasing its annual GDP. Based on data from the Badan Pusat Statistik (BPS) (2018), the construction and building sector contributed positively to the GDP despite the declining growth in 2014, 2015 and 2016 of 6.97%, 6.36% and 5.22% and increased again in 2017 by 6.79%.

The current focus of Indonesian government on infrastructure development provides opportunities for domestic construction and building companies to make big profits. Competition among companies in this area will be tight. To be able to take part in this competition, these companies need to have good performance and sufficient capital because this area of business requires strong financial support and capital. This company performance is usually reflected in the financial report published every year. To participate in this issue, however, many Indonesian companies still face some challenges, including decline in stock values. For example, in the last few years, the stock price of ADH company continuously declined, from Rp.2,140 in 2015 to Rp.1,885 in 2017. Another company, WIK, also experiences a decline in share price from Rp.2,640 to Rp.1,550. This condition requires Indonesian construction and building companies manage to boost performance and maintain good overall annual performance so that they look good in the eyes of investors. Facing such existing conditions, company managers usually find ways to reach the target of good performance. One of which is by the practice of window dressing. In a simple definition, this term means using short terms around quarter-end reporting dates in financial transactions to manipulate accounting (Allen and Saunders, 1992). Window dressing is a temporary change in portfolio designed to produce a more appealing report to regulators or to the public (Hoag, 2015). Financial advisors usually take this practice as scenarios by improving poor security performance before the financial reporting date to attract greater cash flow, and replacing loser and riskier securities with winners and savers prior to portfolio report (Ortiz and Luiz, 2012). Responding to poor past performance, companies are more likely to do window dressing by manipulating their portfolios so that they seem to be clustered over bear market periods (Ortiz et al., 2013).

The impact of window dressing practice is a risk that prospective investors will receive. To avoid this risk, the ability of investors to do early detection is highly necessary to prevent investment losses. Since risk plays key roles in financial markets, investors should know about this practice and able to measure its impact so that they can manage the risks (Farid et al., 2010). To anticipate investment loss, risk management should be able to identify and assess some 'inherent risks' and then respond to them accordingly (Keegan, 2004). Some measurement techniques to identify the risks used in this study are by looking at the policy of financial manager in managing cash holdings and measuring the performance of shares. To reduce investment loss, entrenched managers would rather retain cash than increase payouts to shareholders when the firm has poor investment opportunities (Jensen, 1986). In general, a company conducts window dressing of cash holdings because it can be used as an instrument to signal that a company's balance sheet is healthy and strong (Khokar, 2013). Window dressing is done with the aim that the report on the performance of the stock portfolio reported at the end of the year will look good and have excellent performance (Sharpe et al., 1995). Measurements on both techniques will enable investors to predict and identify whether or not some companies practice window dressing.

Based on this window dressing phenomenon, this study was conducted to predict window dressing practices based on measurements of cash holdings and stock performance. Matching the results of these measurements will enable investors to identify whether the results are similar or different. The same results of the two calculations will certainly strengthen the predictions of the possibility of the practice of window dressing so that anticipation will reduce the risk of investment. These findings are expected to contribute to identifying the possibility of a risk for investors and financial managers related to the practice of window dressing, other than that, as a material for study in decision making.

2 Literature review

This section explores theories and studies on risk management and how it helps funding agencies manage their investment risk by identifying window dressing practices.

2.1 Risk management

Risk is a future event, resulted from current decisions, occurring due to uncertainties that have a negative impact on business. As an effort to accelerate achieving its desired goals, company is required to carry out risk management processes. In understanding and studying risk, the theory and the empirical analysis have to be combined (Virlics, 2013). By using risk analysis, available methods and techniques applied in risk analysis as tool of investment measurement and management, the company obtains information that will support its decision and on this basis it can better decide in acceptance or rejection of the investment (Merková and Drábek, 2015). Appropriately selected risk categories, a clear definition of the content and boundaries between categories are based for a well-structured systematic process of identifying business risks (Rybárová and Grisáková, 2010).

Furthermore, risk management has emerged as a response to increased volatility in global financial markets (Jorion, 2001). Conventional investments and finance, the risk associated with an asset are defined as volatility, quantified through the variance or standard deviation of its return (D'alpaos and Canesi, 2014). The risk identification process is needed to determine what risks are in the business being run and measurements are needed to obtain the data that will be used as a risk treatment decision. The results of identification and determination of the importance of the factors that are the basis for the next phase of risk analysis are the quantification or measurement of risk (Drábek and Polách, 2008). This study uses measurements to find out the possibility of investment risk by knowing the existence of window dressing practices in construction and building companies.

2.2 Window dressing and risk management

Window dressing is an important aspect of risk management. By knowing the possibility of window dressing practices, funding agency will be able to make better investment decisions because they take into account the elements of risk seen from various factors. Several previous studies conducted by Agarwal et al. (2014) found evidence of the practice of window dressing in stock mutual funds. The practice of window dressing can be known, among others, by calculations that indicate the inconsistency in the financial statements analysed at certain periods, for example per year and quarterly.

Window dressing practice implies manipulation. Companies manage to show that their financial capital is sound and strong by manipulating end of year reports. Studies conducted by Haugen and Lakonishok (1988), Ritter and Chopra (1989), Sias and Starks (1997), Poterba and Weisbenner (2001), Chen and Singal (2004) and Starks et al. (2006) prove that the existence of window dressing practices results from the effects of the turn of the year. Further research conducted by Lakonishok et al. (1991), He et al. (2004) and Hu et al. (2014) get the results of the window dressing practice by looking at financial data in the quarter. The practice of window dressing can also be detected by studying the occurrence of irregularities in refunds as a mechanism for identifying portfolio manipulation, such as research conducted by O'Neal (2001), Torre-Olmo and Fernández (2002), Morey and O'Neal (2006). Based on this review, the study focuses on how stock performance and cash holdings can be measured and identified to mitigate possibilities of investment loss due to window dressing practices among Indonesian construction and building companies.

3 Method and data

The population of the data used is the construction and building sub-sector companies listed on the Indonesia Stock Exchange for the period 2015–2017, where the number of companies in the construction and building sub-sectors listed was 16 companies. The characteristics used to determine the sample are the construction and building sub-sector companies listed on the Indonesia Stock Exchange which have complete financial reports and issue quarterly reports. Based on the sample criteria, a sample of seven companies (ADH, DGI, PTP, SSI, TOT, WIK, WSK) was obtained. The data obtained from this study were analysed descriptively quantitatively. The analysis aims to provide a description (description) of a data in explaining the research variables.

The stages to be carried out in this study are as follows: first, namely by calculating the possibility of the practice of window dressing based on cash holdings by using a different paired T-test and formula. The second step is calculating the possibility of Window dressing practice based on stock performance and the third stage by comparing between the first and second stages to be able to get the findings, whether the calculation of the two methods reinforces the prediction of window dressing or the results of the two techniques are different and not support each other.

3.1 Window dressing prediction based on cash holdings analysis

The steps taken by this calculation are by calculating the quarterly cash holdings of each company in the construction and building sub-sectors using cash, accounts receivable, trade payables, accrued and other liabilities, size, leverage, sales growth, and capital expenditure. The next step is to test the level of cash holdings against window dressing. Variables that are used as determinants of cash holdings in this study refer to several independent variables used by some previous researchers who used the trade-off theory as a reference, including Bates et al. (2009), Islam (2012), Anjum and Malik (2013) and Khokar (2013). The formulations used are:

a Inventory

According to Ikatan Akuntan Indonesia (2009) Inventories are assets available for sale in normal business activities, in the process of production and/or in travel or in the form of supplies for use in the process of production or service. Calculations refer to the calculations performed by Khokar (2013).

$$Inventory = \frac{Inventory}{Total\ assets} \quad (1)$$

b Trade receivable

Receivables are broadly defined as bills for all rights of the company in the form of money, goods or services to third parties after the company carries out its obligations, while narrowly the receivables are interpreted as bills that can only be settled by money in the future (Kieso et al., 2008). Calculations refer to the calculations performed by Khokar (2013).

$$Trade\ receivable = \frac{Total\ account\ payable}{Total\ assets} \quad (2)$$

c Payables

Definition of liabilities according to Ikatan Akuntan Indonesia (1994), is the current corporate debt arising from past events, the settlement is expected to result in cash flows out of the company's resources containing economic benefits. Calculations refer to the calculations performed by Khokar (2013).

$$Payable = \frac{Total\ account\ payables}{Total\ assets} \quad (3)$$

d Accrued and other liabilities

To calculate the accrued and liabilities formula used, refer to the calculation used by Khokar (2013).

$$AOL = \frac{Total\ current\ liabilities - Account\ payable - Debt\ in\ current\ liabilities}{Total\ assets} \quad (4)$$

e Firm size

The trade-off theory predicts that company size has a negative effect on cash holdings, assuming that large companies tend to invest rather than hoarding cash. Unlike the pecking order theory which has a positive effect, because the majority of large companies have good performance, having cash in hand is important. Calculations refer to the calculations performed by Khokar (2013).

$$Firm\ size = \log\ Total\ assets \quad (5)$$

f Leverage

Companies with high debt ratios have low cash reserves because they have to pay their debt instalments and add interest (Opler et al., 1999). The formula used to calculate is the same as that done by Khokar (2013).

$$Leverage = \frac{Debt\ in\ current\ liabilities + Long-term\ debt}{Total\ assets} \quad (6)$$

g Sales growth

According to Barton et al. (1989), Sales growth is a series of results from the success of past investment periods and can be used to predict future growth. The formula used to calculate refers to the calculations made by Khokar (2013).

$$Sales\ growth = \frac{Sales(t) - Sales(t-1)}{Sales(t-1)} \quad (7)$$

h Capital expenditure

According to Gitman (2012, p.390), capital expenditure is the expenditure of funds by companies that are expected to generate benefits for more than one period. The company carries out capital expenditures to expand operations, replace or renew fixed assets or to obtain several other benefits in the long term. Calculations refer to the calculations performed by Khokar (2013).

$$Capital\ expenditure = \frac{Fix\ assets(q) - Fix\ assets(q-1)}{Total\ asset} \quad (8)$$

From the results of data processing based on the formula above, the next step is to detect the practice of window dressing using the following testing techniques.

- a The first test is by using a different paired T-test to find out the practice of window dressing. In this test, the hypothesis design is based on a comparison between the

first quarter with the fourth quarter, the second quarter with the fourth quarter, and the third quarter with the fourth quarter, so the hypothesis used is as follows:

H1 There is a difference between Q1 to Q4, Q2 to Q4, and Q3 to Q4, which means the company practices window dressing.

- b For the second testing technique, namely by calculating whether the increase in cash holdings towards the end of the year reflects the behaviour of window dressing or not. The formula used refers to the calculations performed by Khokar (2013).

$$WD_{4,it} = \frac{CH_{4,it} - CH_{avg1-3,it}}{CH_{avg1-3,it}} \times 100 \quad (9)$$

where $WD_{4,it}$ is the percentage of window dressing in quarter 4 for company t in year i , $CH_{4,it}$ is quarter 4 cash holdings for company t in year i , $CH_{avg1-3,it}$ is the average cash holdings from quarter 1 to quarter 3 for company t in year i . The hypothesis stated as follows:

H2 Percentage of window dressing have positive results, which means the company practices window dressing.

3.2 Window dressing prediction based on stock performance

$$Return\ RD = (NAK - NAW) / NAW \quad (11)$$

$$RP = (IHSG_t - IHSG_{t-1}) / (IHSG_{t-1}) \quad (12)$$

where NAK is the current net asset value and NAW is the net asset at the end of the previous month. For the calculation of formula stock performance used refers to Sharpe (1966).

$$RVA = \frac{\bar{r}_p - \bar{r}_f}{\sigma_p} \quad (13)$$

where RVA is the Sharpe's performance, \bar{r}_p is the portfolio average return, \bar{r}_f is the average risk-free rate, and σ_p is the standard deviation. The hypothesis stated as follows:

H3 Stock mutual funds have a positive performance and fall into the outperform category, which means the company practices window dressing.

The calculation used to predict the practice of changing windows based on stock performance is by the following stages:

- 1 Comparing Sharpe's performance with a risk-free return (BI rate), if Sharpe's performance is greater than a risk-free return (BI rate), then the stock has a positive performance and if it is smaller then the performance is negative.
- 2 Comparing the return with the IHSG market return rate, if the return greater than the IHSG market return rate, it is classified as an outperform category and vice versa if it is smaller then it is included in the underperforming category.
- 3 The potential for window dressing is if the stock has a positive performance and is included in the outperform category.

Table 1 Comparative testing of cash holdings at ADK company

Paired samples test										
Paired differences										
		Mean	Std. deviation	Std. error mean	95% confidence interval of the difference		t	df	Sig. (2-tailed)	
					Lower	Upper				
ADH	Pair 1	Q1-Q4								
	Pair 2	Q2-Q4	.0775	.0447	-200.026	-161.486	-40.36	2	.001	
	Pair 3	Q3-Q4	.2564	.1480	-.025856	124.826	4.128	2	.054	
PGI	Pair 1	Q1-Q4	.0924	.0533	-.347862	.11164	-2.212	2	.157	
	Pair 2	Q2-Q4	.0927024	.0535217	-1.335.255	-.8746844	-20.645	2	.002	
	Pair 3	Q3-Q4	.0625824	.0361320	.5112870	.8222138	18.453	2	.003	
PTP	Pair 1	Q1-Q4	.3715445	.2145113	-.6333901	1.212.545	1.350	2	.310	
	Pair 2	Q2-Q4	.0545651	.0315032	-179.771	-1.526.621	-52.76	2	.000	
	Pair 3	Q3-Q4	.0869668	.0502103	.651426	1.083.502	17.27	2	.003	
SSI	Pair 1	Q1-Q4	.0716538	.0413693	-.250357	.1056384	-1.74	2	.222	
	Pair 2	Q2-Q4	.1227944	.0708954	-14.149.64	-.8048882	-15.656	2	.004	
	Pair 3	Q3-Q4	.1753039	.1012118	.1019198	.9728780	5.310	2	.034	
TOT	Pair 1	Q1-Q4	.0833436	.0481184	.0160647	.4301384	4.637	2	.044	
	Pair 2	Q2-Q4	.1123880	.0648873	-146.994	-.911572	-18.35	2	.003	
	Pair 3	Q3-Q4	.0339185	.0195829	.50351	.672030	30.015	2	.001	
WIK	Pair 1	Q1-Q4	.1405964	.0811734	-.38608	.312438	-.454	2	.695	
	Pair 2	Q2-Q4	.05970	.03446	-182.769	-153.107	-48.72	2	.000	
	Pair 3	Q3-Q4	.19811	.11438	.013375	.99765	4.420	2	.048	
WSK	Pair 1	Q1-Q4	.14333	.08275	-.536252	.17588	-2.177	2	.161	
	Pair 2	Q2-Q4	.330126	.190598	-2.673.426	-1.033.268	-9.724	2	.010	
	Pair 3	Q3-Q4	.178601	.103115	.150256	1.037.599	5.760	2	.029	
			.211864	.122320	-.582709	.469893	-.461	2	.690	

4 Result and discussion

4.1 Cash holdings test based on a different paired T-test

Before testing, the value of each variable (inventory, trade receivable, payables, accrued and other liabilities, firm size, leverage, sales growth and capital expenditure) is calculated first, after that these variables are summed to represent cash holdings.

Window dressing using a different paired T-test will occur if there is a difference in Q1 to Q4, Q2 to Q4 and Q3 cash holdings to Q4. The test results for each company can be seen in Table 1.

If the significance value is ≤ 0.05 , then accept H1. This value indicates the difference between cash holdings, which means that the company is doing window dressing. Based on Table 1, from the results of statistical using different paired T-tests, it was found that all companies practiced window dressing.

Table 2 Calculation of increasing cash holdings towards end of year

No	Company	Year	$CH_{it,1}$	$CH_{it,2}$	$CH_{it,3}$	$CH_{it,4}$	Average $CH_{it,Tw1-3}$	$WD_{it,4} = (CH_{it,4} - CH_{it,Avg1,3}) / (CH_{it,Avg1,3}) \times 100$
1	ADH	2015	7.3093	9.7797	8.8974	9.0790	8.6587	4.8533
		2016	7.4043	9.6214	9.1386	9.2994	8.7214	6.6274
		2017	7.4954	10.0538	9.2309	9.2429	8.9267	3.5425
2	DGI	2015	6.3387	8.0470	7.7406	7.3457	7.3754	-0.4033
		2016	6.2685	8.0543	7.3366	7.4598	7.2198	3.3247
		2017	6.1638	7.9848	7.8774	7.2804	7.3420	-0.8397
3	PTP	2015	7.5690	10.1219	9.1275	9.1901	8.9394	2.8039
		2016	7.5775	9.9873	9.2127	9.2188	8.9258	3.2821
		2017	7.7844	10.4106	9.3601	9.5085	9.1850	3.5215
4	SSI	2015	6.8815	8.5307	8.1617	7.8502	7.8580	-1.3792
		2016	6.7645	8.2978	8.1679	7.9560	7.7434	-0.6002
		2017	6.8836	8.6429	8.1990	8.0531	7.9085	1.8286
5	TOT	2015	6.7339	8.5450	8.0758	7.9505	7.7849	2.1272
		2016	6.8127	8.4314	7.7553	7.8804	7.6665	2.7905
		2017	6.7513	8.6571	7.9286	8.0393	7.7790	3.3459
6	WIK	2015	7.3799	9.6021	8.9261	9.0327	8.6360	4.5927
		2016	7.4569	9.4880	8.8593	9.2046	8.6014	7.0136
		2017	7.7465	10.0479	9.2955	9.3841	9.0300	3.9220
7	WSK	2015	7.3942	10.2138	9.3612	9.6288	8.9897	7.1087
		2016	7.8062	10.2459	9.4113	9.4690	9.1545	3.4363
		2017	8.0664	10.1491	9.8852	9.7291	9.3669	3.8669

4.2 Cash holdings test based on formula

This technique is carried out by calculating based on a formula which can know that an increase in cash holdings towards the end of the year reflects the behaviour of window dressing. The calculation results can be seen in Table 2.

From these results, it can be seen that the overall results of $WD_{it,4}$ of the construction and building sub-sector companies have positive results. The positive value of window dressing in the fourth quarter reflects an increase in cash holdings in every fourth quarter, which means that all companies practiced window dressing.

4.3 Calculation of stock performance

The company indicated that window dressing practices were based on positive values on the calculation of Sharpe performance and outperform results based on a comparison of return (RD) and IHSG market return rate (RP). In detail, the calculation can be seen in Table 3.

Table 3 Window dressing prediction based on stock performance

<i>Company</i>	<i>RVA</i>		<i>Return RD</i>	<i>RP</i>	<i>WD</i>	
<i>2015</i>						
ADH	−0.48428	neg	−0.04357	−0.00980	up	no
DGI	−0.26428	neg	−0.04528	−0.00980	up	no
PTP	−0.03717	neg	0.00287	−0.00980	op	no
SSI	−0.26297	neg	−0.03011	−0.00980	up	no
TOT	−0.46564	neg	−0.04649	−0.00980	up	no
WIK	−0.34091	neg	−0.02690	−0.00980	up	no
WSK	−0.34091	neg	−0.00008	−0.00980	op	no
<i>2016</i>						
ADH	−0.29308	neg	−0.02018	0.01230	up	no
DGI	0.08530	pos	0.01798	0.01230	op	yes
PTP	−0.08416	neg	−0.00032	0.01230	up	no
SSI	−0.41995	neg	−0.03242	0.01230	up	no
TOT	0.24964	pos	0.02956	0.01230	op	yes
WIK	−0.15642	neg	−0.01095	0.01230	up	no
WSK	0.48463	neg	0.03726	0.01230	op	no
<i>2017</i>						
ADH	−0.15048	neg	−0.00730	0.01550	up	no
DGI	−0.08049	neg	−0.01622	0.01550	up	no
PTP	−0.28792	neg	−0.02359	0.01550	up	no
SSI	−0.15390	neg	−0.01328	0.01550	up	no
TOT	−0.36784	neg	−0.01298	0.01550	up	no
WIK	−0.77949	neg	−0.04324	0.01550	up	no
WSK	−0.14040	neg	−0.00928	0.01550	up	no

Table 3 shows the prediction of window dressing practices based on stock performance was only detected in 2016, carried out by DGI and TOT companies. Furthermore, a comparative analysis of window dressing practices was carried out between calculations with cash holdings and stock performance which can be seen in table 4 by combining the possibility of the practice of windows dressing in the results of previous calculations using a different paired T-tests in Table 1, calculations using the formulas in Table 2, and calculation of stock performance in Table 3.

Table 4 Comparison of practice prediction of window dressing based on calculation of cash holdings and stock performance

<i>Comparison prediction of window dressing</i>			
<i>Company</i>	<i>Cash holdings</i>		<i>Stock performance</i>
	<i>Different paired T-test</i>	<i>Formula ($WD_{it,4}$)</i>	
ADH	66.67%	100%	0%
DGI	66.67%	33.3%	33.3%
PTP	66.67%	100%	0%
SSI	100%	66.67%	0%
TOT	66.67%	100%	33.3%
WIK	100%	100%	0%
WSK	100%	100%	0%

The results of testing using different paired T-tests show support for the first hypothesis. all companies there is the possibility of practicing window dressing. As well as results of calculations using formulas that supports the second hypothesis, all companies doing window dressing practices also. Different from the results of comparison of stock performance that does not support the third hypothesis. The data shows that almost all companies do not practice window dressing.

Relating to the risk management research results will help investors and financial managers to identify the possibility of an action that will cause risk. The test will also be a study material when the company will carry out risk mitigation. They can use accruals information as trading strategy to minimise their risk and maximise their return (Sulistiawan and Rudiawarni, 2017). An interesting finding from this research is different results when calculating based on cash holdings and stock performance. From this, the investor must make a decision which method to predict the practice of window dressing.

5 Conclusions

To be able to reduce investment risk, the company must be able to identify and understand all forms of risks that investors will face when investing their funds. Predicting the possibility of window dressing practice will help reduce investment risk. This research concludes two important things. First, the results of calculations using a different paired T-test and formulas on cash holdings shows that almost all construction and building companies in Indonesia practice window dressing technique. The second shows different results when calculating using stock performance, where only a small proportion of companies that practice window dressing.

Further research needs to be done, especially when using stock performance. Many factors affect the movement of a stock's value. The existing factors will certainly be different in each country so that the completeness of the variables to support further research will result in better research.

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