

Working Capital and Profitability Performance: Evidence from Indonesian Mining Companies Listed in the Indonesian Stock Exchange¹

Franky Mantiri² and Pak T. Lee³

²Asia-Pacific International University, Thailand; ³Pacific Adventist University, Papua New Guinea

Abstract

Financial data from the 10 biggest Indonesian mining companies listed on the Indonesian Stock Exchange (IDX), from the period of 2011 to 2015, were collected and analyzed. The purpose of this study was to establish the relationship among working capital components, including financial performance as measured by return on assets (ROA). The results of the study indicated that there are some weak positive correlations between working capital elements and profitability (return on assets), and some negative correlations between working capital elements and ROA. Overall, the correlations were weak and not significant.

Keywords: *Working capital management, working capital elements, cash conversion cycle, inventory turnover, average collection period, current ratio, return on assets, profitability.*

Background of Study

According to Valipour and Jamshidi (2012), the financial health of an organization is affected by the way its working capital is managed. They stated that the effectiveness of working capital management includes planning and controlling the current assets and debts by getting an optimal mix between these two elements.

During the downturn of the economy in the past decade, some giant companies collapsed due to causes that made executives wonder what the underlying issues really were. Some of the companies affected were General Motors, Lehmann Brothers, and Kodak. With their previous performance history, it is difficult to understand why they collapsed (Charitou, Lois, & Santoso, 2012). These authors further stated that the causes could be due to internal and external factors. Internal factors are more controllable, whereas external factors are less controllable. However, the efficient utilization of a firm's resources, as it relates to working capital management, shows that executives must find ways to manage cash availability more efficiently on a daily basis. According to Ilerisory (2015), the past market downturn was caused by poor management of business firms' liquidity; a similar reason was given by Charitou et al. (2012).

Some studies on working capital management have been conducted in Malaysia, India, Indonesia, Nigeria, and Bangladesh (Mohamad & Saad, 2010; Sarkar & Sarkar, 2013; Barine, 2012; Setiyaningsih, Rustiana, Jamilah, & Parewangi, 2014). They indicate that it is important for working capital management (current assets minus current liabilities) to be borne in mind when making financial decisions, as this enables a company's working capital to increase. This reduces the risk of the company not being able to pay its obligations. Although such moves negatively affect profitability, they also involve risks – return trade-off, and not taking additional risk unless it is compensated with additional returns. Research completed in Indonesia (Setiyaningsih et al., 2014) relating to working capital management in the banking industry also found that there was a strong relationship between working capital management and profitability. No study has been done on the topic of working capital management in the mining industry in Indonesia. The opportunity was taken in this study to find if there are any strong indications that working capital management and profitability parameters are significant in mining companies in Indonesia.

¹ Faculty of Business Administration. This paper was presented at the 2017 International Scholars' Conference, October 30-31, 2017, Asia-Pacific International University, Thailand

Research Problems

Poor management of assets and liabilities will lead to financial problems in companies, and eventually the stage will be reached when the day-to-day financial needs won't be able to be met (Barine, 2012; Charitou et al., 2012). On the other hand, effective and efficient working capital management will lead to maximum revenue collecting, according to Baidh (2013). Biery (2013) also stated that the proper managing of resources through working capital management, and proper control of their sales, inventory, and fixed assets, would generate more profit for the company. These factors are also related to the turnover of receivables and wise cash management. Good cash flow management will lead to a more profitable company (Platt, 2010). Furthermore, Biery (2013) indicated that many US companies increased their profits due to better management of their working capital and cash in 2013, and this trend is believed to be current. Further, Marr (2012) maintained that without proper working capital management, companies would be challenged to fund day-to-day operations activities.

Purpose of Study

The purpose of this study is to gather information about working capital and its components from the financial reports of the mining companies listed on the Indonesian Stock Exchange. It will then determine whether there is a relationship between working capital (WC) and its components: Cash Conversion Cycle (CCC), Inventory Turnover (IT), Average Collection Period (ACP), and Current Ratio (CR), and performance (profitability). The question this research attempts to address is this:

Is there a significant relationship between working capital (CCC, IT, ACP, and CR) and Indonesian mining company performance in terms of profitability (ROA)?

Review of Related Studies

Researchers have conducted many studies in various industries – and in different countries – to examine the relationship between working capital management and profitability. In this brief literature review, some of the research findings from different studies are presented.

Setiyaningsih et al. (2014) investigated working capital management and capital structure related to the Indonesian banking industry. They found that there was a significant positive effect on banking profitability following better management of working capital. Moreover, the greater the value of net working capital, the greater the profitability of the banking sector, which means that successful management of the elements of working capital led to higher performance results.

A study conducted by Mohamad and Saad (2010) in Malaysia found significant negative associations between working capital variables and firm performance. In their study, they explored the effect of working capital components such as cash conversion cycles (CCC), current ratio (CR), current asset to total asset ratio (CATAR), current liabilities to total asset ratio (CLTAR), and debt to asset ratio (DTAR) on a firm's performance. Performance was assessed by looking at the firm's value – in this instance, profitability, return on assets (ROA), and return on invested capital (ROIC).

Goel (2013) studied working capital management efficiency and firm profitability in the Indian retail industry. He found that good working capital management helped in efficient utilization of resources. The study related to sales, cash analysis, inventory analysis, and efficiency. The results suggested that proper management of working capital led to efficient use of company resources.

Zakaria and Amin (2013), studying Malaysian construction companies, found that working capital financial management was significantly related to firm profitability. Furthermore, construction firms with low cash conversion efficiency could adopt a few measures to unlock cash from working capital, such as differentiating between suppliers according to the risk, and the profit impact from implementing controls to prevent early payment, consolidation among fewer suppliers to increase negotiating power, and integrating spending approvals into purchases that would increase collection time. Therefore, monitoring of the working capital structure seemed to be important.

Sarkar and Sarkar (2013) investigated the impact of working capital management on corporate performance on selected public sector oil and gas companies in India. They concluded that

both positive and negative associations seemed related to elements of working capital management such as the quick ratio, current asset to sales ratio, and profitability. However, they suggested that management involvement and control of working capital components would have a significant impact and result in better performance.

Another study conducted by Rahman, Uddin and Ibrahim (2015) in Bangladesh concluded that a company's operating profit was positively correlated to working capital policies that contributed to efficient working capital management. Moreover, they suggested that financial executives should manage working capital by making trade-offs between profitability and liquidity.

Finally, Valipour and Jamshidi (2012) attempted to determine an optimal efficiency index of working capital management and its relationship with efficient management of assets in selected industries listed in the Tehran stock exchange. They concluded that there was a significant and positive relationship between the working capital management index score and efficient asset management in general among the firms studied. Therefore, changes that improve working capital management may also help improve the level of efficiency with which other assets are managed, not only in Iranian firms, but also in a more general sense as well.

Methodology

This study used a descriptive-correlation design that enabled identification of the financial aspects of the 10 biggest mining companies listed on the Indonesian stock exchange for the period of 2011 to 2015. Those elements studied were the levels of working capital (adequate cash flow) for each company and the efficiency of the individual current assets, including cash, receivables and inventory. Since it is so important for a company to evaluate its working capital and liquidity, whether ratios are positive or negative is significant. This indicator will determine the success of a company in terms of expansion prospects and improvement of its operations (White, Sondhi, & Fried, 1994; Marr, 2012).

The information gathered from the populations and samples used in this study was combined with the financial data from each company's website that contributed to their annual financial reports. The same data was compared and analyzed together with the assistance of analytical tools that are available in an Excel spreadsheet. Company information and financial data for the years from 2011 to 2015 were collected from the Indonesian Stock Exchange website and from each company's website that presented the annual report. These data were used to calculate the financial numbers and ratios used in this study.

Quantitative data analysis tools were applied by using statistical analysis tools in order to examine the working capital management performance of Indonesian Mining Companies, and to analyze the relationships between working capital (CCC, IT, ACP, and CR) management and profitability performance (ROA). Descriptive statistics were used to analyze the working capital performance of Indonesian Mining Companies.

Results

Working Capital of Indonesian Mining Companies and Their Components

Table 1 shows the average working capital of 10 mining companies that are listed on the Indonesian Stock Exchange for five years from 2011 to 2015. The table also shows the working capital components (CCC, IT, ACP, CR, WC), with Return on Assets (ROA) as the profitability ratio.

Table 1. Indonesian Mining Company Working Capital Components

Name of Company	Working Capital Components: Averages for Five Years (2011-2015)					
	CCC	IT	ACP	CR	WC	ROA
Adaro	1.34	37.71	38.438	1.81	553.40	5.15
Vale	68.19	5.25	33.5	3.62	450.80	5.73
Indo	18.57	12.57	21.722	1.99	390.60	21.00
Delta	68.15	17.23	87.13	1.63	188.20	(1.00)
Bayan	11.26	6.55	24.128	1.08	(34.60)	0.20
Medco	11.28	13.41	54.87	1.97	483.00	(0.37)
Harum	10.42	12.39	18.62	3.95	204.60	12.97
Golden	(5.10)	25.83	23.232	3.16	125.60	5.19
Baramulti	(4.10)	10.45	11.816	0.95	(5.40)	6.43
Aneka	89.20	3.11	36.052	2.96	396.24	3.57

* CCC = Cash Conversion Cycle, IT = Inventory Turnover, ACP = Average Collection Period, CR = Current Ratio, ROA = Return on Assets

Figure 1 shows the fluctuations in working capital figures among the 10 companies from 2011-2015.

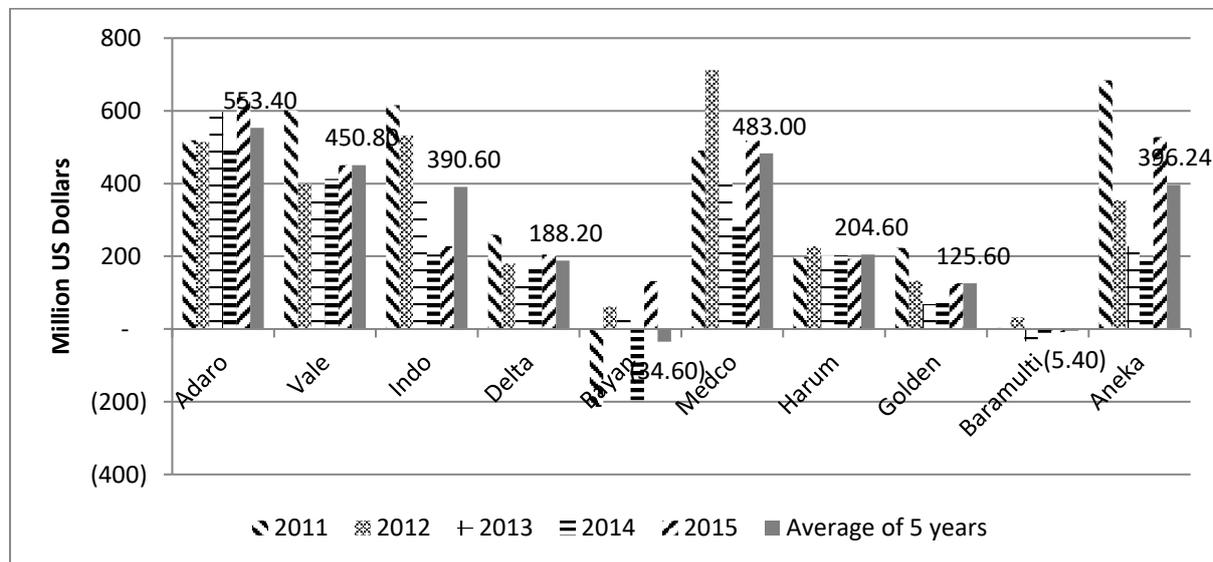


Figure 1. Indonesian Mining Company Working Capital Fluctuation

In the working capital for these companies, only Bayan and Baramulti showed negative amounts, which indicated an alarming situation. The rest showed positive average figures. Working capital (including CCC, IT, ACP, and CR) was significantly different among the various mining companies. The following graphs show the working capital components – consisting of CCC, IT, ACP, and CR – as well as ROA, for the 10 companies investigated in this study.

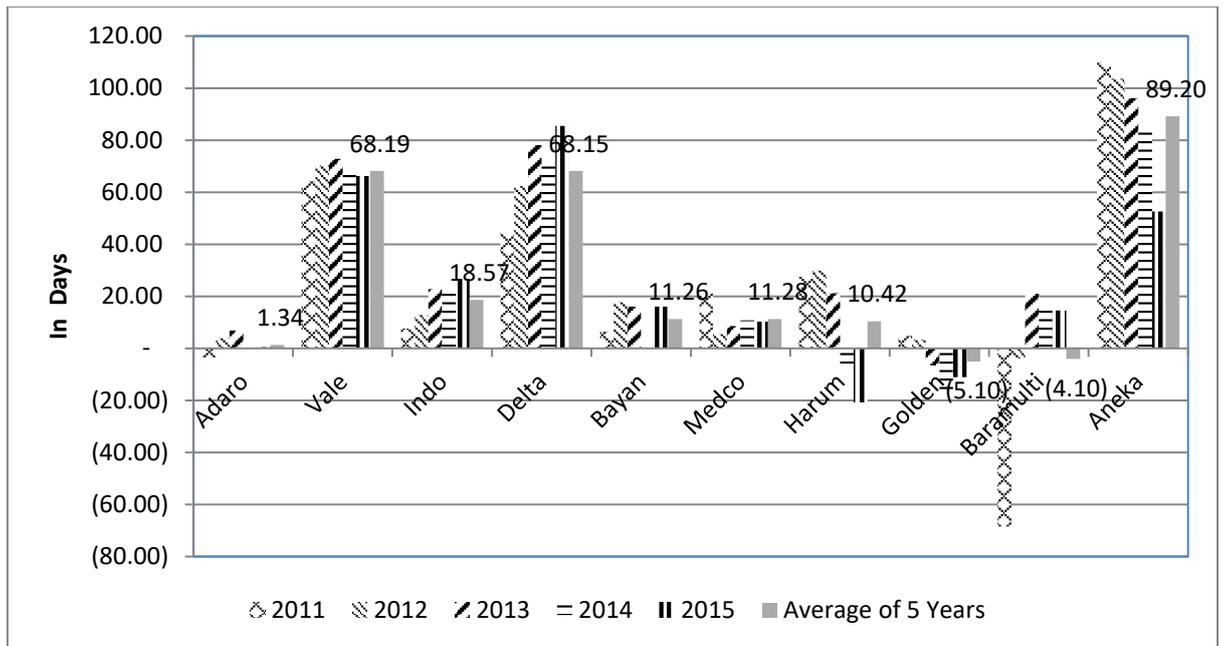


Figure 2. Indonesian Mining Company Cash Conversion Cycles

The graphs show clearly that the cash conversion cycle for each mining company was different. Seven of the 10 companies had average conversion cycles for the five-year period of less than 20 days, with Golden and Baramulti actually showing negative figures. This probably indicates that some of their sales were prepaid. This meant that they had a good level of ability to use their cash for other operational needs as required (Figure 3).

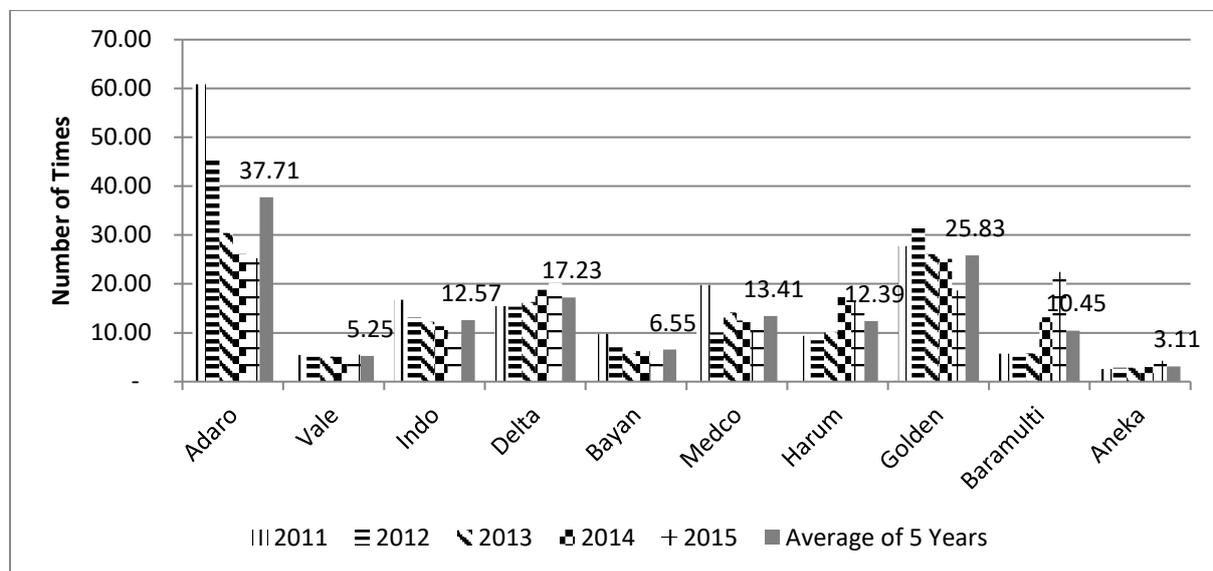


Figure 3. Indonesian Mining Company Inventory Turnover

The inventory turnover of each company showed differences as well as similarities. However, Vale, Bayan, and Aneka have the smallest numbers amongst the 10 companies, which meant they could convert and turn their inventory into receivables or cash faster than the other mining firms. In general, this means that these companies effectively manage their inventory, and their funds are not tied up in other balance sheet accounts. Rather, they are able to utilize cash when needed (Figure 4).

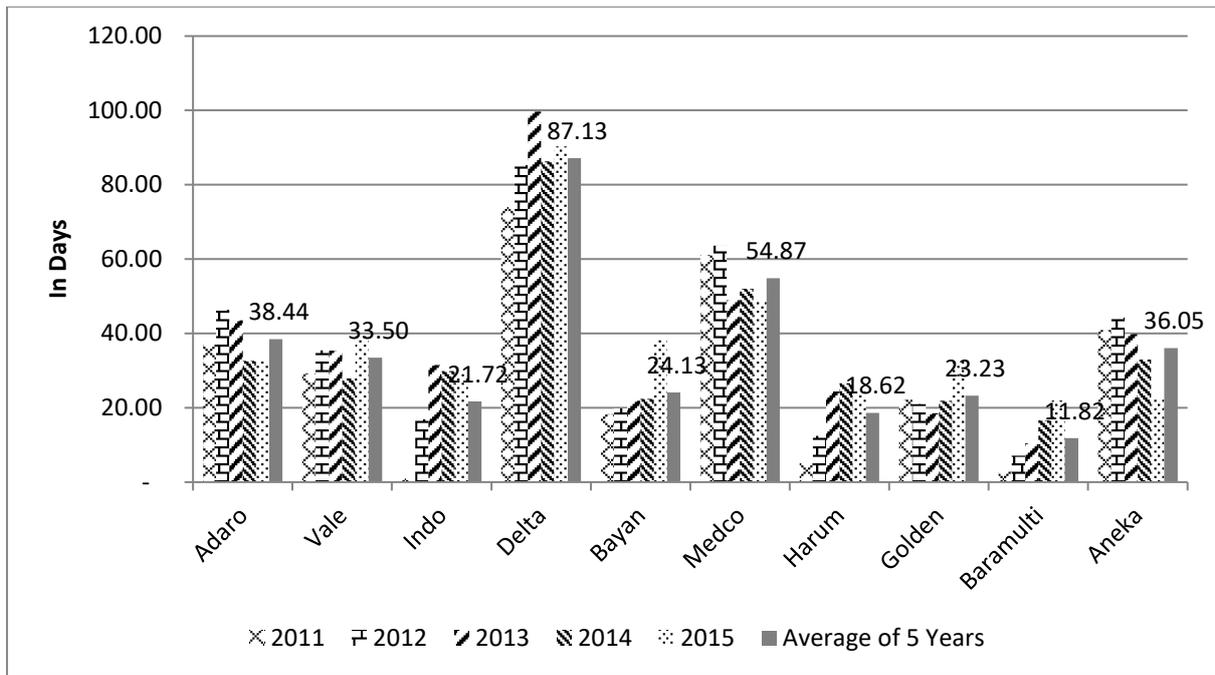


Figure 4. Indonesian Mining Company Average Collection Periods

The companies Delta, Medco, and Aneka needed the most time to collect their receivables. This meant they were facing difficulties in collecting their cash and receivables or, in other words, they are not so efficient in the collections from debtors and other entities or customers (Figure 5).

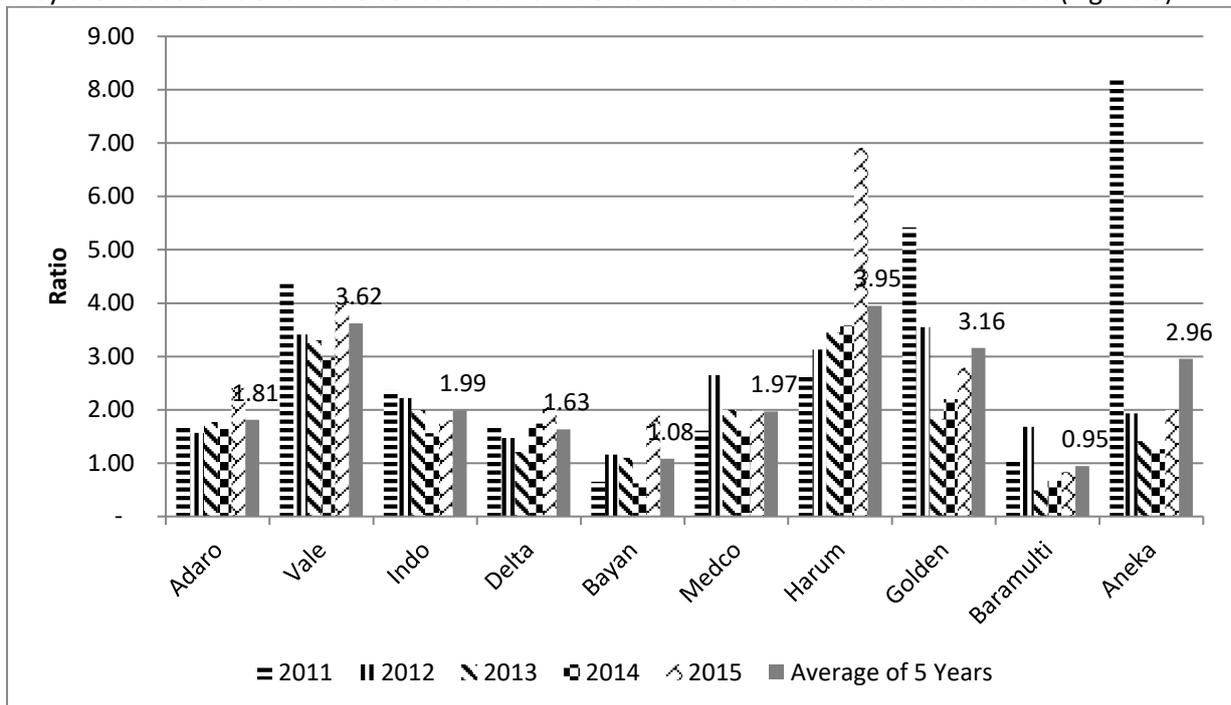


Figure 5. Indonesian Mining Company Current Ratios

The current ratio for each mining company was also different from year to year but all of them showed positive ratios, which meant that all were performing well in their financial position and had sufficient current assets when needed to pay off their current liabilities. The only significant differences involved Vale and Harum. They were companies that had higher current ratios than their competitors did, with five-year averages of 3.62 and 3.95 respectively. This meant that they had

more than third and a half times buffering capacity in their current assets to pay off all their current liabilities when needed in the course of normal operations (Figure 6).

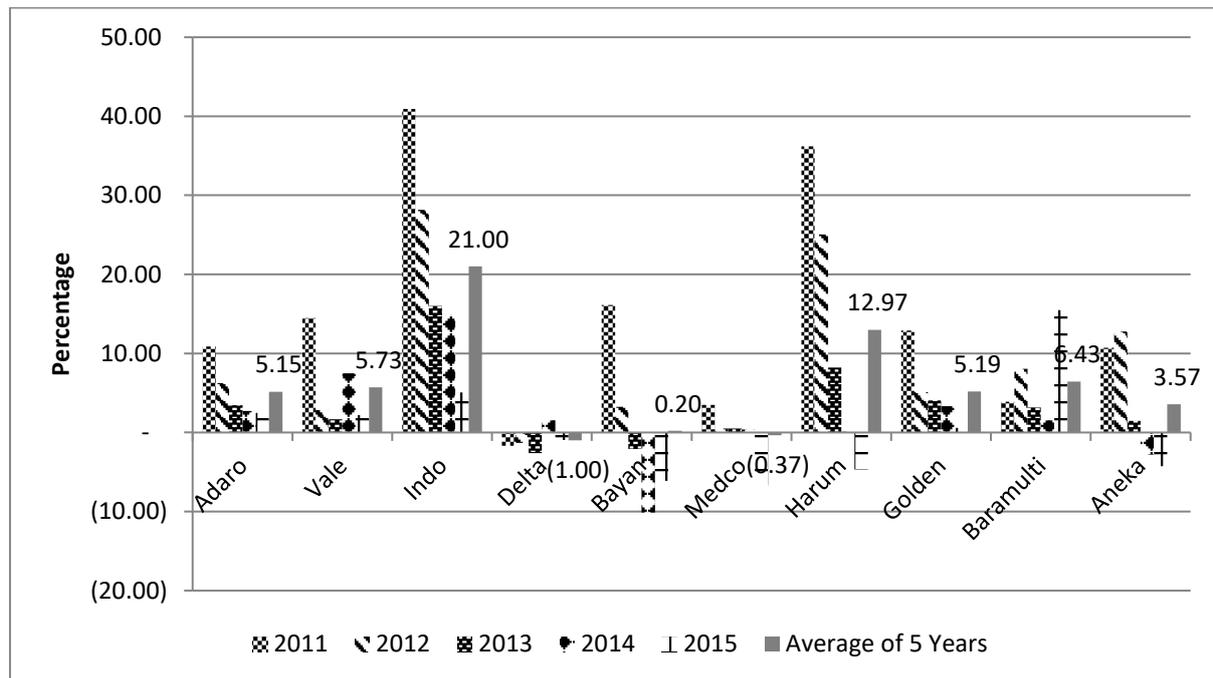


Figure 6. Indonesian Mining Company Returns on Assets

Relationship of Mining Companies’ Working Capital as a Whole and Profitability Performance

According to the analysis conducted using statistical analysis software tools, correlations between the working capital components and ROA did not show significant relationships, but only some weak positive correlations.

On the other hand, some components showed medium negative relationships. In Table 2, the average cash conversion cycle has a weak negative correlation with return on assets — 22.4%, and its p-value (Sig 2-tailed) was bigger than 0.05, which means that the correlation was not significant. When the cash conversion cycle increased, the return on assets decreased. Moreover, the average inventory turnover had a negative correlation of -1.6%, which meant there was no significant association with the profitability ratio. This was the same as for average working capital (WC). However, for the average ACP, there was a significant negative correlation of -56%, and the p-value was 0.09, which meant there was a significant negative correlation between the average collection period and profitability. The same applies to the average CR, although it had a 28.4% positive correlation, with a p-value of 0.427.

Table 2. Relationship between Working Capital as a Whole and Profitability

		Correlations				
		Average ROA	Average CCC	Average IT	Average ACP	Average CR
Average ROA	Pearson Correlation	1	-0.224	-0.016	-0.563	0.284
	Sig. (2-tailed)		0.534	0.964	0.090	0.427
	<i>N</i>	10	10	10	10	10
Average CCC	Pearson Correlation	-0.224	1	-0.498	0.496	0.290
	Sig. (2-tailed)	0.534		0.143	0.145	0.416
	<i>N</i>	10	10	10	10	10
Average IT	Pearson Correlation	-0.016	-0.498	1	0.150	-0.107
	Sig. (2-tailed)	0.964	0.143		0.680	0.768
	<i>N</i>	10	10	10	10	10
Average ACP	Pearson Correlation	-0.563	0.496	0.150	1	-0.159
	Sig. (2-tailed)	0.090	0.145	0.680		0.661
	<i>N</i>	10	10	10	10	10
Average CR	Pearson Correlation	0.284	0.290	-0.107	-0.159	1
	Sig. (2-tailed)	0.427	0.416	0.768	0.661	
	<i>N</i>	10	10	10	10	10

The other test applied was using regression analysis, where average ROA was the dependent variable against all other WC components. The results showed that correlations between the component of working capital and the profitability ratio had medium strength (R of 0.619, and R Square of 38.3%). Moreover, WC components and the ROA were not significantly correlated.

Discussion

Theoretical Implications

The average cash-conversion cycle of Indonesian mining companies included in this study showed differences ranging between -5.1 to 89.2 days. This meant that each mining company in Indonesia had its own way of managing its cash and converting its sales and receivables into liquid assets so that they could be used for operations. Moreover, together with the differences in cash conversion cycles, indications are that each company had financial resource differences, meaning that not all of them can be compared as a group. However, comparisons can be made between one or two mining companies that seem to be in the same or similar financial positions. In this study, Adaro, Golden, and Baramulti had the fastest – and sometimes even negative – average cash-conversion cycles, which means that some of these three companies' sales are probably prepaid.

The inventory turnover of each mining company in this study suggested that there are major differences among them, ranging from a minimum of 3.11 times to a maximum of 37.71 times. In this study, Adaro and Golden had the fastest inventory turnover, which means they were able to convert their receivables into cash quicker and better compared with the other mining companies.

The average collection periods for these 10 mining companies were different and did not show significant relationships. Most companies' collection periods were longer than one month, and

only two companies (Harum and Baramulti) had 5-year average collection periods of less than 20 days. This indicates that these companies were readily able to collect their receivables and unpaid sales from customers. With faster collections, these companies' cash positions would likely reflect higher liquidity, whereas companies that took longer to collect receivables would have weaker cash positions.

For the current ratio, only three companies had a position higher than 3.0, which meant these companies were in a strong position in terms of cash and liquidity. They could pay all their liabilities when needed, because they had three times as much money in current assets than in current liabilities. These companies were Vale, Harum, and Golden, while the other seven companies were not as good as these three companies in terms of liquidity.

Regarding the working capital amount, there were variations among all the 10 Indonesian mining companies. However, three companies had high levels of working capital; they were Adaro, Vale and Medco. These companies had similar amounts of working capital; the average range was more than 400 million US dollars.

In terms of profitability or Return on Assets, there were also differences among the mining companies in this study. However, only two companies had on average better figures — 21.00% and 12.97% — representing Indo and Harum, respectively. The high ROA percentages indicate that these companies managed their finances efficiently, although this may not always be a correct deduction, as other elements may need to be considered.

Sarkar and Sarkar (2013) indicated that both negative and positive relationships exist between working capital elements and a company's profitability. The conclusion reached depends on the type of ownership (private/public or government), company size, and the financial structure of each company.

Conclusion

Each of the 10 mining companies listed on the Indonesian Stock Exchange had their own financial key performance indicators, financial structure, and behavior. The findings suggested that there were positive but weak correlations between working capital elements and the profitability ratio (ROA), as well as some negative correlations. Moreover, the negative correlations were somewhat stronger than the positive correlations. This suggests that profitability was not dependent on working capital elements such as cash conversion cycle, inventory turnover, average collection period, and current ratio. The study showed that profitability, on the other hand, had a medium negative correlation to the average collection period, which means that when the collection period increases, the return on asset percentage will go down. This indicates that among the 10 Indonesian mining companies, the relationships between working capital and profitability are weak.

Company size and type of ownership were not analysed; only the working capital elements and their relationship with a company's profitability.

Suggestions for Further Research

Further studies in this field can be conducted to find the relationships between working capital management and profitability of mining companies. Especially in Indonesia, this type of study has had very little or even no attention focused on specific areas. Furthermore, studies could be conducted related to company size, financial structure, owner structure, or the element of government or non-government ownership of a company. All these could be a good basis for further study of the mining industry. Additional information would benefit government or private organizations.

References

- Baidh, M. (2013). Effects of working capital management on profitability of companies. *Anusandhanika*, 5(1), 247–251. Retrieved from <https://search.proquest.com/docview/1650906631?accountid=39909>
- Barine, M. (2012). Working capital management efficiency and corporate profitability: Evidences from quoted firms in Nigeria. *Journal of Applied Finance and Banking*, 2(2), 215–237. Retrieved from <http://search.proquest.com/docview/1321674112?accountid=39909>
- Biery, M. (2013, April 12). Businesses seeking working capital—survey. Forbes.com. Retrieved from: <http://www.forbes.com/sites/sageworks/2013/04/12/businesses-seeking-working-capital-survey/#6376322c1a78>
- Charitou, M., Lois, P., & Santoso, H. (2012). The relationship between working capital management and firm's profitability: An empirical investigation for an emerging Asian country. *International Business & Economics Research Journal*, 11(8), 839. Retrieved from <https://search.proquest.com/docview/1418719094?accountid=39909>
- Goel, S. (2013). Working capital management efficiency and firm profitability: A study of Indian retail industry. *South Asian Journal of Management*, 20(3), 104–121. Retrieved from <http://search.proquest.com/docview/1450595360?accountid=39909>
- Ilerisoy, M. (2015). *Essays on liquidity risk, credit market contagion, and corporate cash holdings* (Order No. 3726920). (Doctoral dissertation, University of Iowa). Retrieved from ProQuest Dissertations & Theses Global (UMI No. 1733644550).
- Marr, B. (2012). *Key performance indicators: The 75 measures every manager needs to know*. London: Pearson.
- Mohamad, N., & Saad, N. (2010). Working capital management: The effect of market valuation and profitability in Malaysia. *International Journal of Business and Management*, 5(11). Retrieved from <http://www.ccsenet.org/journal/index.php/ijbm/article/view/8066/6095>
- Platt, H. (2010). *Lead with cash: Cash flow for corporate renewal*. London, UK: Imperial College Press.
- Rahman, M., Uddin, M., & Ibrahim, S. (2015). Measuring the relationship between working capital management and profitability: Empirical evidence from Bangladesh. *Journal of Accounting and Finance*, 15(8), 120–132. Retrieved from <http://search.proquest.com/docview/1766293217?accountid=39909>
- Sarkar, C., & Sarkar, A. (2013). Impact of working capital management on corporate performance: An empirical analysis of selected public sector oil & gas companies in India. *International Journal of Financial Management*, 3(2), 17–28. Retrieved from <http://search.proquest.com/docview/1478012855?accountid=39909>
- Setiyaningsih, T., Rustiana, S., Jamilah, S., & Parewangi, A. (2014). Optimization of profitability through working capital management and capital structure: Evidence from Indonesian banking industry. St. Louis: Federal Reserve Bank of St Louis. Retrieved from <https://search.proquest.com/docview/1698362593?accountid=39909>
- Valipour, H., & Jamshidi, A. (2012). Determining the optimal efficiency index of working capital management and its relationship with efficiency of assets in categorized industries: Evidence from Tehran stock exchange (TSE). *Advances in Management and Applied Economics*, 2(2), 191–209. Retrieved from <https://search.proquest.com/docview/1021053486?accountid=39909>
- White, G., Sondhi, A., & Fried, D. (1994). *The analysis and use of financial statements*. New York, NY: John Wiley & Sons, Inc.
- Zakaria, N., & Amin, J. (2013). Working capital financing and management in Malaysian construction companies. *Journal of Current Issues in Finance, Business and Economics*, 6(2), 287–298. Retrieved from <http://search.proquest.com/docview/1626693082?accountid=39909>