

Full length research paper

# Focus on working capital management practices among Mauritian SMEs: Survey evidence and empirical analysis

Padachi DK<sup>1\*</sup> and Carole Howorth<sup>2</sup>

<sup>1</sup>School of Accounting, Finance and Accounting, University of Technology, Mauritius La Tour Koenig Pointe aux Sables

<sup>2</sup>School of Management, Bradford University, United Kingdom

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This study investigated into working capital management (WCM) practices of small to medium sized manufacturing firms operating in diverse industry groups of the Mauritian economy. Previous studies have revealed that SMEs tend to neglect this area and are often credited as the main reason for their poor performance. Therefore the purpose of this paper is to investigate into the SMEs' approach to WCM routines. The research objectives were met using a survey based approach. The findings consistently highlighted that Mauritian SMEs are not a homogenous group with regard to WCM routines. Exploratory factor analysis identified three underlying dimensions in the take up of WCM routines, namely stock review, debtor review and finance review of Mauritian SMEs. The education level and the field of study consistently showed that financial knowledge gained in accounting related field make a difference. The results also showed that firms which claimed a more severely late payment focused more on credit management and pay more attention to working capital financing. Interestingly, the smaller firms may not be adopting formal analysis of WCM, not only because of resource constraint, but due to a lack of need. Financial institutions and policy makers need to focus on educating such owner-managers with necessary WCM knowledge.

**Keywords:** Working capital management, Mauritian SMEs, Survey, Factor Analysis

## INTRODUCTION

This study investigates into working capital management (WCM) practices of small to medium sized manufacturing firms operating in six main industry groups (The six main industry groups include CRP, FB, LG, MP, PPP and WF). Of the Mauritian economy. Previous studies have revealed that small to medium sized enterprises (SMEs) tend to neglect this area and are often credited as the main reason for their poor performance. The specific characteristics of the small firms in terms of resource poverty (i.e, lack of finance, management time and skills) project the commonly held picture of small firms being in a 'fire-fighting' mood. The main focus of the paper is to investigate whether there is conclusive evidence to support a different approach to WCM practices of these SMEs.

Financial management is viewed as a 'value adding' activity within any organisation and thus should be an integral part of management decision (Chandra, 2003). Three of the most frequently investigated financial management techniques relate to capital budgeting, financial and business risk adjustment, and WCM. Among the three, WCM is the day-to-day function of all

management decisions that influence the size and effectiveness of the working capital (Kaur, 2010). Thus, an efficient WCM is critical for the long-term survival of a business. In the present competitive environment, SMEs face more challenges than ever and therefore financial management issues are vital to ensure success of their businesses (Filbeck and Lee, 2000). In the context of SME, WCM is a dominant part of financial management since capital budgeting and capital structuring issues are relatively low.

With the ever increasing cost of operations and the mounting pressure at all levels, in particular the stringent condition imposed by financial institutions, management of working capital has become more important than ever. Huge amounts of money are usually tied up in the different components of working capital and at times the amount invested in working capital is high compared to the total assets employed in the business (Padachi, 2006). Unlike their larger counterparts, SMEs have an even more limited source of funds and as such, it is vital for them to manage their working capital as effectively as possible. Working capital is a fundamental financial issue of all firms and can no longer be taken lightly. It is a wonderful barometer of performance (CFO Conference, 2001). SMEs in the literature are recognised and respected in their own right and the continued support this sector received from government

\*Corresponding Author Email: [kpadachi@umail.utm.ac.mu](mailto:kpadachi@umail.utm.ac.mu)

speaks for itself (Wignaraja and O'Neil, 1999; Storey, 1994). They are seen as vital to the promotion of an enterprise culture and to the creation of jobs within the economy.

The importance and role of financial management in small firms for their successful survival and development in the modern economy has also been recognised by several agencies (Finance of Small Firms, Bank of England, 2003; BERR, 2008). Along the same line, in the recent past, the financial management and working capital practices of small medium sized firms have attracted the attention of various researchers (Jarvis et al., 1996; Filbeck and Lee, 2000; Deakins, Logan and Steele, 2001; Deakins, Morrison and Galloway, 2002; Howorth and Westhead, 2003; Chiou, Cheng and Wu, 2006; Dong and Su, 2010; Sharma and Kumar, 2011). These studies on financial management in SMEs find poor financial management practices. Chittenden et al. (1998, p.5) comment 'Studies of the reasons for small business failure inevitably shows poor or careless financial management to be the most important cause.' They also concluded that small firms do not adopt good practices in so far as credit management is concerned. Similarly, Filbeck and Lee (2000) reported that small firms make less frequent use of working capital methods (cash management models, security portfolio models, accounts receivable and credit analysis, and inventory control models) than their large firm counterparts. Nevertheless, they conclude that, 'for firms to continue to grow and thrive in the future', they must be equipped with the financial management tools necessary to compete with their larger counterparts.

#### Significance of Study

A growing body of literature on the short-term financial management, including WCM of SMEs has focused on issues such as late payment and credit management (Peel et al., 2000); inventory (Grablowsky, 1984; Afza and Nazir 2011); cash management (Cooley and Pullen, 1979; Drever and Harcher, 2003; Abel, 2008); accounts receivable (Mian and Smith, 1992); credit management (Pike and Cheng, 2001) and overall financial management practices (Dunn and Cheatham, 1993; McMahon, 2001; Berry et al., 2002). Much of the research consists of empirical studies that examined the financial management practices and described the characteristics of owner-manager. Although these studies provide important insight into short-term financial management, few research works have examined the overall WCM practices of SMEs, in particular for a small island economy, such as Mauritius. Additionally, some studies have focused on the financial problem facing small business, commonly referred to as the 'financial gap'. While there are only few studies that dealt with the short-term financial management practices, they have been exclusively undertaken in the US, UK, Australia; Belgium; Sweden and India. The context is obviously different and the findings would most probably not applicable to the local context where institutional set up and economic development are different.

To my knowledge, there is no study on the WCM practices of SMEs for a small island economy, like Mauritius. This research therefore attempts to fill this gap. One limitation of existing empirical studies is its almost exclusive reliance on large sample of large firms operating in diverse sectors of the economy. By drawing data on small manufacturing firms, the study departs from this tradition. Along the same line of reasoning, by focusing on a single, narrowly defined sector rather than examining more than one sector, the problem of heterogeneity bias is avoided.

The present study contributes to this literature, focusing on WCM practices through a comprehensive survey administered to manufacturing SMEs operating in six diverse industry groups. Previous studies have showed that small firms are a group of businesses driven by the attitude and motivation of one person, tend to control all functional areas of the business and accord less time to the accounting and finance function. This is often viewed as unimportant and thus received less attention on the part of the owner-manager. Empirical evidences have been provided as part of the review and this study in some way attempts to examine the adoption of WCM routines among Mauritian SMEs operating in the manufacturing sector. The study is one of its first kinds for the present context and thus made an important contribution to the existing body of knowledge.

#### Study objectives

Building upon several insightful studies, this study seeks to provide empirical evidence into the WCM practices of the small to medium-sized Mauritian manufacturing firms. The objectives are to study the current practices of WCM of Mauritian SMEs and to examine the extent to which firms' and owner-manager characteristics influence the adoption of WCM routines. The rest of the paper is organized as follows: section 2 discusses the relevant literature on SMEs and WCM. The research method is outlined in section 3. Thereafter, research findings are presented followed by result based conclusions and implications for further research.

## LITERATURE REVIEW

### Relevance of small firms in developing economies

SMEs have constantly played a vital role in the socio-economic development of a jurisdiction. The significant role SMEs play in the development of output, employment and economic growth is being acknowledged universally (Beyene, 2002; Lukacs, 2005). In Asia, small enterprises make up more than 90 per cent of the industries in Indonesia, Philippines, Thailand, Hong Kong, Japan, Korea, India and Sri Lanka, and account for 98 per cent of the employment in Indonesia, 78 per cent in Thailand, 81 per cent in Japan and 87 per cent in Bangladesh (Fadahunsi and Daodu, 1997; Lukacs, 2005). In Europe, SME make up 99.8% of all European enterprises, provide 66% of its jobs and account for 65% of its business turnover. SMEs account for 99 per cent of all enterprise in the UK, 58.8 per cent of private sector employment and 48.8 per cent of private sector turnover. Therefore, the SME sector can be considered of great importance in the contribution of job creation and income generation. On this issue, Stone (World Bank: Facts about small business, 1997) stated that 'SMEs create more employment than large enterprises and with a lower investment per job created'. Equally in Mauritius, the SME sector is viewed as a vibrant sector with potential to create jobs, help in poverty alleviation and contribute to economic growth.

Mauritius being a labour-surplus economy is faced with the problems of poverty, unemployment, inter-rural/regional and inter-personal inequalities. Similar to other nations, the government has laid emphasis on the creation and promotion of the SME sector to increase the employment opportunities at

lower capital cost. The recent budget speech goes a step further in partnering with the commercial banks to make cost of borrowing cheaper (3.5% above the prime lending rate). The wide range of support and focus on SME creation in Mauritius has led to an increase in the number of small enterprises being set up and registered and thus increasing the level of employment. As per Small Medium Enterprises Development Authority (SMEDA) the increase recorded over a period of 3 years in the number of SMEs and proposed employment is approximately 11% and 10% respectively. The growing importance of small enterprises is being gradually recognised by the Government of Mauritius and has announced various new schemes incentives in relation to SME sector in order to boost up the economy further (MOFED, 2014).

#### Importance of Working Capital Management

Managing cash flow and cash conversion cycle (CCC) is a critical component of overall financial management for all firms, especially those who are capital rationed and more reliant on short-term sources of finance (Walker and Petty, 1978; Cosh and Hughes, 1994; Banos et al; 2011). The link between credit management/financial management and corporate performance was given as an area for further investigation in the study of Peel, Wilson and Howorth (2000). A lengthening of the cash operating cycle means more investment in working capital. Attempt to reduce this cycle to a reasonable level generally leads to improve profitability (DeLoof, 2003; Padachi, 2006; Karaduman et al. 2011).

A poor WCM can affect all areas of the firm's operations, creating problems such as delay in production, accumulation of unpaid invoices, suppliers withholding delivery against payment of long outstanding bills, unable to meet interest charges, thereby escalating the level of outstanding debt, postponing major repairs and maintenance among others. According to Kolay (1991, p. 46) 'this may affect the availability of inputs, thereby lowering capacity utilisation, worsening internal cash generation and, consequently, worsening working capital position'.

#### Working Capital Management in Small and Medium Enterprises

Although working capital is the concern of all firms, it is the small firms that should address this issue more seriously, given their vulnerability to a fluctuation in the level of working capital and they cannot afford to starve of cash. Peel et al. (2000) revealed that small firms tend to have a relatively high proportion of current assets, less liquidity, volatile cash flows, and a heavy reliance on short-term debt. Therefore, for small and growing businesses efficient WCM is a critical component of success and survival; i.e., both profitability and liquidity (Peel and Wilson, 1996; Padachi, 2006). With limited access to the long-term capital markets, these firms must rely more heavily on owner financing, trade credit and short-term bank loans to finance their needed investment in cash, accounts receivable and inventory (Howorth and Wilson, 1998; Cosh and Hughes, 1994). Studies in the UK and the US have shown that weak financial management particularly poor WCM and inadequate long-term financing (Binks and Ennew, 1996) is a primary cause of failure among small businesses (Berryman, 1983; Richardson, Nwanko and Richardson, 1994; Bradley and Rubach, 2002; Chittenden et al., 1998). The success factors or impediments that contribute to success or failure are categorised as internal and external factors. The factors categorised as external include financing (such as the availability of attractive financing), economic conditions, competition,

government regulations, technology and environmental factors. The internal factors are managerial skills, workforce, accounting systems and financial management practices.

Small enterprise is not an exception in the economic and social world, but a fundamental aspect of the way in which a society organises itself and produces (Day, 2000; Lukacs, 2005). While the performance levels of small businesses have traditionally been attributed to general managerial factors, such as manufacturing, marketing and operations, WCM may have a strong impact on small-business survival and growth. Although WCM has received less attention in the literature than long-term investment and financing decisions (Howorth, 1999, Peel and Wilson, 1996), yet it occupies the major portion of a financial manager's time and attention (Gitman, 2009).

Given their heavy reliance on short-term sources of finance (Walker and Petty, 1978; Cosh and Hughes, 1994), it has long been recognised that the efficient management of working capital is crucial for the survival and growth of the small firms (see Grablowsky, 1984; Bradley and Rubach, 2002; Padachi 2006; 2012). A large number of business failures have been attributed to inability of financial managers to plan and control properly the current assets and the current liabilities of their respective firms (Smith, 1973; Dodge and Robbins, 1992; Ooghe, 1998). In particular, the small firms may face serious problems due to the operating conditions and characteristics peculiar to them.

Evidence in the literature repeatedly points towards failure to understand cash flow shortages as a major problem of small business operators, which is often the result of poor WCM. During the life of a business, the frequent lack of liquidity to meet current obligations on their due dates is not a welcoming situation and may cause business failure. This may also be aggravated by heavy borrowing which bring along a heavy interest burden to a small business. WCM has been shown to be a major problem both at start up (Moore, 1994) and for growing firms (Dodge, Fullerton and Robbins, 1994). Peel and Wilson (1996) reported quite a disturbing result whereby 81% of the small business failure was attributed to poor financial management and banks were willing to give financial support only to those owner-managers who attended financial management training courses. Poor financial planning may be credited as the main cause of small business failures at the different stage of the business's life cycle (Berryman, 1983; Dodge and Robbins, 1992). Nayak and Greenfield (1994) also reported evidence that micro firms lack signs of any systematic WCM.

Some research studies have been undertaken on the WCM practices of both large and small firms in India, UK, US, Australia, New Zealand and Belgium using either a survey based approach (Burns and Walker, 1991; Peel and Wilson, 1996) to identify the push factors for firms to adopt good working capital practices or econometric analysis to investigate the association between WCM and profitability (Shin and Soenen, 1998; Anand, 2001; DeLoof, 2003; Singh and Panday, 2008; Falope and Ajilore, 2009; Gill et al, 2010; Afza and Nazir, 2011). Furthermore it is noted that many of the studies in the area of working capital have tended to focus on the management of individual assets such as cash (Grablowsky, 1976), accounts receivable (Lewellen and Johnson, 1972; Hubbard, 1991), late payment and credit management (Peel et al., 2000; Drever and Armstrong, 2005), accounts payable (Walker, 1980) and inventory (Grablowsky, 1984). But the few studies currently undertaken on the overall WCM/policies used

**Table 1:** Sample Companies by Size and Age

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Deviation</b>	<b>Skewness</b>
Number of Employees – FT	134	0	82	14.95	9.00	16.131	2.083
How old is the Business?	134	1	50	13.56	12.00	9.510	1.099
Size of your firm in terms of:							
Net assets in 2007	52	200,000	80,000,000	12,530,391	6,333,175	1.700E7	2.304
Sales in 2007	93	100,000	52,000,000	9,167,113	4,500,000	1.078E7	1.910

primary data to gauge the take-up of best practices in the area of working capital (Howorth and Westhead 2003; Peel and Wilson 1996; and others). The important finding of those studies was a significant relationship between various success measures and the employment of formal working capital policies and procedures. Given the evolutionary process of financial management practices, some researchers have also used a qualitative approach (case study) to better understand the owner-manager's approach to financial management (Deakins, et al., 2001, 2002; Ooghe, 1998). Other studies in the area of WCM have used a quantitative approach, a qualitative approach or a mixed approach.

## METHODOLOGY

The objectives are to study the current practices of WCM of Mauritian SMEs and to examine the extent to which firms' and owner-manager characteristics influence the adoption of WCM routines. This study focuses exclusively on the manufacturing firms, operating in different line of products where working capital is more prevalent given the high level of investment in current assets.

The data for this study was collected as part of a comprehensive survey on the financial and WCM practices of small to medium-sized manufacturing firms operating in diverse industry groups [The industry groups include Chemical, Rubber and Plastics (**CRP**); Metal Products (**MP**); Paper Products and Printing (**PPP**); Jewellery (**JW**); Leather and Garments (**LG**); and Wood and Furniture (**WF**) and Food and Beverages (**FB**)]. The study is confined to the manufacturing sector, an important sector of the economy in terms of job creation and contribution to economic growth and where working capital is more significant. The survey instrument contains essentially closed-ended questions focusing on enterprise and owner-manager characteristics and their approach to WCM practices.

A total of 145 survey forms were collected out of a sample of 420 firms, representing 20% of the population, which satisfies the sampling criteria (firms employing up to 50 employees). A stratified sampling was used so that each industry group is represented. Four questionnaires had to be excluded as they were not properly filled in and many sections were left unanswered. Thus, a total of 141 usable responses were received, representing an effective response rate of 33.5%. It is to be pointed out that the Mauritian business community is not used to this kind of survey. Despite this non-familiarity of survey instruments, such a response rate was possible through network with the SMEs Association and the support institutions and the multi-channels used to collect the data.

Statistical analysis of the data was performed using SPSS, V16.0. ANOVA and t-tests, Mann-Whitney and Kruskal-Wallis

tests, and chi-square tests were used for continuous, ordinal and binary variables respectively. Factor analysis was used to organise and reduce the number of variables used to capture the main variables of interest. For example the 11 variables used to assess the extent to which the respondents do WCM routines were reduced to three factors, namely stock review, debtor review and finance review. The technique determines linear composites of the original variables that display certain desirable properties and allowed us to narrow the number of variables into succinct variables that could be used as a continuous variable in subsequent multivariate analysis. The K-means cluster was used to reduce the number of cases into homogenous types of firms and the clusters were used to profile the respondents using basic firms' characteristics, trade credit variables and working capital measures.

## Data analysis

### Summary statistics

The majority of the respondents are owner managed private limited companies representing a diverse group of industries of the Mauritian manufacturing SME sector. The size grouping [The sample was split into four size sub-sample: Very small (up to 5 employees); Small (6 to 20); Medium (21 to 50) and Large (51 and above)]. demonstrates that employment in SMEs tends to skew towards the very small and small size. The representativeness of the sample is compared with the Central Statistical Office 2009 census on the economic activities of Mauritian firms. The dependent and independent variables are defined as in Appendix 1 and the summary statistics are included therein.

#### Size and Age

Table 1 gives descriptive statistics for the three commonly used measures of size. It also shows the age of the companies, which was calculated by deducting the year the business, was established from 2008, the year the data were collected. Small firms represent a bulk of the business stock and as per the CSO 2009 bulletin, firms employing up to 9 employees outnumber those employed 10 and above, the threshold used for compiling statistical data on the Mauritian business stocks. The average employment size is 15. In line with the national statistics on the SMEs population, the sample distribution of companies by size is positively skewed: 60% had up to 10 employees, while only 7% employed above 50 employees. The size of the companies in terms of turnover is in the range of Rs 100,000 to Rs 52,000,000 with a mean value of Rs9m (the median firm value is Rs4.5m). However, the net assets as a measure of size could not be used for this study since less than half of the respondents provided a figure for the net assets.

**Table 2:** Number of FT Employees – Size bracket and Size grouping

Size Bracket	Frequency	Valid Percent	Cumulative Percent	Size of Firms – Grouped into VS,S,M & L	Frequency	Valid Percent
Valid	Up to 5	36	26.3	Very Small (up to 5)	36	26.3
	6 to 10	46	33.6	Small (6 to 20)	68	49.6
	11 to 15	16	11.7	Medium (21 to 50)	23	16.8
	16 to 30	18	13.1	Large (51 & above)	10	7.3
	31 to 50	11	8.0	Total	137	100.0
	51 to 100	7	5.1	System Missing	4	
	101 to 150	3	2.2	Total (n)	141	
	Total	137	100.0			

**Table 3:** Frequency of WCM Practices

Working Capital Management Routines	N	Very Often	Often	Quite often	Rarely	Never	Mean Score
Cash flow monitoring	136	42	40	40	11	3	3.79
Stock levels	137	27	51	43	14	2	3.64
Customer credit periods	132	27	45	46	11	3	3.62
Stock turnover	137	23	52	49	10	3	3.60
Stock re-order levels	135	25	51	37	18	4	3.56
Payment period to creditors	137	19	45	48	18	7	3.37
Financing of working capital	131	24	23	58	19	7	3.29
Customer discount policy	132	15	24	53	33	13	3.05
Credit risk to customers	132	20	22	45	34	11	3.05
Bad and doubtful debts	129	16	30	33	37	13	2.99
Factoring	122	7	10	25	23	57	2.07

Table 2 shows the sample firms size grouped into different size bracket and four sub-samples; very small (VS), small (S), medium(M) and large (L) to better reflect the size of firms in Mauritius. The age profile of the respondents reveals that 56% of the firms are over 10 years, and may be considered as matured firms. It is to be noted that some 20% of the firms are in existence only for up to 5 years and they employ relatively few employees.

### Industry characteristics

The sample was spread across six main industry groups, as showed in Appendix 11. It is observed that 3 industry groups having small number and would thus preclude detailed analysis by sector. The industry classifications were re-coded into three main groups [ Industry classification reduced to three groups: Heavy Industry (Chemical, Rubber and Plastics – **CRP**; Metal Products – **MP** and Paper Products and Printing – **PPP**); Light Industry (Jewellery – **JW**; Leather and Garments – **LG**; Pottery and Ceramics – **PC** and Wood and Furniture – **WF**) and Food and Beverages Industry]. and are labelled as Heavy Industry (CRP, MP, PPP); Food and Beverages (FB) and Light Industry (JW, LG, PC, WF) to facilitate analysis.

### Frequency of working capital management review

One of the main focuses of this study is to investigate into the WCM practices of the SMEs operating in the manufacturing sector. Table 3 gives the frequency on the take up of the different WCM routines, measured on a 5-point ordinal scale, where 5='very often' and 1='never'. As expected cash flow monitoring is the most frequently done with a mean score of 3.79. The other areas of importance relate to stock routines, customer credit periods and payment period to creditors while the least area are customer discount policy, credit risk to customers, bad and doubtful debts and factoring.

It is not surprising to note that WCM routines in the area of credit management receive the least attention as most often the firms are not aware of the potential benefits that may accrue from such practices. Alternatively, it may be that very few firms offer discounts, which is more of a policy decision rather than a management technique. Table 4 shows a detailed breakdown on the frequency of 'how often' the sampled firms (splitting the sample by four size categories) review the different elements of working capital. It is observed that only 29.5% of firms review the customer discount policy while as little as 13.9% for factoring. When the sample is split into size category the results confirmed the dominant position that firms may enjoy by virtue

**Table 4:** Working Capital Management: Frequency of review according to firms' size

Working Capital Management Routines – Review of:	All Firms		Very Small		Small		Medium		Large	
	Often	Mean	Often	Mean	Often	Mean	Often	Mean	Often	Mean
Stock turnover (n=137)	54.7	3.60	45.5 <sup>^</sup>	3.61	55.9 <sup>^</sup>	3.51	56.5 <sup>^</sup>	3.70	80 <sup>^</sup>	4.00
Stock levels (n=137)	56.9	3.64	45.3 <sup>^^</sup>	3.52	52.9 <sup>^^</sup>	3.51	69.6 <sup>^^</sup>	3.96	80 <sup>^^</sup>	4.00
Stock re-order levels (n=135)	56.3	3.56	43.8	3.41	59.7	3.55	65.2	3.78	70	3.90
Customer credit periods (n=132)	54.5	3.62	58.1	3.65	50.8	3.54	72.7	4.05	40	3.40
Customer discount policy (n=132)	29.5	3.05	36.7	3.27	27.3	2.92	31.8	3.14	20	3.00
Bad and doubtful debts (n=129)	35.7	2.99	28.6	2.96	37.5	2.94	47.8	3.26	60	2.80
Credit risk to customers (n=132)	31.8	3.05	35.5	3.03	29.7	2.92	39.1	3.43	80	3.10
Factoring (n=122)	13.9	2.09	17.9	2.29	13.3	1.98	13.6	2.00	50	2.38
Payment period to creditors (n=137)	46.7	3.37	30.3	3.00 <sup>*</sup>	50.7	3.43 <sup>*</sup>	60.9	3.65 <sup>*</sup>	50	3.60 <sup>*</sup>
Financing of working capital (n=131)	35.9	3.29	25.0	2.97	41.5	3.38	43.5	3.52	22	3.94
Cash flow monitoring (n=136)	60.3	3.79	60.6	3.67	55.2	3.75	69.6	3.91	70	4.20

Figures in % and refer to the proportion of respondents indicating Very often and Often; <sup>1</sup> Means score refer to a five-point likert scale ranging from 1 = Never to 5 = Very Often; \* Indicates four-sample Kruskal-Wallis tests are significant at the 10% level; ^, ^ indicates four-sample chi-square tests (based on often/very often against other responses) are significantly different at the 5% and 10% levels respectively.

of their size. It was thus observed that the very small firms had no choice than to spend more time (36.7%) reviewing its discount policy to attract more customers. On the other hand, the contrary was observed for the larger size category, where only 20% claimed they would often review their policy.

In line with other studies (Howorth and Westhead, 2003; Deakins et al., 2001), the results revealed a number of respondents failed to do any of the eleven techniques for managing the different aspects of working capital. This was evident in the areas of debtor management and partly for stock management.

A similar pattern is noted for factoring, where the small firms do less of such practices for the obvious reasons that factoring is attractive for both the factor and the firms where the customer base is large enough. Therefore, while only 13.3% of the small firms would review their factoring practices, their larger counter parts would do it as often as 50%. A reverse trend was observed for the review of stock management, where the large firms would frequently review (80%) their stock turnover, stock levels and re-order levels. We may therefore conclude that more attention is devoted to the area where a larger part of working capital is tied up. Further examination of the results confirmed the earlier discussion about the small firms' characteristics, in particular that of 'resource poverty' which encompasses lack of a solid capital base to lack of financial skills (Welsh and White, 1981; Cressy, 1996).

On the other hand, some areas of WC would be reviewed more regularly than others. This is observed for cash flow monitoring, having the highest mean score (3.79) and thus emphasizing on the importance of cash for the small firms (Peel and Wilson, 1996; Howorth, 1999). Although cash, debtors and stock received the most attention, yet the sample firms devoted time reviewing payment periods to creditors and financing of working capital. This would indicate that the financing arrangements of the respondents are predominantly short-term and are consistent with previous studies and also in line with the theoretical framework on trade credit (Ferris, 1981; Main and Smith, 1992).

## Firms' characteristics and WCM

### Size of firm

In order to test the hypothesis that firms' size is positively associated with the take up of WCM practices, the K-W test was performed using the four group size against the test variables. In almost all the WCM routines, the mean rankings were not significant and therefore size of firms is found not to be a determinant that could explain the different approaches to WCM routines. However, a weak significant difference ( $p$ -value = .080) in the mean ranking of payment to creditors was noted for the very small firms group.

### Industry grouping

Along the same line it is important to assess whether the sample firms approach to WCM practices differ among the three industry groupings (results not reported). The mean rankings for all the variables were insignificant, except for the variables dealing with debtor management. The three-sample K-W tests found that there are significant differences in the credit management function (customer credit periods, credit risk and factoring) and the industry groups. The one way analysis of variance was performed on these three variables to gain an insight into how the groups differ. The Scheffe Post Hoc Tests revealed that the difference in the average duration of credit to customers is more pronounced between the heavy industry group and the food industry group and also between the light industry group and the food industry. The hypothesised link that industry differences exist in the approach to WCM practices is thus confirmed.

### Firms' working capital policy

The literature review section has showed that size of firms is a hindrance to the adoption of good financial management practices. The contingency Table 5 shows that there is a

**Table 5:** Size of Firm: VS, S, M & L \* C1: Policy for WCM

Size of Firm	Policy for Working Capital Management			Total
	No policy	Informal policy	Formal policy	
Very Small (up to 5)	28	4	4	36
Small (6 to 20)	42	22	4	68
Medium (21 to 50)	8	10	5	23
Large (51 and above)	3	5	2	10
<b>Total (n)</b>	<b>81</b>	<b>41</b>	<b>15</b>	<b>137</b>
<b>Pearson Chi-Square Value = 17.878</b>	<b>Df = 6</b>	<b>Sig. (2-sided) = .007</b>		

**Table 6:** Working Capital Management: Working Capital Policy

Description	Mean <sup>a</sup>			Sig.
	No WC Policy (n=80)	WC Policy (n=57)	All Firms	
WCM Routines				
Stock turnover	3.60	3.60	3.60	0.832
Stock levels	3.45	3.89	3.64	0.005***
Stock re-order levels	3.31	3.89	3.56	0.002***
Customer credit period	3.53	3.75	3.62	0.333
Customer discount policy	3.03	3.09	3.05	0.718
Bad and doubtful debts	2.84	3.20	2.99	0.096*
Customer credit risk	2.82	3.36	3.05	0.005***
Factoring	2.07	2.08	2.09	0.987
Payment to creditors	3.28	3.51	3.37	0.158
Financing working capital	3.13	3.50	3.29	0.079*
Cash flow monitoring	3.56	4.11	3.79	0.003***

\*\*\* indicates two-sample Mann-Whitney tests are significant at the 1%, 5% and 10% levels respectively on dependent variable POLICYWC, where 1 = 'WC Policy' and 0 = 'No WC Policy'. a Mean score refers to a five-point Likert scale ranging from 1 = never to 5 = very often.

significant difference between the four sub-samples firms' size and the working capital policy used. Larger size firms are expected not only to have more formalised systems in place, but have the human capital (Cressy, 1996) to operationalise the systems. Firms' with a formal working capital policy are likely to be aware of the potential benefits that accrue from the adoption of WCM routines. The non-parametric tests for more than two groups were run to test this association. The result shows that there is a significant difference in the areas of stock management, debtor management and cash flow monitoring. The ANOVA test shows where the differences are and the mean scores for the take up of stock routines are consistently lower for firms with no working capital policy.

The Mann-Whitney test was used to investigate if there is a significant difference between the dichotomous WC policy variable (The recode SPSS function was used to form 2 groups, where 1 = the informal and formal WC policy and 0 = no WC policy) and the firms' WCM routines as displays in Table 6. The result confirms the hypothesised link between firms having a working capital policy and the adoption of WCM routines. The mean scores for the 11 WCM routines are higher for firms with working capital policy and are highly significant for stock levels, stock re-order levels, customer credit risk and cash flow monitoring. This demonstrates the importance of formal systems which is usually addressed by larger size firms. The

mean size for the two groups (for the test variable, POLICYWC) was compared and the Levene's test for unequal variance was highly significant (t-value, sig. 0.004) for those with working capital policy having a mean score of 25.34 employees.

It may therefore conclude that the size of the firms is not the main driver towards the adoption of WCM routines. Instead, it is observed that firms having a working capital policy, which is also linked to the educational background of the owner managers, are more likely to take the WCM issues more seriously. Further evidences are given in Table 7 which shows, the parametric t-test on a number of variables (firm's characteristics, education level of owner manager and trade credit) and the Chi-square test for the other variables, using the dichotomous working capital policy variable.

#### Age of business

The hypothesised relationship between age of business and WCM practices is confirmed to some extent. The six sub-samples age category K-W tests revealed a significant difference in the area of debtors' management and financing of working capital. The findings (results not reported) are in line with the firms' stage development model where more matured firms are expected to have formalised systems and procedures in place.

**Table 7:** Characteristics of Firms with WC Policy

Description	Mean or Proportions <sup>2</sup>		Sig. <sup>1</sup>
	No WC Policy (n=84)	WC Policy (n=57) <sup>^</sup>	
<b>Firms' Characteristics</b>			
Size	12.09	25.34	0.004***
Age	11.83	16.40	0.005***
Industry: Heavy	37	52	0.172
Food	24	14	0.172
Light	39	34	0.172
Education: Basic	42	33	0.005***
Technical	31	14	0.005***
Advanced	27	53	0.005***
<b>Trade Credit Variables</b>			
Debtor days	43.46	50.79	0.240
Creditor days	34.86	51.58	0.000***
Net credit days	9.269	-0.789	0.096*
% of Bad debts	2.93	3.81	0.140
Late payment problem	3.37	3.71	0.159

<sup>1</sup> Continuous, ordinal and dichotomous variables were tested using t-test, Mann-Whitney; and chi-square tests respectively on dependent variable POLICYWC (1= WC policy and 0= No WC policy); <sup>2</sup> For chi-square tests, cell indicates % of dependent group who gave an affirmative response; \*\*\*, \*\*\*, \* indicates two-sample Mann-Whitney tests are significant at the 1%, 5% and 10% levels respectively; ^ for some variables the number of cases (n) is less due to missing values.

### Education level

Along the same line, the respondents' education level was found to have an impact on the WCM routines. The Mann-Whitney test on the two independent samples, 'Art side' and 'Science side' (grouped as per respondents' field of education) showed significant difference in the areas of stock management, assessment of customers' credit risk, financing of working capital and cash flow monitoring. Similarly the three sub-samples of the respondents education level (basic, technical and advanced) was used to find if significant differences exist with respect to WCM routines. The K-W test revealed a highly significant difference for stock turnover and factoring, two accounting terms which require a level of understanding as compared to more familiar accounting terms such as stock levels, customer credit period, discount policy and bad debts. However, a weak difference at 10% significance level was noted between stock levels and the owner manager's level education (results not reported).

### Focus on WCM Routines

An R-mode PCA was used to reduce the 11 variables into three components, namely stock review, debtor review and finance review. This technique was used in order to produce new combinations of the original data which could then be used as independent and orthogonal reference axes (or variables) in a classification of firm 'types' using cluster analysis. All the assumptions of the PCA model were satisfied (Hair et al., 1998). The results were rotated, using the varimax rotation to isolate more meaningful dimensions. After varimax rotation three components were identified as shown in table 8

They accounted for 62.48 percent of total variance and with eigen values greater than 1. One variable, namely factoring had to be eliminated in the final model since it has the least popular use and was not loaded adequately into one of the components. Each variable had its highest loading on the component it conceptually belongs to and variables with side-loadings of .40 or less were suppressed. The final model was found to be an appropriate factor-analytic model as indicated by Bartlett's Test of Sphericity, the Kaiser-Meyer-Olkin measure of sampling adequacy(.648), the anti-image correlation matrix state that the use of dichotomies in factor analysis, including principal components analysis is justified where it is used as a means of clustering variables and underlying correlations between variables are moderate (less than 0.6). In this analysis, the maximum correlation was 0.51, except one =.667), the test of sampling adequacy and the test for communality.

Taking into account selection of variables for the WCM practices and the sign of their component loadings, the components appear to capture conveniently, and with some integrity, the overall approach to WCM practices adopted by the sample firms. The internal consistency of the individual variable falling onto one component was performed using the Cronbach's Alpha reliability test. All the three components have a value of 0.7 and above, thus confirming the validity of the factors.

### Cluster Analysis and Profiles of firms' types

Cluster analysis was performed to the factor score variables to ascertain if there are any distinguishable patterns of WCM practices. The K-means clustering was used as this is the most



**Table 8:** Rotated Component Matrix of Respondents' Adoption of WCM Routines

How often your business review/use the following:	Component			Communalities
	Debtor Review	Finance Review	Stock Review	H
Stock turnover			.855	.736
Stock levels			.885	.827
Stock re-order levels			.640	.582
Customer credit periods	.708			.532
Customer discount policy	.625			.399
Bad and doubtful debts	.805			.652
Credit risk to customers	.745			.582
Payment period to creditors		.775		.640
Financing of working capital		.854		.738
Cash flow monitoring		.720		.560
Eigenvalue	3.04	1.75	1.45	
% of Variance explained	30.38	17.55	14.55	
Cronbach's Alpha	.708	.705	.766	

Factor loadings with values less than 0.4 are suppressed; Kaiser Meyer Olkin Measure of sampling Adequacy =0.648; Bartlett Test of Sphericity =333.78, Significance =0.0000.

appropriate procedure when there are a large number of cases (SPSS Inc., 2008, p.29). After a number of variations were considered, a solution in which 4 clusters were clearly identifiable was selected. The principal clusters identified are labeled as follows:

Cluster 1: No WCM      Cluster 2: Debtor and Stock Review  
Cluster 3: Stock Review      Cluster 4: All WCM

Profiling of the clusters was carried out against a range of variables posited to have a potential impact on the WCM practices. The variables used were selected on the basis of having been used in prior studies and that reasonable measures (or proxies) are readily available in the data set. The technique employed is explanatory and was restricted to some important variables found in the literature. Accordingly analysis was restricted to firms' characteristics: industry, age and size, trade credit variables (debtor and creditor characteristics) and financial skills of owner manager (proxy by education level). Table 9 shows the firm 'types' with regard to the cluster means to each of the component scores.

Cluster 1 has 49 members and they appear to neglect WCM practices altogether. Cluster 2 contains 9 members and they focus primarily on accounts receivables and stock

management. This cluster is labelled 'Debtor and Stock Review'. Profiling of the cluster groups give further insight into the firms' characteristics that belong to this cluster. The next group is cluster 3, with 31 members and contains firms focusing on stock management routines. The second largest group contains 32 firms, predominantly large in size which adopts all WCM routines and thus is expected to be doing well in all the other areas.

The PCA removed the distorting effect that strong inter-correlations among the 11 WCM variables would have on the calculation of the various 'distance' and 'variance' measures used in the grouping procedure. On the other hand, the cluster analysis result in smaller number of groups and hence a loss of detail, but in return compensate for the resultant level of generalisation. The determination of the appropriate number of groups is a key decision in cluster analysis (Woo et al., 1991). Company 'types' were therefore, reduced from 121 to 4. The characteristics of the company 'types' with respect to the cluster means for each of the component scores are given in Table 10.

Further understanding of possible influencing variables associated with the principal clusters was also attempted. This analysis is performed for the exploratory part of the study. Results for the categorical variable industry sector demonstrated that there is a statistically significant difference in

**Table 9:** WCM Practices: Cluster Analysis – Final Cluster Centres

Cluster	N	DEBTORR	FINANCER	STOCKR
1. NOWCM	49	-.20390	-.09408	-.86527
2. DEB-STOCKR	9	1.29512	-1.64854	1.04379
3. STOCKR	31	-.88279	-.22772	.62393
4. ALLWCM	32	.80317	.82831	.42694
<b>ANOVA (F-prob)</b>		<b>0.000</b>	<b>0.000</b>	<b>0.000</b>

**Table 10:** Profiles of Clusters – WCM Practices (Means or Proportions for each cluster)

Variable	Cluster 1	Cluster 2	Cluster 3	Cluster 4	All Firms <sup>1</sup>
<b>Firms' Characteristics</b>					
Age	11.00	18.33	14.21	15.85	13.79**
Size	13.18	16.56	20.36	26.23	18.83**
Industry: Heavy	48	56	48	31	44**
FB	17	0	32	12	18**
Light	35	44	19	56	38**
Education: Basic	30	55	45	25	35**
Technical	39	11	10	19	24**
Advanced	31	33	45	56	41**
Family members	1.16	1.33	1.28	1.46	1.29
<b>Working capital measures</b>					
WC Policy: No Policy	73	67	45	34	55***
Policy	27	23	55	66	45***
% credit purchase	58	72	57	64	60
% credit sales	43	64	64	65	62
Late payment	3.42	4.44	3.18	4.23	3.63***
AR days	52	57	52	54	53
AP days	41	52	42	47	44

<sup>1</sup>Differences between groups were tested using ANOVA, Kruskal Wallis and Pearson Chi square tests on continuous, ordinal and nominal variables respectively; \*\*\*, \*\*, \*, represents significant difference at 1%, 5% and 10% level respectively

cluster membership according to industry groupings. Most pronounced is the above representation of the Cluster 4 in the light industry that was expected given the relatively short production cycle and to keep the working capital cycle within the limit. Cluster 2 is more represented in the heavy industry that was expected given the higher requirement for working capital. Equally the variable working capital policy shows a highly significant difference among the clusters and firms' with no working capital policy belonging to Cluster 1. The financial skills of the owner manager are equally important while managing working capital of their businesses. The profiles of the clusters demonstrate that there is a statistically significant difference in cluster membership according to owner managers' level of education. The respondents having a degree or professional qualification is over represented in Cluster 4: firms doing ALLWCM.

Results capturing the continuous variables are tested using simple parametric ANOVA tests and the non-parametric tests (K-W and Median test) for the ordinal variables. Despite variability across clusters, the results for the trade credit variables were not statistically significant, except for the late payment variable which was highly significant between the cluster memberships. The late payment problem is more pronounced in Cluster 2 and Cluster 4, which lend support to the hypothesised positive relationship between firms having 'severe late pay' and adoption of WCM practices. The analysis of variance showed that there is a statistically significant difference in cluster membership according to the size and age of the sample firms. The firms' types in Cluster 1 are the youngest and smallest and are thus supportive of the association reported in previous studies where the smallest firms are resource constrained and neglect the back end office

work, in particular financial management practices. Firms employing an average of 26 persons are the ones performing all the WCM routines.

## CONCLUSIONS AND IMPLICATIONS FOR PRACTITIONERS

Analysis of the 141 questionnaires administered to the small to medium-sized Mauritian manufacturing firms revealed that size of firm (especially the VS and S category) was a major constraint to the adoption of good financial management discipline. They are the ones that reported poor indicators on WCM routines as evidenced by the profiles of clusters. The VS and S category reviewed their credit management (customer discount policy, bad and doubtful debts, customer credit risk) less frequently than their larger counterparts and also obtained less favourable credit terms from suppliers and, they often failed to keep proper financial records. This is also linked to a lesser involvement of non-family members in these firms.

WCM practices were also found to differ according to industry group and the owner manager's level of education. The profiling of clusters on WCM practices showed that owner manager's level of education was statistically significant and respondents with a degree or professional degree were the ones to do most of the WCM routines. The three-sample K-W tests confirmed the significance of industry differences in the approach to WCM, more particularly in respect of credit management. The food industry reported lower debtor days as compared to the other two industry groups.

Small to medium-sized firms with less educated owner-managers used basic working capital methods (cash flow, review credit terms) as compared to the more sophisticated financial management practices (NPV, contribution analysis, financing mix). Thus, it stands to reason that business owners with more sophisticated financial knowledge are expected (to take up WCM routines) to manage their firms to higher level of firm performance.

In considering the working capital policy, it was noted that firms with formal working capital policy tends to be large, has an accounts department and the services of the external accountant go beyond the compliance assignments. The late payment issue also tends to show that firms with more severe late payment devote more time to credit management. It might also be predicted that efficient management of cash and stock would reduce cash flow problems and therefore alleviate a firm's sensitivity to late payment.

Policy makers in Mauritius are not fully aware of the internal factors which are a hindrance to the SMEs development and contribution to economic growth. There is a tendency to attribute the failure of the SMEs to external factors without much attention given to internal factors, in particular the owner managers skills in handling short-term financial management issues of their enterprises. Therefore the empirical evidences of this study provide an insight into internal problems of SMEs which may equally require the attention of policy makers. There is no point to further commit resources if owner managers are not fully equipped in terms of financial skills and knowledge and may thus be unaware of important key financial indicators, as a monitoring tool.

Mauritian manufacturing SMEs displayed significant distinct approach to WCM practices on account of industry, level of owner managers' education, number of years in business, access to professional advice, closely held family business and

close business contacts and networks. These differences appeared to be more pronounced among the 'VS' and 'S' size category, which made up 76% of the sample. Smaller firms may therefore need more assistance and follow up to ensure that public funds are not wasted.

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