

RESEARCH ARTICLE

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Formal Accounting Systems by SMEs**

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Factors Affecting the Adoption of Formal Accounting Systems by SMEs

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Abstract

Small to medium-sized enterprises' (SMEs) poor performance is often ascribed to external factors such as burdensome character of the legal framework, limited scope to penetrate the export market and access to finance. However, internal factors such as marketing, operation and in particular accounting services may be equally responsible to such state of affairs. This study therefore attempts to analyse the importance attached to formal accounting systems among the small to medium-sized Mauritian manufacturing firms operating in six main industry groups. The research findings are based on a comprehensive survey of the financial and working capital management practices of 141 SMEs. Additional rigour to the research findings was possible through the use of 12 mini case studies.

Keywords: Accounting systems; Mauritian SMEs; logistic regression.

1. Introduction

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 [1, 2]. While the performance levels of small businesses have traditionally been attributed to general managerial factors, such as manufacturing, marketing and operations, accounting systems may have a strong impact on the survival and growth of SMEs. The literature on financial and accounting practices is scarcer than long-term investment and financing decisions [3–5], yet it occupies a major share of financial manager's time and attention [6].

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 [7, 8]. In particular, the small firms may face serious problems due to their operating conditions and specific characteristics. The '*resource poverty*' that small firms may face creates a situation where the owner manager has many functional responsibilities and financial management may just be one of the responsibilities. Thus management time, in the small firm¹ may be a scarce resource and thus has a high opportunity cost. Given these constraints, small firms scarcely have time and resources to provide formal training in financial management skills.

The main factors that contribute to success or failure of small business are categorised as internal and external factors. The external factors 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

¹The definition of small firm varies from countries to countries and what may be referred to as small firms in developed economies (such as US, UK and Australia) is classified as medium or even larger firms in developing economies.

and financial management practices. The accounting department is generally viewed as a service unit to support the firms' operations by providing information on costs and performance indicators.

Enterprises are differentiated by size, sector and the motivations of their owners. There cannot be a '*one size fits all*' approach to the provision of services and policy formulation. Although it is recognised that management techniques which are relevant for large firms may not be appropriate for the small ones, yet some basic record keeping and financial awareness are essential for their survival [9]. Equally, Jarvis *et al.* [10] reported that the financial management skills of small business are very different from those of large ones. They found that owner managers follow a wide range of personal and business goals which are inbuilt in the strategies which they adopt and are, therefore, prominent in their firms' information systems.

Previous research has indicated 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. Nayak and Greenfield [11] also reported evidence that micro-firms lack signs of any systematic accounting practices. Various studies have found similar results for small firms and the key reasons include lack of time, resources and skills of small business managers. They tend to focus their efforts to satisfying the requirements of external parties and little, if any focus is on using key performance indicators as a diagnosis tool to monitor business progress. Empirical evidences have been provided as part of the review and this study in some way attempts to examine the level of formal accounting systems of SMEs operating in the Mauritian manufacturing sector.

1.1. Need for the study

Despite the increasing importance attached to small-scale economic activities across the globe there appears to have little reported improvement in the financial management skills of small business owners [10, 12]. To the best of my knowledge, no specific research has been undertaken to investigate into the factors affecting the adoption of formal accounting systems by SMEs. This area has not received the same consideration as the many other areas, ranging from start-ups to schemes promoting the growth of the sector [10, 13, 14]. There is a substantial amount of literature providing detailed and carefully tailored advice to small business owners on financial management. But none of them have specifically looked into the benefits that these firms can derive from formal accounting systems.

Although these studies provided important insight into short-term financial management, few research works have examined the extent of accounting services in 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.

This paper therefore attempts to fill the gap and contributes to the growing literature on the short-term financial management practices of small firms. The focus of this paper is on accounting systems/practices of the small to medium-sized manufacturing firms operating in six diverse industry groups. First, it provides evidence of the SMEs approach to accounting routines, mainly regarded as back-end routines to comply with the statutory financial reporting requirements. Previous studies document the financial management practices of SMEs, with no focus on the neglected or lack of attention on the accounting tasks which their larger counterparts used to measure firms' performance. Second, the study reinforces the view that SMEs still suffer from '*resource poverty*' and focus their attention where it is most demanded. Further, the study confirms that family owned business tends to neglect the recording aspects of the business and it is only through the pressure of outside parties that proper records are maintained. This is supported by the view that as the small

firm opens up to outside investor, the business entity concept becomes more pronounced and the need for formal accounting systems is undeniable. The research methodology adopted for this study is through the use of a survey² to the owner manager and the research findings were corroborated through the use of 12 mini case studies.³ These cases do not form part of a separate analysis. They were used exclusively to validate the survey results. More specifically, the study objectives are:

- To provide evidences on the SMEs approach to accounting routines.
- To examine the extent to which firms' and owner managers' characteristics influence the take up of accounting routines.
- To identify the key variables that distinguish firms with formal accounting systems from firms which maintain minimal records.

The theoretical framework supporting the study is covered under the literature review section and is summarised in Figure 1. The rest of the paper is organised into four sections. Section 2 reviews the literature on SMEs and their approach to financial management, with emphasis on the accounting tasks undertaken by the accounts department. Section 3 supports for the methodological approach and briefly elaborates on the data collection. The econometric model and the variables used are also covered. Section 4 reports on the analysis and findings of the study and the discussion of the results. The last section concludes on the results of the study.

2. Literature Review

The theoretical underpinnings of this study are framed using the life cycle theory, pecking-order theory, owner manager characteristics, ownership structure, external pressure, the capacity and relevance argument as shown in Figure 1. The small firms are often characterised by '*resource poverty*' and may thus lack the human capital to adopt the best practices [15]. Besides what may be viewed as relevant and best practices for the large firms may not be the case for the small firms. This has to do more with owner managers' and the firms' characteristics.

Given the financing preferences of SMEs, where they depend less and less on outside capital, the need to keep proper records as a means of mitigating information asymmetry is not felt. Bhaird and Lucey [16] reported on the importance of profitability in financing SMEs which are consistent with Myers's pecking-order hypothesis. Where the firm lies on the left extreme of the continuum, the pressure to keep and maintain accounting records is non-existent. Generally, the small firms tend to be organised as sole proprietorship, with a heavy concentration of family members. This in itself negates the need to maintain proper accounting records. The lack of financial management skills, which is often attributed to the owner managers' characteristics (education level, experience and managerial preferences), is viewed as a major constraint in having proper accounting systems and control.

2.1. Importance of SMEs in a small economy

The world has become an increasingly interwoven place and according to Francis Fukuyamoane, one of the greatest sociologist of our times, never before in human history so many nations moved together towards market economy and there is a growing recognition worldwide that SMEs have

²Data collected as part of doctoral thesis on financial and working capital management practices of Mauritian manufacturing SMEs. The survey contains a section on the accounting practices of the firms which provides primary data for this study.

³The 12 mini cases were done as a follow up on a workshop conducted as part of the methodology to ease the collection of data. The data were collected through a multiple channel, ranging from face to face interview conducted during a workshop in January 2008 on 'financial and working capital management' held at the University of Technology, Mauritius. This was then followed through telephone interview to explore the findings in greater depth, and twelve on-site interviews with the participants who attended the workshop.

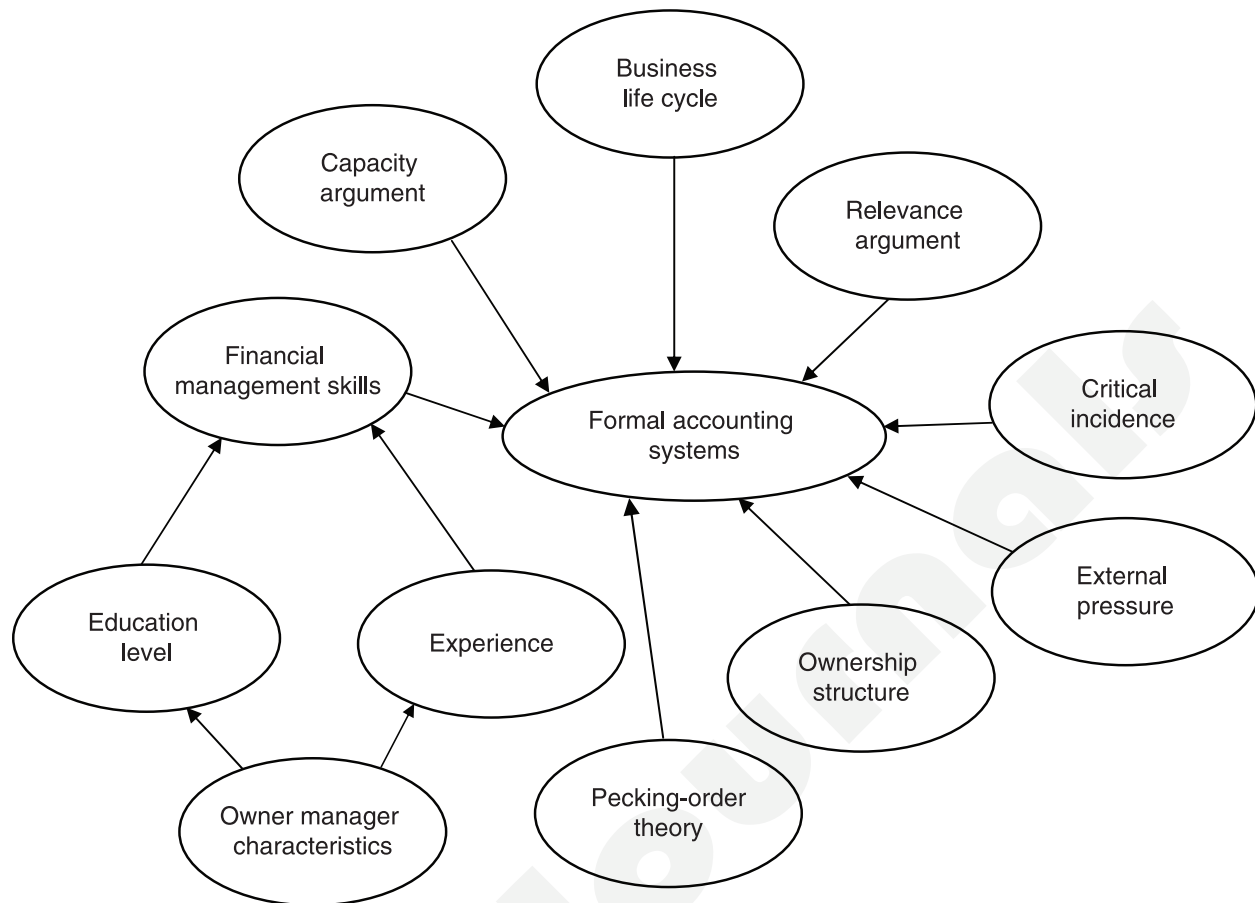


Figure 1: Conceptual framework.

an important role to play in the present circumstance [17] and small businesses are often seen as the backbone of the private sector in the developing world. The importance of the SMEs for future economic development has been lately mentioned at different levels and reinforced in each budget speech. The government is taking various measures and initiatives to better assist the SME sector.

SMEs are the backbone of an economy as they are a major contributor of job creation and play an important role as efficient providers of intermediate goods and services to large firms. They play an even more pronounced role in the case of very small islands, since the typical average enterprise size is even smaller than elsewhere. Their positive contribution is all too important in the context of massive lay-offs from large firms, as is the case for the Textile sector in Mauritius. By international standards, Mauritius has quite a respectable SME sector (<50 employees, using the OECD definition of a small enterprise), which is comparable with that of France, UK and Korea [18]. Although this means that Mauritius has developed a decent SME base, yet it fares unfavourably on its share of employment when compared with countries like Taiwan, Hong Kong, Italy and Switzerland which are regarded as having the largest and probably the most dynamic SME populations in the world. In fact, when account is taken of the limited resources that are usually available to SMEs, the typical lack of expertise in financial management of their owner managers, and the likely consequences of making poor decisions, the need for government support is undeniable.

The state of a nation's small industry is a barometer of the vibrancy of its economy at any given time. In Mauritius, it is the small firms which constitute the larger number of firms and account for nearly 47% of the workforce [19]. Based on the statistical data compiled by the Central Statistics

Office,⁴ the number of small establishments and employment generated has increased by more than fivefold, as presented in Table 1. From 1985 to 2007, the number of small establishments in Mauritius has increased to 92,388 and they provide an estimated 37% of labour force and this clearly highlights the evidence of a vibrant private sector in Mauritius.

Table 1: Evolution of small businesses.

Years	Number of firms	Employment generated	% of labour force
1985	16,000	47,608	22
1992	40,497	113,274	24
2002	75,267	200,000	36
2007	92,388	211,582	37
2010	94,000	250,000	47

Source: CSO (1985, 1992, 2003, 2009 – Census of establishments; census of economic activities and collection of statistics of economic activities respectively).

In developing countries, SMEs serve as a useful bridge between the informal economy of family enterprises and the formalised corporate sector. As such, most policymakers deem the health of the SME sector to be highly important for an economy. Mauritius⁵ is not an exception to this. Similar to other economies, the Mauritian business landscape is characterised by a larger number of SMEs, which represents 97% of the business stock [19, 20].

In Mauritius, it is the small firms which constitute the larger number of firms and account for nearly 47% of the workforce [19]. From 1985 to 2010, the number of small establishments in Mauritius has increased to 94,000 and they provide an estimated 250,000 of jobs. SMEs' contribution to Gross Domestic Product amounts to nearly 37% or MUR 120 billion. Estimates based on latest figures suggest that SME exports might represent around 20 to 25% of total exports. This shows the importance of the small firms to the Mauritian economy, with a population of 1.2 million and warrants all the support possible. The manufacturing sector alone represents 14% of the number of firms and provides employment to some 27% of people. This is an important sector of the Mauritian economy as it provides more employment than the other sectors. The main industry group of the sector include chemical, rubber and plastics, food and beverages, jewellery, leather and garments, pre-fabricated metal products, paper products and printing and wood and furniture.

The SMEs are key drivers of the Mauritian economy through their important contribution to GDP growth and socioeconomic development. Recognising their significance and having proved their resilience in responding to fast changing conditions, even at times of the global economic crisis, SMEs have now become even more important in advancing the government efforts to overcome the socioeconomic disparity. That is why the government has paid great attention in facilitating a secure and conducive business environment for SMEs. Over the past years much attention has been laid in tackling constraints faced by SMEs relating to finance, capacity building, marketing, business development services, infrastructure and institutional support framework. This has been a major contributing factor in the exponential increase in the number of SMEs (Table 1). In the wake of the global financial crisis, the budget for 2009/2010 and subsequent ones have made additional effort to help the SME sector. However, as most SMEs are privately owned, it is precisely in this perspective

⁴In Mauritius, the CSO uses employees threshold to define small and large firms. The small firms are those employing up to 9 employees and anything between 10 and above is large. This is a too restrictive definition and not used for the study.

⁵A short summary about the Island's economy is given at Appendix I.

that owner managers need to pay attention to the performance of their businesses to ensure that intervention funded from the public purse needs to demonstrate benefits to wider society.

In view of their smallness, they need continued support in the functional areas of their businesses. The often neglected area is the accounting and finance function of the small business and yet this has not attracted much interest from the support agencies. This being so despite findings from empirical studies showed the lower intake of working capital management (WCM) by small firms [4] and the absence of accounting systems to provide owner managers with information about their business [7]. They identified five major management problems and inventory and cost controls was the most frequently mentioned problem and was more prevalent during the late growth stage of the business. The financial-related problems were grouped into three major categories, where financial planning was found to be a more pertinent problem among the respondents (42%), followed by accounting systems and record keeping, which persist during all life cycle stages except during the early growth. Once the firm moves along the different stage of the organisational life cycle, accounting-related issues become important for the owner manager to consider seriously. These include recording, cash flow information, inventory and cost controls. A lack of such systems affects control of the business and finding sources of capital to finance daily operations become problematic [7].

2.2. Approach to financial management practices

There are a number of reasons that explain the different approach to financial management practices of small firms. Some studies showed that they are driven by the personal motivation of the owner manager, business life cycle model; resource poverty while a dynamic view of the financial management process reveal that change may be brought about as a consequence of experiential learning of the owner managers. A review of the literature on the financial management practices of small firms, revealed that owner managers' personal and business goals dictate partly their approach to short-term financial management of their businesses [10, 21–23]. There is also theoretical justification that the business life cycle model lends support to the evolutionary approach to financial management practices of small firms [24–26].

Collis and Jarvis [23] found that small firms make greater use of cash-based management information and this points to the importance that owner manager placed on controlling cash. A similar finding was found by Jarvis *et al.* [10]. The lesser use of published industry data, credit rating agency data and statutory accounts could be explained by their relevance more to larger companies as small firms tend to have more close and personal relationships with their customers. They further noted that small firms use the services of external accountant for the preparation of the annual statutory accounts. Although, Collis and Jarvis [23] believed that small firms should align their management information on the basis of evolving computerised accounting systems, the firms' capacity and resource constraints may hinder the process. This was confirmed by Marriott and Marriott [27] qualitative study, where they found that greater use of computerised accounting packages was more prevalent in small firms where the owner managers possessed good financial skills.

Berry *et al.* [12] study also examined the extent to which owner managers use external advisors of various kinds and how useful they find the contributions of their external advisors. Their main findings revealed the following:

- Managers may be working with accounting ideas in their mind rather than accounting data in the books.
- Cost information may be difficult for owner manager to obtain, partly explained by the absence of accounting systems to collect and analyse cost data.
- SME managers are a rather independent bunch of business people, but have their primary external advice from accountant and network of contacts.

They further reported that 70% of respondents tend to use external accountants for statutory advice and a little less than half this percentage sees their role as business management advice. A similar percentage engages their external accountant in financial management support work. They perceived the contribution of their external advisors as value addition. Their results also showed that SMEs tend to avoid newer and more sophisticated management techniques and practices related to financial management. However, firms which are in the growth path of the business life cycle apply more sophisticated cost management techniques and practices.

Further, case study research by Perren *et al.* [28] sheds evidence that small business move from informal system to formal one as the number of transactions increases. These conclusions corroborate the findings of other studies [28, 29]. Similarly, Collis and Jarvis [23] reported a positive correlation between structure of accounting department and level of education and training of respondents. They found that a large proportion of companies employ bookkeepers and credit controllers, which point to the importance attached on record keeping and controlling cash and the level of debts. Couple with the high level of education and training, Collis and Jarvis [23, p. 104] concluded that the 'small companies have the financial expertise available internally to aid the generation and analysis of financial information'.

Normally it is expected that the presence of outside parties would enhance the formality of processes for assessing financial management decisions and the greater would be the chances that more advanced financial practices will result. However, it was found that where reliance for expertise was placed on outside accountants, it was mainly for the preparation of cash flows, external financial statements and tax computation. Equally Kirby and King [30] found similar situation. In particular, the need to adjust the firms' accounting systems may arise from the natural growth path which a business may go through. Berry *et al.* [12] study confirmed that SMEs which were on the growth path admitted that cost information was important for their businesses, as it is associated with business strategy, investment justification, budgetary planning and control, business and management performance and cost reduction.

The low intake of accounting as one of the key contingent factors in an SME adopting new accounting procedures may be related to the background and attitude of the owner manager. They may be well versed in the product/service that their businesses deal with. However, they may not be trained or proficient in business management skills, especially at the early stage of the business life cycle. Thus, the financial management in use may be expected to be simple and predominantly cash flow based [12]. The funding for start-up most of the times comes from the entrepreneur themselves, with little if any bank finance which is secured on personal assets [31, 32]. Hence, there is no external pressure as such to formulate a business plan that would link both strategic and operational issues.

2.3. Accounting, marketing and management problems

Accounting may be the key to small business success. The accounting problems are categorised into record keeping, use of accounting information, cash control, and cost control. Wichmann [33] reported the results of an analysis of small business institute (SBI) cases, which were grouped into 17 problem areas. Accounting was found to be the most frequent problem, and the number one in this category was record keeping.

Marketing was found to be another key problem of small business, advertising and sales promotion appear hit the list of this category with a score of 47%, while the other marketing problems include in order of importance, pricing, defining target market, inadequate sales, layout and appearance, location and seasonal variation in sales. Other management problems found in the studies include, in order of importance, long-range planning, inventory control, personnel selection and supervision, accounts receivable collection, debt control and others. Long-range planning tops the list, which might be expected considering poor management ability is the cause of most

business failures. In other words, many of the problems of small business are either in the area of accounting or accounting-related [33].

The literature review section supports the argument about SMEs' lack of financial management skills using the life cycle model of Churchill and Lewis [24] and Scott and Bruce [25]. Further, the owner managers' personal and business goals dictate the approach to financial management practices. Often, very small businesses are '*lifestyle*' businesses, with no desires for rapid growth. The resource poverty, which is regarded as a common feature of SMEs also lends support to the different approach to accounting routines. Equally there is also a relevance and capacity argument [12] which supports the view that as firms move along the life cycle growth path, the need for accurate financial information is more felt and they start formalising the accounting services. It is also found that the need to keep formal records is driven by the presence of non-family members and the statutory requirements for filing of accounts.

3. Methodology

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 six diverse industry groups.⁶ 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. This in itself requires a close monitoring which can be achieved by a formal accounting system. The sample was drawn from the directory of SMEDA.⁷ The survey instrument contains a section on the accounting and finance issues and is designed to help assess the use of some basic accounting routines (records and procedures) and the primary role of the accounts department. In fact, the accounting function of an organisation may be regarded as a service department whereby the department captures transactions, processes same and formulates report to the management team to facilitate the decision-making process. This is often lacking in SMEs and thus owner manager is deprived of key performance indicators to make decision. Additional rigour is given to the research findings by the use of 12 mini cases, selected from participants attending a workshop on the financial and WCM practices. These cases were used exclusively to validate the research findings and thus do not form part of a separate analysis. The profiles of the interviewees are displayed in Appendix I.

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.

The data were analysed using the statistical package for social sciences (SPSS), applying both parametric and non-parametric tests. In order to discriminate between firms having accounting systems and firms having only minimal accounting systems, a binary logistic regression is used.

⁶The industry groups include chemical, rubber and plastics (CRP); metal products (MP); paper products and printing (PPP); jewellery (JW); leather and garments (LG); pottery and ceramics (PC); wood and furniture (WF); and food and beverages (FB).

⁷Small and medium enterprises development authority (SMEDA), the agency responsible to register manufacturing SMEs.

4. Data Analysis and Results

4.1. Sample characteristics

The majority of the questionnaires were completed by the owner manager of the firm or his/her representatives which in most of the cases were close family members appointed as director. This gives confidence in the completeness and reliability of the information provided. The variables definition is given in Appendix II, Table B and where applicable the mean values for the variables of interest are reported.

4.2. Ownership and structure

Table 2 displays the sampled firms' ownership structure; namely, family members involved in decision-making, business legal entity and the owner managers' main role in the business. The majority of the companies (63%) are family owned business and some 25% do not involve anyone in the decision-making process. In nearly 50% of the cases, the owner manager assumes overall responsibility of the business while another 44% occupy the post of managing director. Thus, in the majority of the cases, the owner manager oversees all the operational aspects of the enterprise and may thus have no time to perform even some of the basic accounting routines.

Table 2: Family members, legal entity and main role of owner manager.

Family members	Percent	Legal entity	Percent	Main role	Percent
No one else	25.5	Sole proprietorship	36.2	Overall responsibility	49.6
Close family members	40.4	Partnership	8.5	Purchasing and production	2.8
Other family members	23.4	Private limited company	54.6	Administrative and finance	3.5
Non-family members	10.6	Societe	0.7	Managing director	44.0
Total (n = 141)	100.0		100.0		100.0

In terms of the business organisation, 54.6% are private limited companies where in the majority of cases, a second director is appointed solely to comply with the statutory formalities (this was made obvious during the interviews with the respondents). It is important to note that 36.2% of the Mauritian manufacturing SMEs are still organised as sole proprietorship, where the *'entity concept'* is less pronounced. The Kruskal-Wallis (K-W) non-parametric test shows that it is the small firms which tend to organise as such (Chi-square = 18.095; *p*-value = 0.000).

4.3. Size and age

Table 3 gives descriptive statistics for the three commonly used measures of size. It also shows the age of the companies. Small firms represent a bulk of the business stock in Mauritius 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, excluding three firms which engaged above 100 employees. 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 and out of which only three firms have engaged full time employees in the range 101 and 150. The sample firms size were 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 and to be used in bivariate analysis.

Table 3: Sample companies by size and age.

	<i>N</i>	Minimum	Maximum	Mean	Median	Std. deviation	Skewness
Number of full time employees	134	0	82	14.95	9.00	16.131	2.083
Age of business	134	1	50	13.56	12.00	9.510	1.099
*Size of firm in terms of: Net assets	52	200,000	80,000,000	12,530,391	6,333,175	1.700E7	2.304
Sales	93	100,000	52,000,000	9,167,113	4,500,000	1.078E7	1.910

*The respondents were not keen to reveal figures for sales and net assets.

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.

4.4. Accounting systems and records

A number of variables are expected to give an insight into the sample firms approach to financial management practices, in particular the accounting systems in place to provide financial information. These include size of firms, age of business, legal structure, family involvement and owner managers' education level.

4.4.1. Size of firms

Table 4 illustrates the relationship between the firms' group size and the accounting systems in use. As expected, the majority of respondents who do not maintain or keeps only minimum records are the VS and S size category. This could be explained by the lesser need for them to comply with the financial reporting requirements unlike the medium and larger firms. The revised Companies Act 2001 allows firms with a turnover threshold of less than Rs 10m to file only an abridged version of accounts.

Table 4: Size of firm: VS, S, M & L.

Size of firm: VS, S, M & L	Accounting system			Total
	Do not maintain	Keep minimum records	Keep formal accounts	
Very small (up to 5)	8%	58%	34%	100%
Small (6 to 20)	0%	38%	62%	100%
Medium (21 to 50)	0%	17%	83%	100%
Large (51 and above)	0%	20%	80%	100%
<i>N</i> = 137; Pearson Chi-Square value = 22.624; Sig. (2-sided) = 0.001				

*Accounting system.

4.4.2. Age of business

Similarly it is of interest to test if the business life cycle model has an impact on the sample firms accounting systems. The age variable was re-coded into age bracket to better identify firms along

the business life cycle path (Infant, Growth, Expansion, Matured and Decline). Firms below 5 years of age are in its infant stage and may thus have very basic systems of recording which previous research has confirmed Dodge and Robbins [7].

Further, the research finding reveals that firms in the growth (59%), expansion (71%) and matured (70%) stage keep formal accounting systems and pay more attention to accounting routines. It may thus conclude that accounting tasks is seen more as a necessity and not as a routine task among the small to medium-sized Mauritian manufacturing firms. This was validated during the interviews, where case_{num5} was in dire financial difficulties and the owner manager admitted that his poor knowledge in financial management was a major handicap.

4.4.3. Legal structure

The firms' legal structure is equally an important discriminator when analysing the accounting services undertaken by the accounts department. Nearly 55% of the sample firms are organised as private limited companies and is therefore expected to have adequate accounting systems to comply with the statutory financial reporting requirements. Even though they produce accounts, they are mainly for the external users and little if any is of use for the internal functioning of the business. About 69% of the respondents keep minimal accounting records and are mainly sole proprietorship. Such results may be explained by the '*entity concept*' where this is less pronounced for firms organised as sole proprietorship, with greater family involvement.

4.4.4. Family involvement

Next the closeness of family involvement is expected to influence the extent of accounting tasks. Table 5 illustrates that family involvement and non-family involvement have an incidence on the firms' accounting systems and records, where firms with more non-family members and other family members tend to keep formal accounts. Put differently, firms with more close family involvement do not see the need to keep formal accounting records.

Table 5: Family involvement and accounting systems.

Family involvement	Accounting systems			Total
	Do not maintain	Keep minimum records	Keep formal accounts	
Other family members	0.0%	22.9%	77.1%	100.0%
Close family members	3.2%	48.4%	48.4%	100.0%

N = 141; Pearson Chi-square value = 11.203; Sig. level = 0.004

When business is very small or small, it is part of the family and hence hardly the need for separate accounting system is felt. Minimal information like payables and receivables are maintained. As the business grow in its size, separation of business from family takes place and such firms start to formalise their accounting systems.

4.4.5. Level of education

The owner managers' education⁸ exposure is expected to influence the take up of accounting routines. The contingency table shows that owner managers who have undergone training/education in

⁸The survey instrument asked for the respondents' field of education, which include business management, law, economics and finance, science and engineering. The SPSS re-code function was used to group the education field into 'Art side' and 'Science side'.

the art side are more likely to have in place formal accounting systems (Table 6). This sub-sample has a formal (67%) and informal (33%) accounting systems, which in itself demonstrates that the accounting services in these units will more likely respond to management requirements in terms of providing key performance indicators. As accounting is an integral part of studies in business, management, economics and many professional courses, it can be assumed that the owner managers of the sample firms were not alien to financial information and would therefore have some understanding of the accounting terms used in the survey. This obviously gives a degree of confidence in the validity of the findings as well as providing a proxy for the sophisticated financial skills of the owner manager [23].

Table 6: Field of education: art or science side.

Field of education: art or science side	Accounting system			Total
	Do not maintain	Keep minimum records	Keep formal accounts	
Science side	5.7%	42.9%	51.4%	100.0%
Art side	0.0%	33.3%	66.7%	100.0%
N = 101; Pearson Chi-square value = 5.203; Sig. level = 0.074				

*Accounting system.

4.5. Firms characteristics and accounting systems

The variable accounting systems (AS) was derived using the categorical question on the survey form, whereby respondents were asked on a five-point scale⁹ to specify which accounting systems they have in place. This was re-coded into a dichotomous variable where the scale 2 to 4 is taken as 'have an AS' and take the value 1 = (82 firms, representing 58% of the sample) and the scale 0 to 1 as 'minimal AS' and take the value 0 = (59 firms, 42%).

T-test, Mann-Whitney and Chi-square tests were performed on the continuous, ordinal and dichotomous variables respectively to gauge into the characteristics of firms' having an accounting systems. The test variables include firms' size, age and education level of owner manager, internal constraints, trade credit variables and market conditions. The t-test on the two variables size and age lends support to the capacity and relevance argument for firms to adopt good financial management discipline [12]. Therefore, as firms move along the life cycle growth path, the need for accurate financial information is more felt and they start formalising the accounting services.

Both the variable size and age are highly significant and confirmed that accounting systems developed for the large firms may not be of relevance for the SMEs, as the latter may need simpler accounting systems. However, even for simpler accounting systems, the owner managers may lack the competencies and may not be aware about the potential benefit of the systems. Although they may be knowledgeable about their line of business, they may not, however, be trained or proficient in business management skills; especially when starting up the business. As the firms grow in size, it has the capacity to engage accounting personnel and improve their accounting services and as they become more matured (age variable) the need for accounting information is undeniable to operate more efficiently.

The literature review chapter attributes the small firms' lack of financial discipline to the resource constraint and would thus concentrate their time and efforts where it is mostly felt. This would imply firms devote more time to the tasks where they perceive a problem. The results in

⁹Type of accounting systems used by the enterprise, measured on a five point scale, where 0 = no records kept to 4 = formal accounting records kept. Using the SPSS re-code function this was grouped into a dichotomous variable.

Table 7 do indeed confirm this in some of the areas identified. As observed firms which report a more severe late payment problem tend to formalise its internal service and thus have formal accounting systems to track down slow payers. Though not statistically significant, firms which report having 'minimal AS' are the ones which face internal constraints and have difficulties developing credit control and invoicing system.

Table 7: Firms' characteristics and accounting records.

Description	N	Mean or proportions ²			Sig. ¹
		Accounting systems (n = 82)	Minimum AS (n = 59)*	All firms (n = 141)	
Firms' characteristics					
Size	137	22.31	10.55	17.50	0.001***
Age	141	15.22	11.54	13.68	0.023**
Education: Basic	137	42	33	35	0.005***
Technical		31	14	24	0.005***
Advanced		27	53	41	0.005***
Internal constraints					
Developing accounting systems	136	2.89	3.19	3.01	0.179
Credit control and invoicing	136	2.71	2.93	2.80	0.372
Trade credit variables					
Debtor days	139	46.82	45.96	46.47	0.891
Creditor days	137	44.58	37.95	41.82	0.180
% of Bad debts	136	3.53	2.95	3.29	0.325
% Credit sales	130	62.88	47.63	56.51	0.006***
% Credit purchases	132	65.38	45.00	57.00	0.000***
Late payment problem	131	3.74	3.17	3.51	0.039**
Market conditions					
Competition	137	2.26	2.68	2.43	0.030**
Seasonal	137	3.70	3.39	3.57	0.035**

¹Continuous, ordinal and dichotomous variables were tested using *t*-test, Mann-Whitney and Chi-square tests respectively on dependent variable ACCSYS (where 1 = have an AS and 0 = minimal AS).

²For Chi-square tests, cell indicates percentage of dependent group who gave an affirmative response.

***, **, * represents significance level at 1%, 5% and 10% respectively.

The trade credit variables (debtor days, creditor days, % of bad debts, % of credit sales and % of credit purchases) are expected to give an insight into the possible causes of a lack of accounting systems. It is observed that firms having accounting systems are indeed reporting a high percentage of debtors as bad debts and have a more severe late payment problem. This finding lends support to the fact that firms start formalising its accounting function where a problem is felt. Along the same line, the Levene's test of inequality of variance was significant at the 1% level for the % of goods bought and sold on credit. Firms having an accounting system purchase more on credit and also sell more on credit. However, there is no statistical significance for the variable debtor days and creditor days.

Further variables examine the market conditions (competition and seasonal variations) which have been reported in the SME literature to influence the take up of formal accounting systems. Firms operating in a competitive market tend to focus more on operational aspects and thus neglect the least visible part of their business, the accounting routines. The Mann-Whitney tests

are statistically significant which therefore provide evidence of the neglected accounting services among the small to medium-sized Mauritian manufacturing firms. On the other hand, firms dealing in seasonal products tend to have formal accounting systems more as a need to closely monitor the working capital requirements.

4.6. Logistic regression analysis

The dependent variable for assessing the effect of accounting systems among the sample firms is the binary variable derived from the re-code function in SPSS. Thus, the regression makes use of the 'have an AS' which takes the value of 1 and 'minimal AS' which takes the value of 0. The independent variables have been selected based on the univariate and bivariate tests which have shown evidence of the association between the surrogate variables and the dependent (ACCSYSD) variable.

The descriptive statistics of the variables are reported in Appendix II, Table A. The mean value of the sample firms size and age are 17.5 and 14 respectively. The family involvement is quite pronounced (66%) and this supports the lack of need for a formal accounting system, only 38% of the sample firms have an accounting department. The correlations between the dependent variable and independent variables are provided in Appendix II, Table C. As expected most of the independent variables are significantly related to the dependent variable (ACCSYSD). Examining the bivariate relationships between the dependent and independent variables, of particular note is the consistent positive correlation between the variable ACCSYSD and the independent variables (ACCDEPT, SALCREDI, LATEPAY, TERMPKR and WCMSTKR). Finally, examining the correlations between the dependent variable and the variables size and age, which purport the life cycle model, it is found that larger and matured firms are the ones which have a formal accounting system.

Table 8 presents results of binary logistic regression analysis for the firms with 'have an AS' relative to those firms with 'minimal AS' (dependent variable coded as 1 and 0 respectively). The model summary appears to be a good fit as given by the Hosmer and Lemeshow value (Chi-square = 10.165, Sig. = 0.254) which measures the correspondence of the actual and predicted values of the dependent variable Hair *et al.* [34]. A good model fit is indicated by a non-significant Chi-square value which is the case for the model. The H&L measure showed non-significance, indicating no difference in the distribution of the actual and predicted dependent values. Overall, the estimated model appears well determined (Model Chi-square = 39.344, p -value = 0.000; 77% of observations correctly classified).¹⁰

The logistic regression model includes a number of trade credit variables posited to have an influence on the extent of the accounting services. The variables CREDDAYS and DURATION are found to be negatively associated with the dependent variable, which makes theoretical sense (though not statistically significant) as firms with formal accounting systems are able to better manage their working capital. On a similar note, firms having formal accounting systems would report a more severe late payment problem. The parameter estimates for the variable LATEPAY is positive and statistically significant. A partial interpretation of this association and as supported in Peel *et al.* [35] is the reactive response to credit management. In fact, firms tend to formalise their credit control function to deal with their late payment problem. This was validated during the interview with case_{num3} where the firm deals in frozen snacks.

Along the same line firms having formalised systems and procedures are expected to undertake frequent WCM routines. This is supported by the statistically significant relationship for the parameter WCMSTKR. This indicates that the small to medium-sized Mauritian manufacturing firms having a formal accounting system are able to keep adequate control on stocks. Given the resource constraints which many SMEs faced, only a few can afford to have separate accounts department to oversee the financial matters of their businesses. This in itself is a precondition to have in place

¹⁰Independent variables were tested for multicollinearity using bivariate correlations of all variables. These tests appeared safe in that the maximum correlation coefficient between any pair of variables was 0.296 (for WCMSTKR and DIFFMWC).

formal accounting systems to guarantee the best internal service provided by the department. This is supported by the statistically positive relationship between the variable ACCDEPT and firms having formal accounting systems.

As expected firms with more outside influence, measured by the variable FAMINVOL have positive implication for the take up of accounting routines. The parameter for the variable is negative and statistically significant at the 5% level. On the other hand, the variables size, age and education level of owner manager, though attracting the hypothesised sign are not significant.

Table 8: Measures of firm accounting systems: have an AS v. minimal AS logistic regression analysis.

Variable	N	Description	Coefficient	Wald value	Sig.
EMPLOYFT	137	Size of firm	0.011	0.589	0.443
AGE	137	How old is the business	0.032	1.488	0.223
CREDDAYS	137	Creditors days	-0.006	0.339	0.560
DURATION	139	Debtor days	-0.010	1.995	0.158
EDUGP	137	Owner managers level of education	0.015	0.001	0.976
FAMINVOL	141	Family involvement	-1.277	5.631**	0.018
ACCDEPT	141	Have an accounts department	1.318	5.998**	0.014
LATEPAY	131	Late payment problem	0.413	4.756**	0.029
DIFFMWC	131	Difficult managing working capital	0.164	0.420	0.517
WCMSTKR	131	WCM routines: stock review	0.569	4.700**	0.030
Constant			-0.421	0.216	0.642
% correctly classified = 77% and Model Chi-square = 39.344 ($p = 0.000$)					

^aDependent variable is coded 1 = have an AS, 0 = minimal AS. Variable definition as in Appendix II and Table 7.

***, **, * Denotes significance level at 1%, 5% and 10% respectively.

As expected firms with more outside influence, measured by the variable FAMINVOL have positive implication for the take up of accounting routines. The parameter for the variable is negative and statistically significant at the 5% level. On the other hand, the variables size, age and education level of owner manager, though attracting the hypothesised sign are not significant.

5. Conclusion

The above study has given an insight into the conditions which support the adoption of formal accounting systems among the small to medium-sized Mauritian manufacturing firms. The research findings have consistently showed the positive effects that firms may derive from an internally accounting service department. Important variables that discriminate between the two sub-samples of firms are family involvement, capacity relevance, captured by the variable ACCDEPT; WCM routines, more particularly late payment problem and stock management.

A review of the literature on the small firms' financial management practices has showed what may be viewed as '*best practices*' for the large firms may not be relevant to the small firms. Further, it is noted that the small firms do not require the same degree of sophistication in their financial dealings and their motivations to stay in business might be of a non-financial motive, such as to carry on with the family tradition. It is equally possible that the VS an S category of firms do not find the need to keep formal accounting records since they are mostly controlled by family

members, where the '*entity concept*' is less pronounced. However, on the other hand, they must be made aware of the accrued benefits that follow from a formal accounting system.

Therefore, it may be argued that the '*entity concept*' is a starting point for a formal accounting system and that is normally absent in very small and small firms. Further, the tax authorities normally club business income with individual/family income if the firm is proprietorship or partnership. Thus, unless there is an incentive to separate business from family, the VS and S firms will not have any incentive to have separate accounting systems and tax authorities can consider the same.

The research findings though limited to the context may have important implications for business practitioners who tend to neglect the accounting function and focus on the operational aspects of their businesses. Important variables which discriminate between firms having accounting systems and firms with minimal accounting systems are the education level of owner manager, outside influence in the decision-making process, market conditions and the presence of accounting department. Firms which can better negate the information asymmetry are able to sell more on credit without affecting their cash flow position and negotiate better purchase terms. These are important lessons which owner managers of SMEs may consider while monitoring their business performance.

Policy makers in Mauritius are not fully aware of the internal factors which are a hindrance to 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 accounting routines of their enterprises. Therefore, the empirical evidences of this study are an attempt to provide an insight into the 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 deprived of important key financial indicators, as a monitoring tool. This study focused on the manufacturing sector and thus the research findings may be confined to SMEs operating in this sector. Future research may focus on the services sector where SMEs also play an important role and using case studies to investigate into the evolutionary approach to short-term financial management practices.

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Appendix I: Profiles of interviewees.

Case	Industry	Line of product	Size ^a	Turnover (Rs '000)	Involved in decision	Founded
1	Leather and garments	T-shirts and off-print screen print	11	4,500	Son and wife	1973
2	Leather and garments	Bed sheet and quilt	8 ^b	2,500	Son as an accountant	1997
3	Leather and garments (LG)	Ready-made garments	8	1,800	Sister	1999
4	Food and beverages	Exotic pickles	8	3,000	Son as an accountant	2001
5	Food and beverages	Frozen snacks	16	1,800	Son	2000
6	Food and beverages	Catering and salted fish	9 ^c	5,000	Wife	1992
7	Wood and furniture	Kitchen set, bedroom furniture	20	20,000	Manager	1994
8	Wood and furniture	Woodwork (25%) products	6	1,000	Father and brothers	1987
9	WF and metal product	Window frame, partitioning and wooden furniture	30	15,000	Brothers as directors	1989
10	Paper product and printing	Printing, cards and paper products	30	12,000	Brothers and Nephew	1980
11	Chemical, rubber & plastics (CRP)	Prelart, bache, cover, tent	10*	10,000	Wife and children	1996
12	CRP and LG	School bags and luggage bags	6	1,500	Husband	1996

^aFull time employees as a proxy for size.

^bEmployed based on customer order.

^cExcluding employees engaged for catering services.

*Engage 20 relief expatriate.

Appendix II, Table A: Descriptive statistics.

Variable	N	Mean	Std. deviation	Minimum	Maximum
EMPLOYFT	137	17.50	23.50	0	50
AGE	141	13.68	9.50	1	50
DURATION	139	46.47	36.00	0	180
CREDDAYS	137	41.82	27.10	0	120
LATEPAY	131	3.51	1.32	1	5
EDUGP	141	1.99	0.87	1	3
FAMINVOL	141	0.66	0.47	0	1
ACCDEPT	141	0.38	0.48	0	1

Appendix II, Table B: Dependent and independent variables definition and summary statistics.

Variable	N	Variable definition	Measurement scale	Mean value
EMPLOYFT	137	Number of employees	Continuous	17.50
AGE	137	How old is the business	Continuous	13.68
FAMINVOL	141	Family member involved in decision making	Nominal: (0 = no one else to 3 = non-family members)	
EDUGP	137	Owner managers' level of education	Nominal: (1 = basic; 2 = advanced; 3 = professional)	
EDUFLD	101	Field of education–re-code ¹	Nominal: (1 = science side and 2 = art side)	
GENDER	141	Gender of owner manager	Dichotomous: (1 = male, 0 = female)	84*
CREDBY	137	Creditors days	Continuous	41.82
DURATION	139	Debtor days	Continuous	46.47
TERMPCR	132	Terms of purchases–% on credit	Percentage (1–100)	56.99
LATEPAY	131	Late payment problem	Ordinal: (1 = not a problem to 5 = a very high extent)	3.51
BDEBT	136	% of bad debts	Continuous	3.29
DIFFMWC	131	Difficult managing working capital	Continuous: factor [^] scores	
WCMSTKR	131	WCM routines: stock review	Continuous: factor scores	
SALCREDI	130	Terms of sales–% on credit	Percentage (1–100)	56.51
SEASON	137	Seasonality of market demand	Ordinal: (1 = not at all seasonal to 5 = highly seasonal)	2.43
COMPETE	137	How competitive is the market	Ordinal: (1 = not at all competitive to 5 = fiercely competitive)	3.57
ACCSYS	141	Accounting systems	Nominal: (0 = no records kept to 4 = formal accounts kept)	
ACCSYSR	141	Accounting systems re-code into different variable	Nominal: (1 = do not maintain to 3 = keep formal accounts)	
ACCSYSD	141	Accounting systems (AS) re-code into a dichotomous variable	Dichotomous: (1 = have an AS, 0 = minimal AS)	58
ACCDEPT	141	Have an account department	Dichotomous: (1 = yes, 0 = no)	38*
CCONINV	136	Difficulty with credit control and invoicing	Ordinal: (1 = not a problem to 5 = acute problem)	2.80
DACCSYS	136	Difficulty developing accounting systems	Ordinal: (1 = not a problem to 5 = acute problem)	3.01

[^]The mean and std. deviation for factor score is 0 and 1 respectively.

*For dichotomous variable cell indicates percentage of dependent group who gave an affirmative response.

¹The respondents were asked to indicate their field of education and using the re-code function these were grouped into Science side (science and technology and engineering) and Art side (business management, economic and finance and law).

Appendix II, Table C: Pearson correlation matrix between variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. EMPLOYFT	1.000													
2. ACCDEPT	0.417 ^c	1.000												
3. DACCSYS	-0.180 ^b	-0.240 ^c	1.000											
4. CCONINV	-0.102	-0.032	0.453 ^c	1.000										
5. SALCREDI	-0.182 ^b	0.332 ^c	-0.080	0.078	1.000									
6. DURATION	0.129	0.093	-0.058	0.161	0.273 ^c	1.000								
7. BDEBT	-0.096	0.119	0.143	0.206 ^b	0.300 ^c	0.200 ^b	1.000							
8. LATEPAY	0.016	0.183 ^b	0.138	0.237 ^c	0.212 ^b	0.082	0.177 ^b	1.000						
9. TERMPCR	0.326 ^c	0.335 ^c	-0.177 ^b	-0.119	0.391 ^c	0.145	0.096	0.220 ^b	1.000					
10. CREDAYS	0.240 ^c	0.234 ^c	-0.065	0.016	0.249 ^c	0.432 ^c	0.120	0.157	0.351 ^c	1.000				
11. AGE	0.341 ^c	0.203 ^b	-0.315 ^c	-0.102	0.075	0.180 ^b	-0.061	-0.001	0.176 ^b	0.180 ^b	1.000			
12. DIFFMWC	-0.129	-0.041	0.695 ^c	0.687 ^c	-0.016	0.038	0.126	0.155	-0.117	0.040	0.066	1.000		
13. WCMSTKR	0.188 ^b	0.034	-0.179 ^b	-0.007	0.120	-0.009	-0.023	0.152	0.151	0.057	0.083	-0.237 ^c	1.000	
14. ACCSYSYD	0.247 ^c	0.391 ^c	-0.127	-0.100	0.242 ^c	0.012	0.084	0.214 ^b	0.310 ^c	0.121	0.175 ^b	-0.019	0.216 ^c	1.000

^{a,b}Denotes significance level at 1% and 5% respectively. Variables definition in Appendix II, Table B.