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LIQUIDITY-PROFITABILITY TRADE-OFF: IS IT EVIDENT AMONG MALAYSIAN SMEs?

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ABSTRACT

The purpose of this study is to empirically examine the relationship between liquidity and profitability on a sample of small and medium-sized enterprises (SMEs) in the Malaysian manufacturing sector. Using the nonparametric Spearman rank correlation coefficient analysis, the result reveals that there is a moderate positive association between liquidity and profitability. This suggests that profitable firms tend to maintain higher liquidity levels. The same test is again employed to establish the association between liquidity and size of firms. The result indicates a weak positive correlation between the two variables, signifying that larger small firms tend to maintain higher liquidity levels. Finally, the Kruskal-Wallis test statistic was applied to investigate whether or not different industry sectors had different levels of liquidity. The outcome confirms that different industry sectors do have different degrees of liquidity.

ABSTRAK

Kajian ini bertujuan untuk menguji secara empirik hubungan antara kecairan dengan keberuntungan bagi satu sampel perniagaan kecil dan sederhana (PKS) dalam sektor pengeluaran di Malaysia. Dengan menggunakan analisis pekali korelasi pangkat Spearman, keputusan menunjukkan wujudnya hubungan positif yang sederhana antara kecairan dengan keberuntungan. Keputusan ini menunjukkan firma-firma yang membuat keuntungan lebih cenderung untuk mempunyai tahap kecairan yang lebih tinggi. Kaedah yang sama turut digunakan bagi menilai hubungan antara kecairan dengan saiz firma. Keputusan yang diperoleh menunjukkan wujudnya korelasi positif yang lemah antara kedua-dua pemboleh ubah tersebut, dan ini sekali gus memberi isyarat bahawa firma yang kecil lebih cenderung untuk mengekalkan tahap kecairan yang lebih tinggi. Akhir sekali, statistik ujian Kruskal-Wallis digunakan bagi

menyelidiki sama ada sektor industri yang berbeza mempunyai tahap kecairan yang berbeza. Hasil ujian ini mengesahkan bahawa sektor industri yang berbeza mempunyai tahap kecairan yang berlainan.

INTRODUCTION

In a hypothetical world with perfect capital market, liquidity is of no concern to a firm as it would always be able to obtain required funds at no cost. Accordingly, investors would be indifferent to the level of a firm's liquidity, and it therefore would not matter in financial decision making (Walker & Petty, 1986). However, actual real-life scenario is different. The real world is not perfect, and some of these imperfections incur costs that could have been avoided if firms were to hold liquid reserves (Deloof, 2001). Hill and Sartoris (1995) provided three reasons that sufficient liquidity would enhance the value of a firm: it is able to avoid emergency adjustments in operations; it is able to take advantage of opportunities that create value for shareholders; and, it has more flexible financing alternatives and thus can obtain financing at a lower cost. In addition, the liquidity level of a firm is of interest to creditors because it indicates the degree to which the firm's currently maturing obligations are covered by currently maturing assets (Smith & Begemann, 1997).

Maintaining sufficient liquidity means that funds are tied up in liquid assets, thereby making them unavailable for use either for operation or investment activities that could have earned better returns. Hence, there is an opportunity cost to maintaining liquid resources. This may, in turn, affect the overall profitability of the firm. That is to say, giving total attention to liquidity may reduce the potential profitability of the firm, and conversely, concentrating entirely on effort in maximising profitability would tend to minimise the chances of adequate liquidity. The importance of the trade-off between the dual goals of working capital management, i.e. liquidity and profitability, was highlighted by Smith (1980). The way in which working capital is managed can have a significant impact on both the liquidity and profitability of the firm.

Efficient working capital management would seek to strike a balance between having too high and too low little liquidity, to achieve an optimal level. Firm liquidity should be neither excessive nor inadequate. Excessive liquidity implies accumulation of idle funds that do not earn any profit for the firm, and insufficient liquidity not only affects the firm's ability to pay its current debts, but may also result in deteriorating credit standing and a potential forced liquidation of

assets. Subsequently, insolvency and bankruptcy may occur. To put it briefly, a firm cannot survive without liquidity. While a firm not making profit may be considered as sick, one having no liquidity may soon cease to exist.

Literature on liquidity and working capital management in the Malaysian context is barely available, particularly on smaller firms. Publicly available financial information on SMEs is scarce, and if there is any, the data is often incomplete and the quality questionable. Research on larger firms, especially those with shares traded on the local stock market, is more feasible as financial records on companies listed on the stock exchange are made available to the public. Nevertheless, except for a few like Regupathi and Zainudin (2003), most research done on large firms focus on the other areas of corporate finance and investment. Short-term financial management has been considered relatively unimportant and virtually ignored by researchers despite the known fact that the management of working capital occupies the largest portion of a financial manager's time. Since many aspects of short-term financial management are unexplored, especially in Malaysia, research in the local context is both timely and meaningful.

Research Questions

In broad terms, this study has attempted to provide some empirical evidence about the relationship between liquidity and profitability of small and medium-sized enterprises in the manufacturing sector, and the influence of firm size and type of industry on liquidity. In particular, this study was undertaken to address the following research questions:

- Is there any relationship between liquidity and profitability?
- Is liquidity related to company size?
- Do different industry sectors have different levels of liquidity?

LITERATURE REVIEW

Liquidity is defined by the relative ease, cost, and speed with which an asset can be converted into cash (Bodie & Merton, 2000). The objective of liquidity management, in the words of Gallinger and Healey (1991), is "to provide for adequate availability and safekeeping of corporate funds under varied economic conditions in order to help achieve the desired corporate objective of shareholder wealth maximisation". Then again, what level of liquidity would be considered adequate? Several earlier studies concentrated on determining the

optimal liquidity level management. Baumol's inventory management model and Miller-Orr's model are some of the products of research related to liquidity done in the middle of the last century. More recent ones examined the determinants and implications of holding liquid reserves (Almeida, Campello & Weisbach, 2002; Deloof, 2001; Dittmar, Mahrt-Smith, & Servaes, 2003; Opler, Pinkowits, Stulz & Williamson, 1999).

Other related research efforts focused on the measures of liquidity. Over the years, employing traditional ratios is common among researchers in measurement of corporate liquidity (Lambersan, 1995; Moss & Stine, 1989). In the development of the Z-score model, Altman (1968) used the working capital to total assets ratio as one of the variables used in the discriminant function. Essentially, he claimed that this ratio proved to be the most valuable compared to the other two conventional liquidity measures (namely, the current ratio and the quick ratio) as it showed greater statistical significance both on a univariate and multivariate basis. However, as measures of liquidity, these conventional ratios have come under criticism for various reasons. The static nature of these ratios makes them inadequate in measuring and estimating the future cash flows which essentially determine the liquidity position of a firm. In addition, these balance sheet liquidity ratios tend to be more agreeable to the liquidation concept rather than the going-concern concept (Emery, 1984; Kamath, 1989).

The weaknesses of traditional liquidity ratios have led researchers to develop alternative measures that would minimise their deficiencies (Gentry, Vaidyanathan, & Lee, 1990; Gitman, 1974; Richards & Laughlin, 1980; Skomp & Edwards, 1978). Some of these measures, for example the cash conversion cycle, net trade cycle, liquidity index and net liquid balance have been employed in more recent studies (Eljelly, 2004; Shin & Soenen, 1998; Shin & Soenen, 2000; Smith & Begemann, 1997; Wang, 2002). While some use these alternative measures as a replacement, others use them to supplement the traditional ratios.

A number of studies linking liquidity to profitability provide inconsistent results. Smith and Begemann (1997), in their study on industrial firms listed on the Johannesburg Stock Exchange, used multiple liquidity measures including both the traditional and the alternative approaches. Their results showed that the working capital leverage ratio displayed high associations with return on investment, the current and quick ratios registered insignificant association, while the comprehensive liquidity index indicated significant associations with return on investment. Shin and Soenen (2000) used the net trade

cycle as a liquidity measure and found that there is a strong negative association between liquidity and profitability. Wang (2002) examined the relationship between liquidity management and operating performance in Japan and Taiwan, and the results showed that the relationship is significantly negative implying that lower liquidity (measured by cash conversion cycle) corresponds with better operating performance. More recently, Eljelly (2004) examined the relationship between profitability and liquidity and found a significant negative relation between the two. The sample comprised joint stock companies that are publicly traded in Saudi Arabia.

In their study on liquidity characteristics of small and large manufacturing firms, Moss and Stine (1989) found that liquidity decreases as firm size becomes larger. Their findings also indicated that the difference in the average measures of liquidity between small and large firms was statistically significant.

Although review of the literature revealed a growing number of studies on the issues of liquidity and working capital management, very little published research was related to small business. One of the reasons for the lack of research interest on small firms - very true in the case of Malaysia - is the difficulty in obtaining information especially pertaining to financial facts and figures.

DATA AND METHODOLOGY

The population frame of this study is a directory provided by Small and Medium Industries Development Corporation (SMIDEC), comprising small and medium-sized manufacturing companies registered with the Companies Commission of Malaysia (CCM) under the Companies Act 1965. This list categorises the companies based on their manufacturing activities. This study used the data extracted from the annual financial statements, from 1999 to 2003, of 145 SMEs in the manufacturing sector. While the sample firms were extracted from the SMIDEC directory, their annual financial statements were obtained from CCM. The former is a specialised government agency that was established to further promote the development of small and medium industries in the manufacturing sector through the provision of advisory services, fiscal and financial assistance, infrastructural facilities, market access, and other support programmes. The latter entity is an autonomous body that functions as a one-stop centre for corporate information, regulation, and development of a conducive business environment.

The main drawback of using the CCM data is that it is very basic and not detailed. Although Section 167 of the Companies Act 1965 requires accounting records to be filed to, and kept by the CCM, it does not insist on elaborate financial statements. Hence, it is not uncommon to find the current asset figures were not broken down separately into stocks, receivables and cash accounts. Nevertheless, the CCM data is the most comprehensive source that is publicly available in Malaysia. Consequently, the liquidity measures that can be used in this study are rather limited.

The liquidity of the sampled business entities was measured in terms of the current ratio and the working capital to total assets ratio. Defined as current assets divided by current liabilities, the current ratio is regarded as a broad measure of liquidity that indicates the degree of coverage that short-term creditors would have if current assets were liquidated to pay off the current liabilities. The working capital to total assets ratio is a measure of the net liquid assets of the firm relative to the total capitalisation. Expressed as net working capital (the difference between current assets and current liabilities) divided by total assets, the working capital to total assets ratio has explicitly considered liquidity and size characteristics (Altman, 1968). Criticism of these two ratios in ascertaining firm liquidity generally has to do with its static nature. While the attempts to overcome such weaknesses are of potential benefit, they are not feasible for a researcher with limited data.

In this study, profitability is measured by profit before tax divided by operating revenue. Profit before tax is used instead of profit after tax because the former reflects the true profitability generated from the business compared to the latter. Some of the SMEs qualify for certain tax incentives given by the government to encourage the development of small and medium industries. Tax reduction, tax exemption, or tax credit enjoyed by these firms might overstate their actual performance if after-tax profit is used. Operating revenue is utilised as the denominator of the ratio representing profitability because the authors feel that the turnover or net sales figures also include revenues earned through other non-operating sources. Moreover, it was found that most sampled firms recorded operating revenue instead of turnover or sales in their financial statements submitted to the CCM.

Many previous studies used total assets and/or sales to represent the size of a firm (Eljelly, 2004; Moss & Stine, 1989; Regupathi & Zainudin, 2003). Although the market value of equity could also be a proxy to represent size, the author feels that the figure is less stable in the current market condition. Moreover, unlike larger firms with shares that are

traded in the stock exchange, the value of equity for small firms could not be easily determined. Eljelly (2004) observed that there exists a strong highly positive correlation between total assets and sales which show that they are substitute measures of size. In this study, the size of firm is measured in terms of total assets instead of sales since the data on the latter is not complete.

Initially, descriptive statistics were used to describe the variables. The distributions of the variables representing the liquidity, profitability, and size of the sample firms are highly skewed as indicated by the skewness statistics and kurtosis statistics presented in Table 1. As the number of variables is less than 2000, the Shapiro-Wilk test was used to test the normality of the distribution. The Shapiro-Wilk statistics, shown in Table 2, were found to be statistically significant, signifying that the current ratio, the working capital to total assets ratio, the profit, and the total assets were not normally distributed.

Table 1
Skewness and Kurtosis Statistics of Variables

Variables	Skewness statistics	Kurtosis statistics
Current ratio	6.651	49.537
Working capital to total assets ratio	-2.019	10.183
Profitability	-17.935	329.045
Total assets	3.016	12.173

Table 2
Test of Normality

Variables	Shapiro-Wilk		
	Statistic	df	Sig.
Current ratio	.322	342	.000
Working capital to total assets ratio	.868	342	.000
Profitability	.048	342	.000
Total assets	.649	342	.000

As the variables are not normally distributed, non-parametric statistics had to be used to address the research questions. Firstly, to establish the relationship between liquidity and profitability, the Spearman rank correlation coefficient was utilised. Secondly, to examine whether or not liquidity is related to size, the Spearman rank correlation is again used. Finally, to observe whether or not different industry sectors had different levels of liquidity, the Kruskal-Wallis test statistic was applied.

FINDINGS

Table 3 shows the results of the non-parametric Spearman rank correlation coefficient between the liquidity and profitability variables. It can be observed that the statistic is significant, indicating that there is a moderate positive association between both measures of liquidity and profitability. This means that more successful firms tend to have a higher level of liquidity. Surprisingly, this contradicts the axiom of inverse relationship between liquidity and profitability found in many other studies.

Table 3
Spearman Rank Correlation Coefficient between Liquidity and Profitability

Variables		Current ratio	Working capital to total assets ratio	Profitability
Current ratio	Corr. coefficient	1.000	.977(**)	.408(**)
	Sig. (2-tailed)	.	.000	.000
	N	693	693	342
Working capital to total assets ratio	Corr. coefficient		1.000	.401(**)
	Sig. (2-tailed)		.	.000
	N		693	342
Profitability	Corr. coefficient			1.000
	Sig. (2-tailed)			.
	N			342

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

Table 4 shows the results of the non-parametric Spearman rank correlation coefficient between liquidity and company size. It was found that there is a weak positive association but it is still statistically significant. This indicates that the larger the size of these SMEs, the higher is their liquidity levels. This also contrasts with the work of Eljelly (2004) that found larger companies tend to maintain lower liquidity levels.

Table 4
Spearman Rank Correlation Coefficient between Liquidity and Size

Variables		Current ratio	Working capital to total assets ratio	Total assets
Current ratio	Corr. coefficient	1.000	.977(**)	.194(**)
	Sig. (2-tailed)	.	.000	.000
	N	693	693	693
Working capital to total assets ratio	Corr. coefficient		1.000	.178(**)
	Sig. (2-tailed)		.	.000
	N	693	693	693
Total assets	Corr. coefficient			1.000
	Sig. (2-tailed)			.
	N			693

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

Table 5 shows the breakdown of the 145 SMEs the study had involved, by industry sector. The industry grouping is based on the classification adopted by SMIDEC. As can be seen from the table, firms from the machinery and engineering, and metal products industry constituted the bulk of the number of firms in this study.

Table 5
Industry Distribution

Industry Sector	Number of Firms
Food, Beverage and Tobacco	10
Machinery and Engineering	33
Chemical and Petrochemical Products	5
Paper and Printing	4
Plastic Products	9
Electric and Electronics inc. Telecommunication	11
Textile, Apparels, and Leather	5
Rubber Products	9
Transport Equipment	5
Pharmaceuticals	2
Non-Metallic Mineral Products	4
Wood and Wood Products	8
Palm Oil-Based Products	1
Metal Products	39
Total	145

To test whether or not the liquidity levels are different for different industry sectors, the Kruskal-Wallis test was used. However, when the number of groups is large, the likelihood of the groups being different to each other is almost certain. Hence, to draw a more meaningful conclusion, the 14 industry sectors were regrouped into four groups. They are regrouped based on similar characteristics that are common among the different industries. Group 1 comprised Food, Beverage and Tobacco; Electric and Electronics including Telecommunication; Textile, Apparels and Leather; and Pharmaceuticals. They are put together because the products are basically consumer goods. Group 2 included Metal Products, Machinery and Engineering; Non-Metallic Mineral Products; and Transport Equipment – all of which are considered as heavy industry with products mainly for industrial use. Group 3 consisted of Rubber Products; Palm Oil-Based Products; Chemical and Petrochemical Products; and Plastic Products – the chemical-based group. Finally, Wood and Wood Products; and Paper and Printing are the components of Group 4, which are the wood-based group.

Table 6 shows the results of the Kruskal-Wallis test. The statistic is significant, indicating that the liquidity levels for the four groups of

industries were indeed different, with Group 1 having the highest mean rank indicating the highest liquidity level, followed by Group 2, Group 4, and Group 3 with the lowest mean rank being the least liquid. The liquidity ranking seems to concur with the median of each group. These findings indicate that, for both measures, the liquidity levels are highest in Group 1, followed by Group 2, Group 4, and Group 3. Here, the median is preferred rather than the mean because the latter is less representative of the central tendency value of liquidity given a very skewed distribution of the liquidity variables.

Table 6
Kruskal-Wallis Test Results

Liquidity Variables	Group	N	Median	Mean Rank
Current ratio	1	134	1.0543	394.41
	2	386	0.9719	356.36
	4	57	0.8413	311.18
	3	116	0.7523	278.69
	Total	693		
Working capital to total assets ratio	1	134	0.0266	391.85
	2	386	-0.0166	356.87
	4	57	-0.0977	310.47
	3	116	-0.1597	280.28
	Total	693		

	Current ratio	Working capital to total assets ratio
Kruskal-Wallis Chi-Square	23.690	22.444
Degree of freedom	3	3
Asymptotic significance	.000	.000

CONCLUSION

The analysis revealed that there is a statistically significant moderate positive association between liquidity and profitability of Malaysian SMEs in the manufacturing sector. The correlation, computed by using the Spearman rank correlation coefficient, displayed a moderate positive association. This result implied that firms with higher liquidity tend to make better profit. Interestingly, the result does not exhibit the expected negative association.

The same statistical test was made in establishing the relationship between liquidity and firm size. The result of the test indicated that there is a weak positive association, though still statistically significant. The result shows that the larger SMEs maintain a higher level of liquidity. Finally, the Kruskal-Wallis statistical test confirms that the level of liquidity maintained by the different groups of industry are different.

This exploratory study has focused on the liquidity of the SMEs merely using traditional measures of liquidity, specifically the current ratio and the working capital to total assets ratio. The unavailability of detailed financial data limited the use of more contemporary liquidity measures, thereby increasing the likelihood of presenting less precise findings. Unless this deficiency is rectified, research on small business finance in Malaysia will remain stagnant. With better access to SMEs' financial data, further research in small business financial management could be enhanced.

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