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Practices and Stability of Working Capital Investment and Financing Policies: Evidence from Malaysia Public Listed Companies

Mohamad Shahril Ishak[1], Noryati Ahmad[2*], Fahmi Abdul Rahim[3]

[1]Faculty of Business and Management, Perak Branch Campus, Universiti Teknologi MARA Perak, Malaysia
[2]Arshad Ayub Graduate Business School, Universiti Teknologi MARA 40450 Shah Alam, Selangor, Malaysia
[3]Faculty of Business and Management, Bandar Melaka Branch Campus, Universiti Teknologi MARA Bandar Melaka, Malaysia

* Corresponding author e-mail: noryatia@uitm.edu.my

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ABSTRACT

Working capital management is related to the operating activities of a company and therefore is one of the most significant decisions that managers need to make. Despite the important function of working capital management, this area has been very scantily researched. Aggressive or conservative working capital investment and financing policies imply the liquidity position of the company that could affect its operating profit. Not much is known about the working capital management practices among Malaysian companies. Hence, this study takes the task of investigating the trend and practices of working capital management policies of the Malaysian public listed in seven industry sectors. The industry sectors involved are industrial products, trading and services, consumer, properties, construction, plantation and technology. A total of 573 companies are involved in covering the period from 2001 until 2017. Using one-way ANOVA analysis, mean difference t-test and rank correlation test several findings were discovered. The practices of working capital investment policy (WCIP) for most industry sectors are consistently being applied throughout the study period instead of implementing the working capital financing policy (WCFP). Furthermore, the industry means ratio differences of WCIP and WCFP are statistically

significant in most industry sectors studied even though the results of WCFP are mostly negative. This connotes a distinct difference in the asset management and financing policies between industry sectors. Lastly, the insignificant statistically negative results of the rank coefficient of correlation test provides inconclusive evidence if the conservative (aggressive) WCIP pursued is accompanied by the aggressive (conservative) WCFP.

Keywords: *working capital management, conservative working capital investment policy, aggressive working capital financing policy*

INTRODUCTION

Working capital is measured as the difference between current assets and current liabilities and represents a company's operating liquidity. Working capital management (WCM) policy discussed on how a company manages its current assets and current liabilities. Essentially, the main element of current assets are cash in hand; cash in the bank, inventories, accounts receivable, prepayments and short-term marketable securities. Current assets are considered liquid as they can be converted into cash in a relatively short time (normally a year). Conversely, current liabilities are short term business obligations that are due within a year and are commonly comprised of accounts payable, short-term loans, accrued expenses, and an overdraft. The manager needs to make very pertinent WCM policy decisions; that is how much investment (in current assets) to be made in its working capital and how should the working capital be financed (through current liabilities).

A company's working capital policy depends on two things: the level of current assets and the financing of current assets (Srivastava and Misra, 2008). An aggressive working capital policy is classified as a company that keeps a low level of current assets and a high level of short-term sources of financing. If a company has a high level of current assets and low level of short-term financing but instead uses long-term sources for financing its current assets is said to be practising a conservative working capital policy. Failing to optimise these two policies could lead to a company facing profitability, liquidity, or efficiency problems. Efficient WCM ensures that companies have sufficient cash flow to operate its daily operations

(Mansoori and Muhammad, 2012). If the company is not able to honour its short-term financial obligations, it will partly contribute to financial distress (Panigrahi, 2014) that could lead the business into bankruptcy (Salawu & Alao, 2014). Therefore, the knowledge on the impact of WCM appears to be very important for businesses to prosper (Vaicondam, Anuar, & Ramakrishnan, 2015).

Weinraub and Visscher (1998) defined working capital policies as either aggressive or conservative. An aggressive WCM policy maintains a lower level of current assets in comparison to long-term investment or assets and has a high level of current liabilities to finance its current assets (or sometimes even fixed assets). In contrast, conservative WCM policies use high-level current assets and low-level current liabilities. Researches by Afza and Nazir (2007), Salawu and Awolowo (2007), Al-Shubiri (2011), Islam and Mili (2012), Panigrahi (2014), Pais and Gama (2015), Sohail, Rasul and Fatima (2016), Rosyeni (2017) have investigated the aggressive and conservative WCM policies on the performance of the company. In most cases, these authors found, aggressive working capital policies are related to higher profitability but at the same time put the company at higher risk (of insolvency). Whereas the WC with conservative policy comes with low risk of profitability (Brigham, Ehrhardt, Gessaroli & Nason, 2011).

Dong and Su (2010) pointed out that the survival of the companies hinges on efficient WCM while other studies found that efficient WCM led to greater firm performance (Aktas, Croci & Petmetaz, 2015; Al-Shubiri, 2011). Awan, Shahid, Hassan and Ahmad (2014) concur and perceive that optimal working capital decision is the most important factor for maintaining liquidity, survival, solvency and profitability of a business. Furthermore, understanding the importance of efficient working capital management to the operational and financial success of any company.

Ernst and Young (2014) surveyed the performance of working capital of both large companies and small-medium enterprises for United States, Europe, Asia, Australia & New Zealand, Canada, Central and Eastern Europe, India, Japan and Latin America. The survey covered 2000 companies in the United States and Europe; and another 2000 companies from seven other sub-regions and countries. The report revealed that US largest companies' working capital performance has relatively declined

relative in the year 2014 while those large European companies indicated stability on their working capital performance. In the case of US companies, the deterioration in working capital performance was attributed to more than half of those companies having poor inventory and payables management. In contrast, good WC performance of large European companies was the result of good management in their receivables and inventory. Their report revealed that those non-performing companies are associated with their failure to address the main aspects of WCM policies. They proposed that most of the companies have the potential of improvement in the many aspects of WC especially in improving their profitability through the reduction of cash-to-cash or similarly cash conversion cycle (how the company could turn cash into inventory and receivables and back to cash again in days). Furthermore, variation in the performance of WC was also detected between various industries of which the pharmaceutical industry was found to have declined the most in its WC. As for the companies that are located in Asia, Australia & New Zealand, Canada, Central and Eastern Europe, India, Japan and Latin America, similar findings as those of US companies are also established. Companies from Malaysia, Singapore, South Korea and Taiwan showed an improvement in their working capital performance compared with 2014, while Japan posted the worse. In short, the report concluded that working capital performance variations of these companies are driven by industry bias, different payment practices, and different logistics and distribution infrastructures. Thus, the research intends to fill this gap by offering new evidence on the trend and practices related to the working capital policies adopted by Malaysian public listed companies of seven sectors. The objectives of this research are:

a. To investigate the trend and practices of working capital investment and financing policies of public listed companies in Malaysia.
b. To determine the significant differences between working capital investment and financing policies across seven sectors.
c. To examine the relationship and stability of working capital investment and financing policies throughout the study.

REVIEW OF PREVIOUS LITERATURE

The company may implement working capital policies that are either conservative or aggressive (Weinraub & Visscher, 1998). Studies on the aggressive and conservative WCM policies have been explored by Afza and Nazir (2007), Nazir and Afza (2009), Al-Shubiri (2011) and Panigrahi (2014). In the meantime, the approach that stands between aggressive and conservative is called maturity matching or hedging policy (this approach will not be highlighted in this study). Aggressive WCM policies use lower current assets compared to long-term investments or assets and have a high level of current liabilities to finance its current assets (or sometimes even fixed assets). In contrast, conservative WCM policies use high current assets and low current liabilities. Generally, the aggressive working capital decision comes with higher profitability but at the same time is highly in risk (of insolvency) whereas the WC with conservative policy comes with low risk but the profitability is also low (Brigham, Ehrhardt, Gessaroli & Nason, 2011).

The company may decide to be conservative in its working capital management approach whether with regards to its investment in current assets investment or financing of current assets. A company is considered to use a relatively high degree of conservative working investment policy when the ratio is higher relative to the industry means. Specifically, this means that the company has a large number of inventories, higher levels of accounts receivable, and lower levels of accounts payables. It is found that the higher investments in current assets will lower the financial risk as well as profitability. On the other hand, Petersen and Rajan (1997) believed that conservative working capital investment policy relates positively to profit. The benefits realised from using this conservative approach or policy are that the company can avoid production disruptions, reduce supply costs, and the risk of losing customers when there are higher sales. In short, a conservative working investment policy places a greater proportion of capital in liquid assets with the opportunity cost of lesser profitability. A higher working capital investment ratio relative to the industry means indicates that the company has a relatively high degree of conservative investment policy. Companies in volatile or seasonal industries might adopt a conservative WC approach as their risk is lesser compared to the aggressive WC approach. If companies use a conservative working capital, there will be some cash

in the bank, warehouses will be full of inventory and payables will all be recent. A conservative approach might produce a high ratio of current ratio (which is the total current assets divide by total current liabilities). Conservatively managed working capital will help the business to lower the risks of short-term cash shortages, but it might be reducing long-term profitability because excess cash does not earn much of a return. On the other hand, a conservative policy decision might indicate that some of the working capital may not be fully utilised. This is similar to leaving excess money in an unproductive way instead of making it more profitable for example by investing it in more strategic places.

An aggressive working capital management policy suggests that the company will be in the condition to live by with a minimal investment in current assets together with extensive use of short-term credit (Nazir & Afza, 2009; Panigrahi, 2014; Javid & Zita, 2014 and Bandara, 2015). The goal is to put as much money to work as possible to reduce the time needed to produce products, turn over inventory, or deliver services. This will accelerate the business cycle and improve sales and revenues. There will be little money for usage, as the firm will have to cut back on slow-moving inventory and unnecessary supplies and extend bill payments for as long as possible. The one payment firm cannot defer would be the interest as creditors can sue firm, force them into bankruptcy, and liquidate firms' assets. Another possibility is that firm could miss tax payments as less cash is available to the business. Thus, a company with an aggressive working capital investment policy has lower levels of inventories and accounts receivable but with more payable accounts. The aggressive approach implies that it produces higher profitability which results in a higher risk and lower working capital.

The conservative working capital financing policy (CWCFP) is in place when a company predominantly finance all its permanent current assets and most of its fluctuation current assets (temporary current assets) using the long-term source of finance. Only a smaller portion of its fluctuating current assets are financed using a short-term source of finance (Al-Shubiri, 2011). In short, this approach indicates that the company uses fewer current liabilities, but the emphasis is more on long-term debt to finance its assets. A lower CWCFP ratio means the company is practising a relatively conservative financing approach. There are several implications when the

company decides to employ this policy. Since in this situation a long-term source of financing is preferred, therefore the company is said to incur higher interest costs and the possibility of the funds being underutilised especially when the business is seasonal. However, the risk of refinancing is lower as opposed to short-term funding and therefore has low insolvency risk.

An aggressive working capital (WC) approach from the financing perspective focuses on sustaining a higher ratio of total current liabilities to total assets. It is also linked with higher return and higher risk, as opposed to a conservative working capital approach that stress on reducing the risk and return (Al-Shubiri, 2011 & Panigrahi, 2014). The risk of default and bankruptcy of a company increases as a more aggressive working capital approach is adopted. For example, a sudden emergency might cause a firm unable to make a bond or bank interest payment. Tight inventories can lead to shortages and even lost in sales opportunities. Creditors might complain of having to extend credit further if the firm stretch out or delay their payments.

Previous literature has attempted to investigate the practices of working capital investment and financing policies taken by companies in a particular industry and across industries. Among them are Afza and Nazir (2007), Islam and Mili (2012), Pushpavathi and Kamalavalli (2017), Rahaman and Florin (2007), Salawu and Awolowo (2007) and Weinraub and Visscher (1998). Weinraub and Visscher (1998) investigated the working capital investment and financing of ten industries categorised by SIC number from the year 1984 until 1993. The ten industries are motor vehicles, petroleum refining, publications, apparel, chemicals, computers, transportation, steel, department stores and food. The empirical results indicate several findings. Firstly, the relative degree of aggressive or conservative working capital policies is significantly different among the ten industries. Besides, it is found that consumer-oriented industries tend to use a high degree of aggressive financing policies. Secondly, based on the ten years current asset to total assets, the authors also discovered that the conservative or aggressive policies implemented are stable over time. Thirdly, the authors also investigated whether companies from each industry that invested heavily in current assets (aggressive working capital investment policy) will finance them with short term debts (aggressive working capital financing policy). Statistically, a negative relationship was documented, where these ten industries that adopted conservative (aggressive) working capital investment

policies prefer to purse aggressive (conservative) working capital financing policies. Lastly, they also established a positive relationship in the policy changes for 29 out of 45 pairs of industries in terms of the working capital investment policies but only 10 out of 45 pairs of industries had a positive relationship where working capital investment policies are concerned. The low correlation between these industries suggested that changes in financing policies are due to external factors rather than industry-specific factors.

Salawu and Awolowo (2007) conducted similar research on 15 different industrial groups that were listed on the Nigeria Stock Exchange. The study was done from 1994 to 2003. Consistent with empirical findings by Weinraub and Visscher (1998), their study revealed significant differences in current asset management policies. Besides, when these companies adopted an aggressive working capital investment policy it will be matched with a conservative working capital financing policy. Afza and Nazir (2007) carried out a study on the relationship between the aggressive and conservative working capital policies on 263 companies listed on Karachi Stock Exchange market in Pakistan involving 17 industrial groups. The duration of the study was from 1998 to 2003. The authors discovered significant differences in the investment and financing policies being implemented by those industrial groups. Furthermore, they also found that the policies employed are stable throughout the study. Islam and Mili (2012) also attempted to look at the working capital management practices of three selected power sector companies listed in the Dhaka Stock Exchange market in Bangladesh. Their study covered six years duration starting from 2010 to 2015. Different dependent variables like quick ratio, cash to current liabilities, inventory turnover, receivable turnover and cash conversion cycle are used to denote working capital management proxy. Their study revealed, with exception to the inventory turnover, significant differences among the selected power sector companies with regards to the working capital ratios used. Generally, they concluded that working capital management practices of these companies are at a satisfactory level but suggested that they put their excessive working capital into profitable investment projects.

In contrast, Pushpavathi and Kamalavalli (2017) researched on ten selected pharmaceutical companies listed in Bombay Stock Exchange Ltd starting from 2006 until 2015. The study initially began by analysing the types of investment and financing policies used and investigated if there

are differences in the policies engaged. Similar to Salawu and Awolowo (2007) and Weinraub and Visscher (1998) who evaluated the consistency of the policies adopted throughout the study period and the relationship between the working capital investment and financing policies. The findings indicated that these ten pharmaceutical companies are more aggressive in their investment policy but conservative with their financing policy. Furthermore, in their study, they found no significant differences among the ten pharmaceutical companies for both aggressive and conservative investment and financing policies. It is also found that there is no strong evidence indicating stability in their relative conservative working capital and financing policies. Surprisingly there is a positive correlation between working capital investment policy and working capital investment policy. The results appeared to be inconsistent with those of Salawu and Awolowo (2007) and Weinraub and Visscher (1998), implying that pharmaceutical companies with conservative (aggressive) WC investment policy will adopt conservative (aggressive) WC financing policy. Finally, the findings of the study also discovered that changes in working investment policies are due to economic factors while firm-specific factors cause the changes in working financing policies

In place of different industries and companies being studied as well as dissimilar findings, it is intriguing to discover the trend and practices of working capital investment and financing policies of public listed companies in the Malaysian context. Do companies in those industry sectors with conservative working capital investment policies adopt aggressive working capital financing policy? Would this study produce empirical evidence that concurs or contradicts previous studies from different countries?

DATA AND METHODOLOGY

The data is made up of companies from seven sectors of public listed in Bursa Malaysia Sendirian Berhad covering from the year 2001 until 2017. They are industrial, trading and services, consumer, construction, plantation, property and technology sectors respectively. At the time of data collection, the total public listed companies listed Bursa Malaysia were around 914 companies. However, due to the lack of data available for the

intended independent and dependent variables, the number of companies was ultimately narrowed down to 573 companies. Financial industries were excluded due to the different nature of their business. Based on that number of companies, the data was subdivided into conservative and aggressive investment and financing policies adopted by the companies in the respective seven sectors. Table 1 provides the number of companies according to the industry sector.

Table 1: Number of Companies based on Industry Sectors

No.	Industry Sector	Number of Companies
1.	Industrial	171
2.	Trading & Services	134
3.	Consumer	107
4.	Properties	55
5.	Construction	38
6.	Plantation	38
7.	Technology	30
	Total	573

In achieving the objectives of the study, statistical tools like mean, standard deviation, and F-test (Oneway ANOVA) were applied to the set of 17 years ratio means. A 17 year industry mean was derived for each ratio by averaging the individual yearly means. The industry means is used to segregate between aggressive and conservative investment and financing policies (Azeem & Marsap, 2015; Haron & Nomran, 2016; Wasiuzzaman & Arumugam, 2013; Weinraub & Visscher, 1998). The measurement of the degree of conservative or aggressive working capital policy is shown as below. Conservative working policy is when the company adopts a high level of CA/TA and a lower level of CL/TA relative to the industry mean. A working capital investment policy (CWCIP) is considered conservative if the total current assets to total assets (CATA) ratio is higher from the industry mean. This explanation can be seen in the following:

$$CWCIP\ if\ company's\ mean\ \frac{Total\ Current\ Assets}{Total\ Assets} > Industry\ Mean\ CA/TA$$

From the working capital financing policy, it is assumed to be conservative if the total current liabilities to the total assets ratio is lower than the industry mean.

$$CWCFP\ if\ company's\ mean\ \frac{Total\ Current\ Liabilities}{Total\ Assets} < Industry\ Mean\ CL/TA$$

The company implements an aggressive working capital policy when it has a lower level of current assets relative to total assets (CA/TA) as well as higher current liabilities to the total assets (Cl/TA). Hence an aggressive working capital investment policy (AWCIP) is applied by a company if:

$$AWCIP\ if\ company's\ mean\ \frac{Total\ Current\ Assets}{Total\ Assets} < Industry\ Mean\ CA/TA$$

Alternatively, when a company tends to use more current liabilities to pay for its current assets, than the company is said to be relatively aggressive in its working capital financing policy (AWCFP).

$$AWCFP\ if\ company's\ mean\ \frac{Total\ Current\ Liabilities}{Total\ Assets} > Industry\ Mean\ CL/TA$$

The measurements for conservative and aggressive working capital investment and financing policies were adopted from the studies of Pushpavathi and Kamalavalli (2017), Rosyeni (2017), Salawu and Awolowo (2007) and Weinraub and Viccsher (1998). In addressing the first objective, this research started by calculating the yearly mean of current asset ratios and current liabilities ratios of the seven sectors as well as their respective industry means. Once this computed, a line chart is used to show the trend of conservative and aggressive investment and financing policies practices by each respective industry. Next, to investigate if there are significant differences in working capital investment and financing policies between the industry sector, the mean difference *t*-test statistic and ANOVA F-ratio are used. Lastly to examine the relationship between working capital investment and financing policies, the ranking and rank coefficient of correlation methods are applied.

FINDINGS

Trends and Practices of Working Capital Investment and Financing Policy

Table 2 provides the results of the working capital investment and financing industry means, standard deviations and number of companies for the respective seven industry sectors studied. In terms of working capital investment policy (WCIP), the construction sector has the highest mean CA/TA ratio (0.6110 times) while the plantation sector has the lowest mean CA/TA ratio of 0.2512 times. The second highest mean CA/TA ratio is the technology sector followed by the consumer sector, industrial sector, properties sector, and trading and services sector respectively. This means that the companies in the construction sector prefer a very conservative working capital investment policy. As for the plantation sector, the companies choose to implement a very aggressive working capital investment policy relative to the construction sector since the level of mean CA/TA ratio is the lowest than the other industry sectors.

Table 2: Industry Means and Standard Deviation for WCIP (CA/TA) and WCFP (CL/TA) from 2001 -2017

Industry	Number of Companies	WCIP (CA/TA)		WCFP (CL/TA)	
		Industry Mean	Standard Deviation	Industry Mean	Standard Deviation
Industrial	171	0.5081	0.1784	0.3056	0.3696
Trading & Services	134	0.4774	0.2202	0.2839	0.2190
Consumer	107	0.5434	0.1763	0.2921	0.1836
Properties	55	0.5030	0.2264	0.3069	0.5605
Construction	38	0.6110	0.1792	0.4075	0.2576
Plantation	38	0.2512	0.1600	0.1580	0.2027
Technology	30	0.5930	0.2058	0.2793	0.2654

As for the working capital financial policy (WCFP), the highest industry mean CL/TA ratio is the construction sector with an average CL/TA ratio of 0.4075 times. The results signify that the construction sector

chooses to use more short-term liabilities in response to conservative WCIP. This means that companies in the construction sector prefers to adopt aggressive financing policies to finance their high level of current assets Once again plantation sector has the lowest industry mean CL/TA ratio with 0.1580 times. In the case of those companies in the plantation sector, conservative financing policy is being practised to finance their aggressive working capital investment policy. The empirical finding is inconsistent with Prafitri, Rachmina and Maulana (2017).

Table 3: Trend of Mean of CA/TA Ratios from 2001 -2017 Based on the Seven Industry Sectors

Year	Industrial	Trading & Services	Consumer	Properties	Construction	Plantation	Technology
2001	0.487	0.484	0.495	0.471	0.649	0.311	0.518
2002	0.488	0.468	0.498	0.484	0.672	0.303	0.525
2003	0.497	0.474	0.518	0.475	0.686	0.276	0.546
2004	0.506	0.479	0.539	0.485	0.612	0.285	0.607
2005	0.500	0.472	0.536	0.495	0.608	0.281	0.589
2006	0.508	0.478	0.542	0.482	0.597	0.266	0.561
2007	0.516	0.499	0.552	0.526	0.609	0.257	0.586
2008	0.507	0.477	0.548	0.515	0.600	0.256	0.579
2009	0.500	0.473	0.538	0.490	0.590	0.233	0.569
2010	0.512	0.475	0.557	0.506	0.586	0.251	0.591
2011	0.526	0.474	0.553	0.531	0.597	0.252	0.603
2012	0.516	0.495	0.554	0.512	0.572	0.231	0.596
2013	0.511	0.483	0.557	0.481	0.571	0.215	0.588
2014	0.506	0.478	0.550	0.537	0.636	0.216	0.612
2015	0.503	0.474	0.549	0.520	0.633	0.225	0.634
2016	0.507	0.472	0.565	0.533	0.611	0.217	0.646
2017	0.513	0.460	0.559	0.503	0.594	0.226	0.643
Industry Mean CA/TA ration	0.508	0.477	0.543	0.503	0.611	0.251	0.593

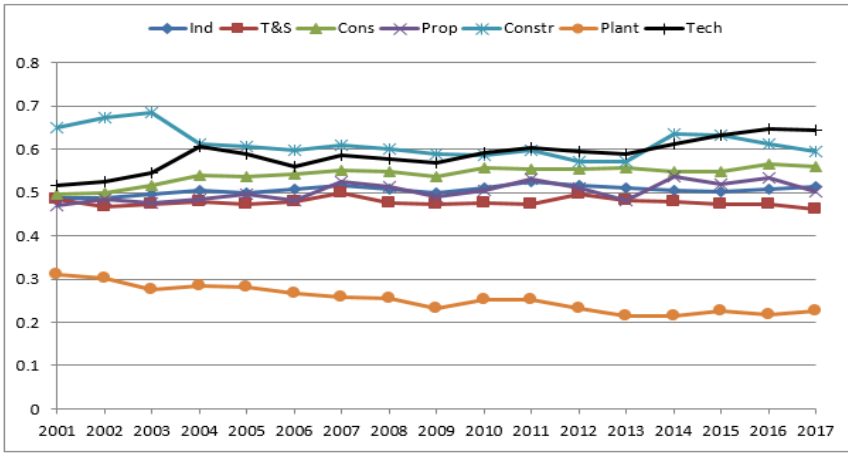

Figure 1: Trend of Mean CA/TA Ratios from 2001 -2017 Based on Industry Sector

Table 3 and Figure 1 present the trend of the mean CA/TA ratios of the seven sectors. From 2001 until 2009, the construction sector uses the most current assets over total assets as compared to other sectors. However, from 2010 until 2017, the technology sector has taken place to be the highest uses of current assets compared to total assets. On average, in 2017, the technology sector has a CA/TA ratio of 0.643 times which can be considered as on average a very high portion of current assets compared to its total assets. It is found that these construction and technology sectors implemented the most conservative WCIP compared to other sectors, as they tend to use high current assets to its total assets in their daily operations. The two main sectors were followed by three consecutive sectors namely consumer, properties and trading & services. The sector that has the lowest CA/TA mean ratio is the plantation sector. The sector also shows a decreasing pattern from 2001 until 2017. In the year 2001, the plantation sector on average uses 0.311 times of current assets over its total assets. However, in 2017, the average ratio is only 0.226 times. This shows that the plantation sector uses the most aggressive WCIP compared to other sectors as it uses the least current assets compared to its total assets. A plausible reason could be due to the nature of the plantation sectors that normally have perishable current assets and requires a huge amount of investment in total assets such

as lands, crops, buildings, machines, motor vehicles, and other long-term assets.

Industry Mean Ratio Differences of WCIP (CA/TA Ratio) between Industry Sectors

In an attempt to determine whether significant differences exist in the working capital investment policy of seven industry sectors, a one-way ANOVA analysis and T-statistic test were carried conducted on the 17-years mean CA/TA ratios of these sectors. As illustrated in Table 4, the result of the mean difference t-test statistics revealed that 18 out of 21 comparisons illustrate a significant difference between industry sectors and is statistically significant at 1 per cent level. However, the difference of mean CA/TA ratio between the industrial sector and property sector is not statistically significant while those of the construction sector and technology sector are only statistically significant at the 10 per cent level. Overall the results of ANOVA F-statistic (388.5471) confirm that there are differences of working capital investment policy practised by most sectors since it is statistically significant at a 1 per cent level. The findings are similar to those of Weintraub and Visscher (1998) and Pushpavati and Kamalavalli (2017).

Table 4: Industry mean differences in CA/TA ratios from 2001 -2017 based on Industry Sector

	IND	TS	CONS	PROP	CONST	PLANT	TECH
TS	8.7510***	-					
CONS	-6.5326***	-11.9316***	-				
PROP	0.5795	-4.4308***	5.4240***	-			
CONST	-13.5155***	-17.4106***	-7.6687***	-11.8731***	-		
PLANT	32.5217***	29.0084***	32.5029***	27.4871***	34.4399***	-	
TECH	-8.8703***	-12.0364***	-4.5306***	-8.2306***	1.8141*	-28.9218***	-
	ANOVA F-stat: 388.5471 ***						

***, ** and * significant at 1%, 5% and 10% level

Trend and Differences in Working Capital Financing Policies

This section presents the trend and difference in working capital financing policies (WCFP) according to the seven sectors covering the year 2001 until 2017 (Table 5 and Figure 2). Unlike the trend means of CA/TA ratio, the means of CL/TA ratio from the year 2001 until 2017 appear to be declining. This shows that most of the sectors are moving towards conservative working capital financing policy. As for the properties sector, the trend of the mean CL/TA ratio is inconsistent and mixed, where the companies in the sector seem to change its working capital financing policy drastically starting from the year 2005 until 2011. The trend tends to stabilise after the year 2011. In terms of the plantation sector, the trend of its mean CL/TA ratio seems to be shifting from aggressive WCFP to conservative WCFP from 2001 until 2007 and the there was a stable trend recorded. Figure 2 displays the trend of WCFP relative to the industry mean ratio throughout the 17 years of study.

Table 5: Trend of WCFP (CL/TA-Ratios) from 2001 -2017 based on Sectors

Year	Industrial	Trading & Services	Consumer	Properties	Construction	Plantation	Technology
2001	0.405	0.337	0.318	0.406	0.420	0.306	0.456
2002	0.348	0.295	0.292	0.324	0.454	0.260	0.342
2003	0.354	0.293	0.302	0.281	0.428	0.229	0.282
2004	0.360	0.294	0.303	0.283	0.397	0.188	0.300
2005	0.305	0.293	0.297	0.329	0.398	0.178	0.312
2006	0.306	0.315	0.309	0.491	0.432	0.174	0.304
2007	0.315	0.283	0.309	0.319	0.389	0.126	0.313
2008	0.318	0.273	0.305	0.331	0.407	0.134	0.323
2009	0.284	0.271	0.283	0.585	0.417	0.130	0.247
2010	0.290	0.270	0.278	0.580	0.438	0.132	0.257
2011	0.295	0.275	0.285	0.223	0.455	0.124	0.250
2012	0.280	0.281	0.275	0.233	0.422	0.118	0.251
2013	0.278	0.263	0.277	0.243	0.402	0.120	0.230
2014	0.280	0.262	0.279	0.239	0.383	0.126	0.247
2015	0.280	0.276	0.279	0.242	0.372	0.135	0.254
2016	0.271	0.271	0.291	0.245	0.374	0.135	0.248
2017	0.274	0.300	0.295	0.245	0.345	0.134	0.268
INDUSTRY MEAN CL/TA RATIO	0.306	0.284	0.292	0.307	0.407	0.158	0.279

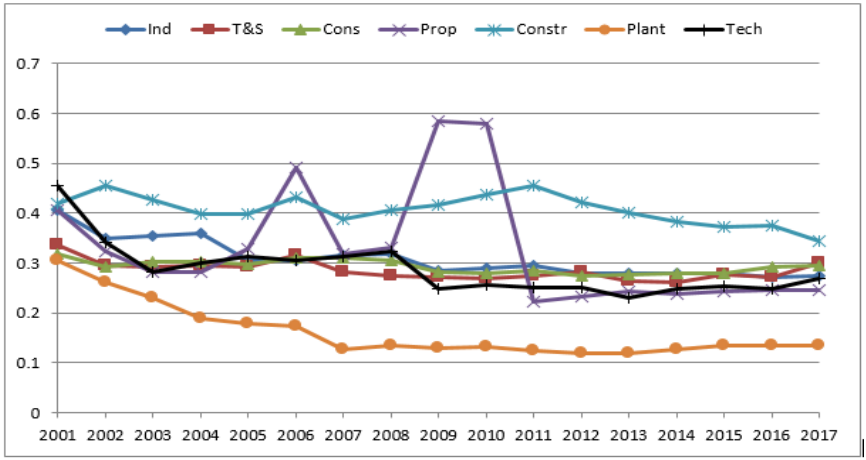

Figure 2: Trend of Working Capital Financing Policy from 2001 – 2017 by Sectors

Industry Mean Difference of CL/TA Ratio between Sectors

In Table 6, the researcher investigates the significant difference in the working capital financing policy using a one-way ANOVA F-test and t-test statistics. A *t*-test was also conducted to examine the strength of differences between the sectors. Furthermore, it is found that ten pairs of sectors are statistically significant at a 1% level of significance and two pairs of sectors at a five per cent level. The remaining nine pairs of sectors, however, are not statistically significant. This merely shows that these sectors do not adjust their working capital financing policies with the other sectors. Almost half of the pairs are negatively correlated to each other, signifying that industry-specific factors are the main reason for the changes in working capital financing policies over time (Weinraub & Visscher, 1998 and Pushpavati & Kamalavalli, 2017). The computed ANOVA F-ratio of 27.8623 is statistically significant at the 1 per cent level indicating that there is a significant difference in the mean CL/TA ratios between sectors

Table 6: Industry Mean Difference of CL/TA Ratio between Sectors

	IND	TS	CONS	PROP	CONST	PLANT	TECH
TS	2.2424**	na					
CONS	1.6203	-1.2908	na				
PROP	-0.6971	-1.5176	-1.2728	na			
CONST	-8.5100***	-14.1438***	-14.4902***	-2.6574**	na		
PLANT	9.0732***	8.7420***	9.5496***	5.3122***	16.2030***	na	
TECH	1.3058	-0.1474	0.3888	1.3305	7.9779***	-6.6944***	na
ANOVA F-stat: 27.8623***							

***, ** and * significant at 1%, 5% and 10% level

Relationship and Stability of Working Capital Investment and Financing Policies

Finally, this section attempts to determine the relative stability of policies implemented for WCIP and WCFP by analysing the correspondence between the aggressive working capital investment policy and the aggressive working capital financing policy. The relationship was observed based on the mean ratios over the 17 years of each sector. The ranking of the WCIP means the ratio (CA/TA) of the sector begins with the low CA/TA ratio to high CA/TA ratio while the WCFP mean ratio (CL/TA) was ordered from the high to low CL/TA ratio. Next, the rank coefficient of correlation is estimated between the two policies.

Table 7: Ranking and Rank Coefficient of Correlation between WCIP (CA/TA ratios) and WCFP (CL/TA ratios) from 2001 -2017 based on Sectors

	WORKING CAPITAL INVESTMENT POLICY (WCIP)		WORKING CAPITAL FINANCING POLICY (WCFP)	
SECTOR	MEAN	Rank Based on CA/TA	MEAN	Rank Based on CL/TA
Industrial	0.5081	4	0.3056	3
Trading & Services	0.4774	2	0.2839	5
Consumer	0.5434	5	0.2921	4
Properties	0.5030	3	0.3069	2
Construction	0.6070	7	0.4075	1
Plantation	0.2512	1	0.1580	7
Technology	0.5930	6	0.2793	6
Industry Mean Correlation		0.8637 (0.0122)**		
Rank Order Correlation of Coefficient (R)		-0.50 (0.2532)		

** Significant at 5% level

1 = VERY AGGRESSIVE WORKING INVESTMENT POLICY (LOWER CA/TA)

7= VERY CONSERVATIVE WORKING INVESTMENT POLICY (HIGHER CA/TA)

1= VERY AGGRESSIVE WORKING FINANCING POLICY (HIGHER CL/TA)

7= VERY CONSERVATIVE WORKING FINANCING POLICY (LOWER CL/TA)

Table 7 presents the result of a comparison between WCIP and WCFP in terms of aggressive-conservative ranking. In the case of WCIP, the number 7 denotes a very conservative working capital investment policy and number 1 represents a very aggressive working investment policy. For WCIP, the plantation sector shows the least means of current assets over total assets (0.2512). It suggests that the WCIP implemented by this sector is very aggressive compared to other sectors as it uses a very limited amount of current assets compared to its total assets. The other WCIP ratios are trading and services (0.4774), properties (0.5030), industrial (0.5081), consumer (0.5434), technology (0.5930) and construction (0.6070) respectively. The construction sector recorded the highest CA/TA ratio which means the companies in this sector has the highest level of current assets used. A higher amount of invested current assets indicates that the firms have a lower risk. However, the large amount of current assets is a drawback as the return on

this component is very low compared to buying long term assets for capital expenditure and getting higher returns.

In terms of the CL/TA ratio, number 1 implies a very aggressive working financing policy while number 7 shows that the firm is applying a very conservative working financing policy. As demonstrated in table above, the WCFP for the construction sector shows the highest mean of current liabilities over total assets (CL/TA) which stands at 0.4075 times. This point outs that WCFP implemented by the sector is very aggressive compared to other sectors as it uses a high portion of current liabilities compared to its total assets. It is followed by properties (0.3069), industrial (0.3056), consumer (0.2921), trading and services (0.2839), technology (0.2793) and plantation (0.1580). By using a high amount of current liabilities, the amount of principal and interest due to being paid in the short run could be very high (Opler *et al*., 1999) which put the company in a riskier position. The plantation sector seems to use the most conservative WCFP followed by technology, trading and services, consumer, industrial, property, and lastly construction sector. A very high level of CA/TA purports a very limited current liabilities being used in its operation compared to its total assets.

The result of the rank coefficient of correlation (R) test presented in Table 7 stands at -0.50. This negative correlation implies that when companies in a particular sector pursue relatively aggressive working capital policies, the same companies will correspond with the use of relatively conservative working financing policies. The results concur with those of Islam and Mili (2012). Salawu and Awolowo (2007) explained that when a company pursues aggressive WCIP and matches it with conservative WCFP, the strategy will assist the company to reduce the risk involved. However, the p-value of rank correlation coefficient (R) is not statistically significant, signifying no correlation between the two policies exists and thus no conclusion can be made if the conservative (aggressive) WCIP pursued is accompanied by the aggressive (conservative) WCFP.

Besides that, rank-order correlation is conducted to test the stability of the WCIP and WCFP policies of the seven sectors over 17 years. The current asset to total asset ratio was derived for each industry and the ratios were ranked from the highest to the lowest ratio (Table 8). Using 2001 as the base year, the study sequentially compared to the ranking of each succeeding year.

The results obtained in Table 8 demonstrates that there is strong stability in each sector relative to the level of aggressiveness for working capital investment policy over time since the *z*-values are statistically significant. In the case of the level of aggressiveness of working capital financing policy, the stability of the policy adopted is found in the year 2002, 2005, and 2008 only since the *z*-values are statistically significant for those years. However, the *z*-values for the rank correlation coefficient for the other years are insignificant. This denotes that most of the companies in the industrial, trading and services, consumer, properties and technology sectors applied inconsistent and unpredictable working capital financing policies. The results are in support of those of Salawu (2007) but contradict with those of Weinraub and Visscher (1998).

In short, the working capital investment policy being practised appears to be more stable for the seven sectors as opposed to the working capital financing policy being implemented over time.

Table 8: Rank Order Correlations between Base Year (2001) and Each Succeeding Year for CA/TA and CL/TA

Year	Rank Correlation CA/TA	Rank Correlation CL/TA
2002	0.9643	0.8214
	0.0005***	0.0234**
2003	0.9643	0.2857
	0.0005***	0.5345
2004	0.9643	0.4286
	0.0005***	0.3374
2005	0.9643	0.8929
	0.0005***	0.0068***
2006	0.9643	0.3215
	0.0005***	0.4821
2007	0.9643	0.7500
	0.0005***	0.0522***
2008	0.8929	0.9286
	0.0068***	0.0025***
2009	0.9643	0.3929
	0.0005***	0.3833

2010	0.9286	0.3929
	0.0025***	0.3833
2011	0.8571	0.3214
	0.0137**	0.4821
2012	0.9286	0.2500
	0.0025***	0.5887
2013	0.9643	0.2142
	0.0005***	0.6445
2014	0.8571	0.2857
	0.0137**	0.5345
2015	0.8571	0.2856
	0.0137**	0.5345
2016	0.8571	0.1786
	0.0137**	0.7017
2017	0.9286	0.3214
	0.0025***	0.4821

***, ** and * significant at 1%, 5% and 10% level

DISCUSSION AND CONCLUSION

This study attempts to investigate the practices of aggressive and conservative working capital investment management and financing policies among public listed companies sectors in Malaysia, to determine whether significant differences exist between working capital investment policy and working capital financing policies across different industry sectors and eventually determining the relationship and stability of capital investment and working capital financing policies across the seven industry sectors. Based on the industry means ratios of the working capital investment policies (CA/TA), the construction sector has the highest CA/TA followed by the technology sector, while plantation has the lowest. The highest CA/TA in the construction sector indicates that the sector is adopting a very conservative policy when it comes to investment in current assets. In contrast, the plantation sector prefers to follow a very aggressive policy. With the exception to the plantation sector, the other six sectors display a stable trend throughout the study. This infers that companies in the six

industry sectors may indicate target working capital investment policies that they consistently follow. In the case of working capital financing policies, it is observed that the plantation sector has the lowest mean ratio of CL/TA (0.158 times) relative to the construction sector (0.407 times). The results demonstrate that the plantation sector relies on long-term financing to manage its working capital needs while construction uses more short-term debt in meeting the requirement of its working capital investment.

In sum, it indicates that the plantation sector pursues relatively conservative CA/TA policies that are matched with relatively aggressive financing policies and vice versa for the construction sector. This is not unexpected since the policies taken by the two sectors are dictated by the nature of their business requirement. For instance, construction companies need to maintain a high level of working capital especially cash to pay wages to maintain their workforce and guarantee sufficient supplies of materials to ensure continuity of projects that they are involved in (Kandpal, 2015). Moreover, Kandpal also stated that being in this business; construction companies are more interested in practising aggressive working capital financing policy.

The motive for using aggressive financing policy is to ensure that sufficient liquidity is preserved. Besides that, payment of the projects is based on the stages of the project completed which enable them to pay the interest and short-term obligation due. As for the plantation sector, Prafitri *et al*. (2017) pointed out that inventories or production of plantation companies could not simply increase the raw materials or working overtime since products like palm oil and fruits depend on production and harvesting. Empirical results from their study confirmed that most of the plantation companies adopted conservative working capital policy and used more external financing and less short-term debts to meet its current assets requirement. Observations made in this research illustrates that the trend of WCFP is more inconsistent in contrast to those of WCIP especially the companies in the property sector. Additionally, all sectors show a downward trend of the WCIP over time, suggesting the movement towards more conservative capital financing policies.

The results of the *t*-test indicate that there is a significant difference in the mean ratio of CA/TA between sectors 18 out of 21 comparisons illustrate

a significant difference between sectors and are statistically significant at 1 per cent level. The difference of mean CA/TA ratio between the industrial sector and property sector is not statistically significant while that of the construction sector and technology sector is only statistically significant at a ten per cent level. The results of the ANOVA F-ratio show that overall there is a significant mean difference of WCIP practised by most sectors. A *t*-test was also conducted to examine the strength of industry mean differences between the sectors. Based on the findings, almost half of the results indicated a significant relationship while another half was not. It is observed that ten pairs of sectors are statistically significant at a one per cent level of significance and two pairs of sectors that are IND vs TS and CONST VS PROP) are significant at a five per cent level. The remaining nine pairs of sectors, however, are not statistically significant. The result of the ANOVA F-ratio is statistically significant at a one per cent level implying that there is a significant difference in the mean CL/TA ratios between sectors but of different extent. The results appear to be similar to that of Weinraub and Visscher (1998) and Salawu and Awolowo (2007).

Ranking and rank coefficient of correlation methods are used to determine whether the aggressive working capital investment policy corresponded to an aggressive working capital financing policy. The rank correlation of coefficient test result is negative and not statistically significant. This means a definite conclusion could not be made whether the relatively aggressive (conservative) investment policy corresponds with conservative (aggressive) financing policy by those companies of the respective sectors. Thus, the finding does not concur with studies of Rahaman and Florin (2007) and Weinraub and Visscher (1998). Furthermore, based on the rank correlation between the base year 2001 and each succeeding year for working investment policy and working financing policy, it is documented that working capital investment policy appears to be more stable for the seven sectors as opposed to the working capital financing policy over time. A plausible explanation for the instability of the working capital financing policy is due to economic factors like volatility of interest rate and accessibility of external funding.

The empirical findings from this study enrich the existing body of knowledge on working capital management and investment policies in several ways. Firstly, it provides an in-depth insight of the working capital

policies practices of companies in seven different sectors and verifies that different sectors have different working capital requirement due to the nature of their business This is supported by Nyeadi *et al*. (2018), Palombini and Nakamura (2012), Prafitri *et al*. (2017) and Wassiuzzaman and Arumugam (2013). Secondly, different sectors usually adopt different investment and financing policies. For example, a study by Pushpavathi and Kamalavalli (2017) found that aggressive investment working capital policy is followed by an aggressive finding working policy while Weinraub and Visscher (1998) discovered that conservative investment policy was complemented with an aggressive financing policy. In the case of this research, no concrete conclusion could be made whether the conservative (aggressive) investment policy is followed by aggressive (conservative) financing policy for the seven industry sectors since the result is not statistically significant. It is recommended that future avenue of study could focus on extending the duration of the study as well as to examine if the crises could be of influence factor where the working capital investment and financing policies are being adopted.

REFERENCES

Afza, T., & Nazir, M. S. (2007). Is it better to be aggressive or conservative in managing working capital? *Journal of Quality and Technology Management, 3*(2), 11-21.

Aktas, N., Croci, E., & Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance, 30*, 98–113. https://doi.org/10.1016/j.jcorpfin.2014.12.008

Al-Shubiri, F. N. (2011). The effect of working capital practices on risk management: Evidence from Jordan. *Global Journal of Business Research, 5*(1), 39 – 54.

Awan, A. G., Shahid, P., Hassan, J., & Ahmad, W. (2014). Impact of working capital management on profitability of cement sector in Pakistan. *International Journal of Business and Management Review, 2*(4), 1-20.

Azeem, M. & Marsap, A (2015). Determinant factors and working capital requirement. *International Journal of Economics and Finance 7*(2), 280-292.

Azeem, M. M., Marsap, A., 2015. Determinant Factors and Working Capital Requirement. *International Journal of Economics and Finance 7*(2), 280.

Bandara, R. M. S. (2015). Impact of working capital management policy on market value addition. *Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics (GJCRA), 1*(1), 344-373.

Brigham, E. F., & Ehrhardt, M. C., Gessaroli, J., & Nason, R. R. (2011). *Financial Management Theory and Practice* (1st ed.) South Western: Nelson Education Ltd.

Dong, H. P. & Su, J. T. (2010). The relationship between working capital management and profitability. *International Research Journal of Finance and Economic, 3*(5), 62-71.

Ernst & Young (2014). All Tied Up Working Capital Management Report 2014. UK: Ernst & Young Global Limited.

Haron , R & Nomran, N. M. (2016). Determinants of working capital management before, during and after the global financial crisis of 2008. Evidence from Malaysia. *The Journal of Developing Areas, 50*(5), 461 - 468.

Islam, M. N. & Mili, S. A. (2012). Working capital investment and financing policies of selected pharmaceutical companies in Bangladesh. *Research Journal of Finance and Accounting, 3*(4), 1-7.

Javid, S., & Zita, V. P. M. (2014). Impact of working capital policy on firm's profitability: A case of Pakistan cement industry. *Research Journal of Finance and Accounting, 5*(5), 182-191.

Kandpal, V. (2015). An analysis of working capital management in select construction companies. *Journal of Commerce & Management Thought, 6*(1), 7-31. DOI: 10.5958/0976-478x.2015.00001.4

Nazir, M. S., & Afza, T. (2009). Working capital requirements and the determining factors in Pakistan. *IUP Journal of Applied Finance, 2*(4), 28-38.

Nyeadi, J. D., Sare, Y. A., & Aawaar, G. (2018). Determinants of working capital requirement in listed companies at the Nairobi securities exchange: Empirical evidence using a dynamic system GMM. *Cogent Economics & Finance, 6*(1), 1-14.

Mansoori, E., & Muhammad, J. (2012). Determinants working capital management: Case of Singapore firms. *Research Journal of Finance and Accounting, 3*(11), 15-23.

Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics, 52*(1), 3–46. https://doi.org/10.1016/S0304-405X(99)00003-3

Palombini, N. V. N., & Nakamura, W.T. (2012). Key factor in working capital management in the Brazilian market. *Revista de Administração de Empresas. 52*(1), 55-69. https://doi.org/10.1590/S0034-75902012000100005

Pais, M. A., & Gama, P.G. (2015). Working capital management and SMEs profitability: Portuguese evidence. *International Journal of Managerial Finance, 11*(3), 341-358. https://doi.org/10.1108/IJMF-11-2014-0170

Panigrahi, A. K. (2014). Case study understanding the working capital financing policy (A case study of Lupin Limited). *Journal of Management Research & Analysis, 1*(1), 108-120.

Petersen, M. A., & Rajan, R. G. (1997). Trade credit: Theories and evidence. *The Review of Financial Studies, 10*(3), 661-691. DOI: 10.1093/rfs/10.3.661

Prafitri, T., Rachmina, D. & Maulana, T.N.A. (2017). The effect of working capital on the profitability of palm oil plantation companies. *Indonesian Journal of Business and Entrepreneurship, 3*(2), 111-120

Pushpavathi, S., & Kamalavalli, A. L. (2017). Industry practice relating to aggressive conservative working capital policies: An empirical study on Indian pharmaceutical companies. *International Journal of Multidisciplinary Research and Modern Education, 3*(1), 421-426. http://doi.org/10.5281/zenodo.801367

Rahaman, M. Z., & Florin, N. (2007). Working capital management policies of manufacturing industries in Bangladesh- An evaluation. *Prime University Journal, 1*(2), 80-89.

Rosyeni, R. (2017). Impact of the aggressive working capital management policy on firm's profitability and value: Study on non-financial listed firms in Indonesia Stock Exchange. *International Conference On Business and Management Research, 36*, 207-216. https://doi.org/10.2991/icbmr-17.2017.20

Salawu, R. (2007). Capital industry practise and aggressive conservative working capital policies in Nigeria. *Global Journal of Business Research, 1*(2), 109-117.

Salawu, R., & Alao, J. (2014). Determinants of working capital management: Case of Nigerian manufacturing firms. *Journal of Economics and Sustainable Development, 5*(14), 49-56.

Sohail, S., Rasul, F., & Fatima, U. (2016). Effect of aggressive & conservative working capital management policy on performance of scheduled commercial banks of Pakistan. *European Journal of Business and Management, 8*(10), 40-48.

Srivastava, R., & Misra, A. (2008). *Financial Management*. Cambridge, United Kingdom: Oxford University Press.

Vaicondam, Y., Anuar, M. A., & Ramakrishnan, S. (2015). Impact of capital investment on working capital management. *Journal of Advanced Research in Social and Behavioural Sciences, 3*(1), 20 - 33.

Wasiuzzaman, S. & Arumugam, V. C. (2013). Determinants of working capital management: A study of Malaysian public listed firms.

Australasian Accounting Business and Finance Journal, 7(1), 49 - 69. DOI: 10.14453/aabfj.v7i2.5

Weinraub, H. J., & Visscher, S. (1998). Industry practice relating to aggressive conservative working capital policies. *The Journal of Financial and Strategic Decisions, 11*(2), 11-18.