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An Empirical Study of Cash Management Practices with reference to Construction Sector in Visakhapatnam District of Andhra Pradesh, India

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Abstract

Cash management plays a significant role in improved profitability of construction businesses. The firms can achieve optimal management of cash by making the trade-off between profitability and liquidity. The construction industry is one of the most complex and multi-purpose economic sectors. Therefore, a well designed and implemented cash management practice is expected to contribute positively to the creation of a firm's value. A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Effective management of the cash positively influences the firms' financial position and also have a significant effect on the profitability of the building construction firms. The paper analyses the efficiency of cash management practices in building construction firms.

Keywords: *Building Construction; Cash Management; Efficiency; Firm; Liquidity; Profitability*

1. Introduction

A firm is required to maintain a balance between liquidity and profitability while conducting its day to day operations. Liquidity is a precondition to ensure that firms are able to meet its short-term obligations and its continued flow can be guaranteed from a profitable venture. The importance of cash as an indicator of continuing financial health should not be surprising in view of its crucial role within the business. This requires that business must be run both efficiently and profitably. In the process, an asset-liability mismatch may occur which may increase the firm's profitability in the short-run but at a risk of its insolvency. Working capital management (WCM) is of particular importance to the business [1-4]. With limited access to the long-term capital markets, business tends to rely more heavily on owner financing, trade credit and short-term bank loans to finance their needed investment in cash, accounts receivable and inventory (Agyei-Mensah, 2010). The construction industry is one of the most complex and multi-purpose economic sectors. Its value-added chain encompasses activities which include the production of raw materials and processed goods (ranging from simple sand extraction, wood processing and wood working, to the manufacture of cement and steel, to metal products, such as fixtures), civil and heavy construction works, as well as project engineering, development and management (Bakar, 2009). The construction industry holds great potential for broad-based growth, employment generation, capital formation and technological development. Through its strong dependence on backward and forward linkages, it stands as a foundation for stimulating structural changes and sustaining the development of other sectors, including agriculture and forestry, among others. The construction industry is also crucial for aggregate savings as a result of its contribution to the building of the physical stock of capital. The construction industry may be considered under the global, regional and local perspectives [5]. The concept of working capital management addresses firms' managing of their short-term capital and the goal of the management of cash is to promote a satisfying liquidity, profitability and shareholders' value. It is

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the ability to control effectively and efficiently the current assets and current liabilities in the abilities in a manner that provides the firm with maximum return on its assets and minimizes payments for its liabilities (Gill et al., 2010). The short-term capital refers to the capital that companies use in their daily operations and it consists of companies' current assets and current liabilities. A well-managed working capital promotes the firm's well-being on the market in terms of liquidity and it also acts in favour of thegrowth of shareholder's value. Working capital management efficiency is vital especially for construction firms, where a major part of assets is composed of current assets. It directly affects the profitability and liquidity of firms (Raheman et al., 2007). The profitability liquidity trade-off is important because if working capital management is not given due considerations, then firms are likely to fail and face bankruptcy. The significance of working capital management efficiency is irrefutable (Filbeck et al., 2005). Working capital management is concerned with making sure of a firm has exactly the right amount of cash and lines of credit available to the business at all times (Deloof, 2009). Cash is the lifeline of a firm. If this lifeline deteriorates, so does a firm's ability to finance operations, reinvest and meet the capital requirement and payment needs. Understanding a firm's cash flow healthy is essential for making investment decisions. An individual firm's investment in working capital has been related to the type of industry in which it operates and the essential working capital policy each individual firm adopts (Nyakundi, 2003). The investment concerns how much of the firm's limited resources should be invested in working capital. It further observes that finance decisions relate to how the investment in working capital is to be allocated. Therefore, the paper examines the cash management practices of the construction firms and their efficiency in managing the funds in increasing the profitability of the firms [6-8].

1.1 Need for Cash Management

The working capital meets the short-term financial requirements of a business enterprise. It is a trading capital, not retained in the business in a particular form for longer than a year. The money invested in it changes form and substance during the normal course of business operations. The need for maintaining an adequate working capital can hardly be requested. Just as circulation of blood is very necessary for the human body to maintain life, the flow of funds (cash) is extremely necessary to maintain the business in a healthy situation. If this becomes weak, the business can hardly prosper and survive. Cash starvation is generally credited as a major cause of business failure in many developing countries. The success of a firm depends ultimately, on its ability to operate cash receipts in excess of disbursements. The cash flow problems of many businesses are worsened by poor financial management and in particular, the lack of planning cash requirements. While the performance levels of business have traditionally been attributed to general managerial factors such as manufacturing, marketing and operations, cash management in the working capital management have a consequent impact on business survival and growth. The management of cash is important to the financial health of the business of all sizes. The amount invested in working capital is often high in proportion to the total assets employed and so it is vital that these amounts are used in an efficient and effective way [9].

1.2 Literature Review

The paper examines the literature related to the cash management in working capital management practices and the firm's efficiency of managing cash in increasing profitability.

- Hyderabad R. L (1999) focuses on current assets financing policies. He further states that a proper evaluation of the assets - liquidity and financial structure liquidity is „quiet essence" for sound working capital. The author firmly believes that the considerations of working capital investment and financing are very crucial and should be given due significance by the management for framing the overall working capital policy.
- Coughenour Jay F. and Deli Daniel N, (2002) closely examine the influence of NYSE specialist firm organizational form on the nature of liquidity provision. A comparison is made

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between closely held firms whose specialists provide liquidity with their own capital and widely held firms whose specialists provide liquidity with diffusely owned capital [10]. The authors further argue that specialists using their own capital have a greater incentive and ability to reduce adverse selection cost, but face a greater cost of capital.

- Hwee and Tiong (2002) A computer program CAFFS (Cash Flow Forecasting System) was developed for predicting cash flow profile of a construction project. The program took into account contractual factors in a project as well as working practices and trends that affect the project's cash flow. Impact of uncertainties and risks such as excess measurement, variation of contract, cost fluctuation etc. could also be reflected on the cash flow profile. Internal Rate of Return (IRR) based on monthly cash flows and maximum working capital requirement were the primary outputs that could be most useful to the contractor and also act as indicators to project's performance.
- Kenley (2003) developed a 'Logit net cash flow' model using actual component inward and outward cash flow data in order to form a residual cash flow model. Kenley had recognized the stepped nature of different cash flows since most of the cash flows involved lump sum payments from time to time. However, he preferred to use smoothened out continuous curves in sigmoid form. He felt that although the stepped curves very realistically represented the data, they were very difficult to represent for any form of modeling, forecasting or simulation.
- Odeyinka et al (Odeyinka, Kaka, & Marledge, 2003) carried out a study about use and application of different approaches and strategies in resolving deficit cash flow being followed by small, medium and large scale contractors in U.K. The study also identified various cash flow forecasting methods in use. Overvaluation of company's cash reserves and tender unbalancing were the most common approaches to resolve the cash deficit.
- Park et al (Park, Han, & Russell, 2005) attempted to estimate cash flows by categorization of different project activities on the basis of -Time lags involved between their physical occurrence of different stages and the related cash flows and Identifying the characteristic movement of cumulative cash flow against time of the activity.
- Patra Santimoy (2005) analyses the impact of liquidity on profitability considering the case of Tata Iron and Steel Company Ltd liquidity and profitability are two important dimensions in determining the soundness of an enterprise. The paper has covered the following objectives:

a. To examine the impact of liquidity on profitability between ROI and each of the selected ratios
b. To assess the joint effect of the above ratios upon the profitability. The study of the impact of liquidity ratios on profitability showed both positive and negative association [11]. The hypothesis that there is an adverse effect of liquidity on profitability is true in case of TISCO Ltd. Now regarding profitability of the company under the study, though there is no standard norm of profitability which depends upon the management policy of the company, still it appears to be too little.

- Bhunia Amalendu (2007) analyses the working capital management of public sector iron and steel enterprises. The level of working capital is found to be lower. Liquidity position was poor and the management of inventory and accounts receivable was found to be inefficient. It has been suggested that steps should be taken for the improvement of the same.
- Chen (2007) reiterated that the terms cash flow and expenditure were being interchangeably used by many project teams and organizations. Chen illustrated typical situation for a project contractor where a cash deficit due to difference between cash inflow and cash outflow gets created during project execution. He further stated that this cash deficit was needed to be estimated accurately as it was to be financed on a short-term basis as working capital.

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- Jarrah et al (Jarrah, Kulkarni, & O'Connor, 2007) collected actual cash flow data inform of monthly account summary reports for various projects under Texas Department of Transportation. The sample consisted of different category of projects such as construction and replacement of bridges, new non freeways, road overlay and rehabilitation of existing roads, landscape scenic enhancements, widening of freeways etc.
- Das P. K (2008) has shown that the overall liquidity position of Ranbaxy Laboratories Ltd was satisfactory. Although the behavior pattern of the different indices indicate the sound liquidity management of the company, the author offers suggestions to improve certain factors like reduction in current assets through maintaining its optimum level, prompt recovery of debts through the preparation of periodical reports of the overdue, maintaining a definite proportion among the various components of working capital on the basis of past experience and strengthening the cash position to reducing the level of investment in inventory and collecting what is outstanding properly.
- Ghosh Sudipta (2008) makes an attempt to analyze the liquidity management of TISCO Ltd., one of the leading Iron and Steel manufacturing companies in India for the period from 1996-97 to 2000-2001.

Basically this paper examines the following main objectives:

a. To examine the liquidity position of the company on the basis of liquidity ratios
b. To measure the closeness of association between liquidity and profitability
c. To offer some suggestions for improvement in the efficiency of liquidity management of the company

The analysis sums up with the observation that in case of debtors to current assets ratio, cash and bank to current assets ratio, and loans and advances and other current assets ratio, a high value indicates relatively favorable position. On the other hand, a low inventory to current assets ratio shows a more favorable position.

2. Objective of the Study

The primary objective of the study is to know the significance of cash management in working capital management practices of the building construction firms. To determine the financial pattern followed by construction builders through diverse sources of financing working capital.

3. Research Methodology

The study uses data from both primary and secondary sources. The secondary data is collected from journals, books, magazines, reports on the construction industry, CREDAI, and other internet sources. The primary data is supplemented with the data collected from secondary sources. For the purpose of the study, registered construction builders in Apartment Builders Association (ABA) and CREDAI, an apex body for private real estate developers of Visakhapatnam constitute the total population. As per the latest records, there are approximately 600 registered construction builders in Visakhapatnam. The study covers 10% of the total number of registered builders, thus, the sample size is 60 builders who are in this business for quite some time and established themselves as reputed builders. For the detailed statistical analysis, 25% (150) number of respondents are covered out of the total 600 respondents [12-16]. To collect the required data a structured questionnaire was designed and approached the construction builders. To analyse the collected data, the statistical techniques such as frequency, percentages, ANOVA and chi-square analysis are used with the help of SPSS software.

4. General Information of the Respondents

To study and analyzes the efficiency of cash management in working capital management practices in the building construction firms. The demographic status of the respondents related to gender, age classification, education qualification, and experience of the respondents in building construction field is shown in Table 1.

The demographic status 30 per cent of the respondents are in the age group of 45 - 50 years and 27 per cent are above 50 years of age. There are 23 per cent of the respondents in the group of 41 - 45 years, 13 per cent are in the age group of 36 - 40

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years, 5 per cent belong to 31 – 35 years of age and only 2 per cent are below 30 years. The educational qualification of the respondents shows that 60 per cent are graduates, 35 per cent are postgraduates, and only 3 per cent are professionals. The experience of the respondents in the construction field reveals that 35 per cent have 6 - 10 years of experience. There are 25 per cent of the respondents having below 5 years of experience, 22 per cent have 11 – 15 years of experience, 13 per cent of the respondents have 16 – 20 years of experience, and only 5 per cent of the respondents have above 20 years of experience in the construction field.

Table 1 Demographic Status of the Respondents

Factor	Frequency	Percent
Age		
Below 30 Years	1	2%
31 - 35 Years	3	5%
36 - 40 Years	8	13%
41 - 45 Years	14	23%
45 - 50 Years	18	30%
Above 50 Years	16	27%
Education Qualification		
Graduate	37	62%
Post Graduate	21	35%
Professional	2	3%
Experience in the construction field		
Below 5 Years	15	25%
6 - 10 Years	21	35%
11 -15 Years	13	22%
16 - 20 Years	8	13%
Above 20 Years	3	5%
Category of the Construction Projects		
Residential	39	65%
Commercial	8	13%
Both	13	22%
Type of Organizations		
Sole Proprietorship	24	40
Partnership firm	28	47
Joint Stock Company	5	8
Family Business	3	5

The category of the construction projects taken up by the respondents' shows that, 65 per cent have taken up residential projects, 22 per cent have taken up both residential and commercial projects, and 13 per cent have taken up only commercial projects [17]. With regard to the types of organizations, 47 per cent of the firms are partnership form of organizations, 40 per cent of the firms are sole proprietorship form of organizations, 8 per cent of the firms are joint stock companies and 5 per cent of the firms are family operated businesses.

5. Statistical Data Analysis- Analysis of Cash Management

The analysis with respect to the cash management perspectives such as motives of holding cash in the projects, do they have the mechanism of cash planning, if yes-do they prepare the cash budget and statements, have they faced shortage of cash during the last one year, if yes-how did they overcome this problem, what methods are adopted for accelerating cash flows, what methods are adopted for slowing down cash outflows, doe they have any mechanism for investment of surplus funds, the various sources of working capital, whether short term source, do they have ongoing working capital arrangement with any financial institution, and whether long term finance are analized to understand in depth in this paper. For this part of statistical analysis (150), 25% of the total respondents (600) are taken into consideration.

Table 2 Motives Of Holding Cash In The Projects

Parameter	Frequency	Percent
Transaction Motive	109	72.67
Precautionary Motive	33	22.00
Speculative Motive	8	5.33
Total	**150**	**100.0**

The respondents opinion on the motives of holding cash in the construction projects is shown in Table 2. The analysis reveals that 72.67% of the firms have transaction motive of holding cash in their projects, whereas, 22% of the firms use

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Volume: 02
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Page No: 1053-1064

precautionary motive, and 5.33% of the firms ensure speculative motive of holding cash in the construction projects [18]. Motives of Holding Cash in The Projects Shown in Figure 1.

[H1 - Relationship among the motive of holding cash in the projects with the category of the construction projects taken up and types of organization.]

H01: There is no significant relationship between the motive of holding cash in the projects and the category of construction projects taken up.

HA1: There is a significant relationship between the motive of holding cash in the projects and the category of construction projects taken up.

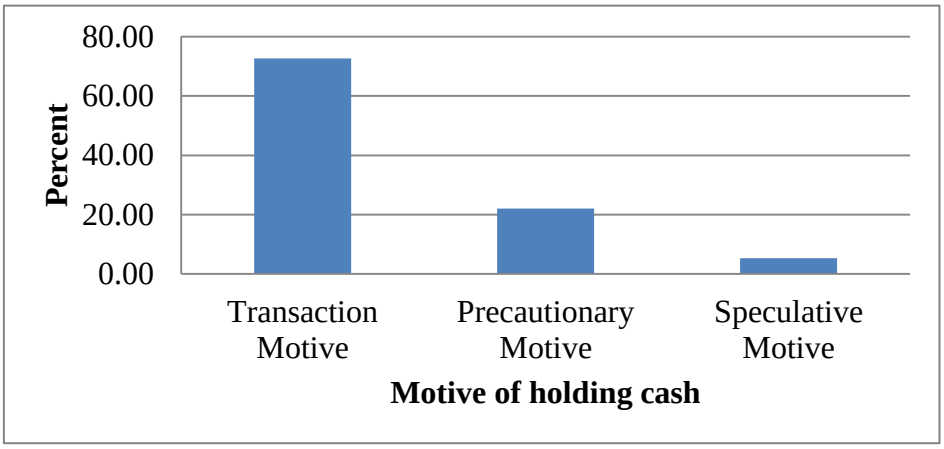

Figure 1 Motives of Holding Cash in the Projects

Table 3 Motive of Holding Cash in the Projects *Category of the Construction Projects Taken Up

Motive of holding cash in the projects		Category of the Construction Projects taken up			Total
		Residential	Commercial	Both	
Transaction motive	Count	92	9	8	109
	% within category of the construction projects taken up	72.4%	90.0%	61.5%	72.7%
Precautionary motive	Count	29	1	3	33
	% within Category of the Construction Projects taken up	22.8%	10.0%	23.1%	22.0%
Speculative motive	Count	6	0	2	8
	% within Category of the Construction Projects taken up	4.7%	0.0%	15.4%	5.3%
Total	Count	127	10	13	150
	% within Category of the Construction Projects taken up	100.0%	100.0%	100.0%	100.0%

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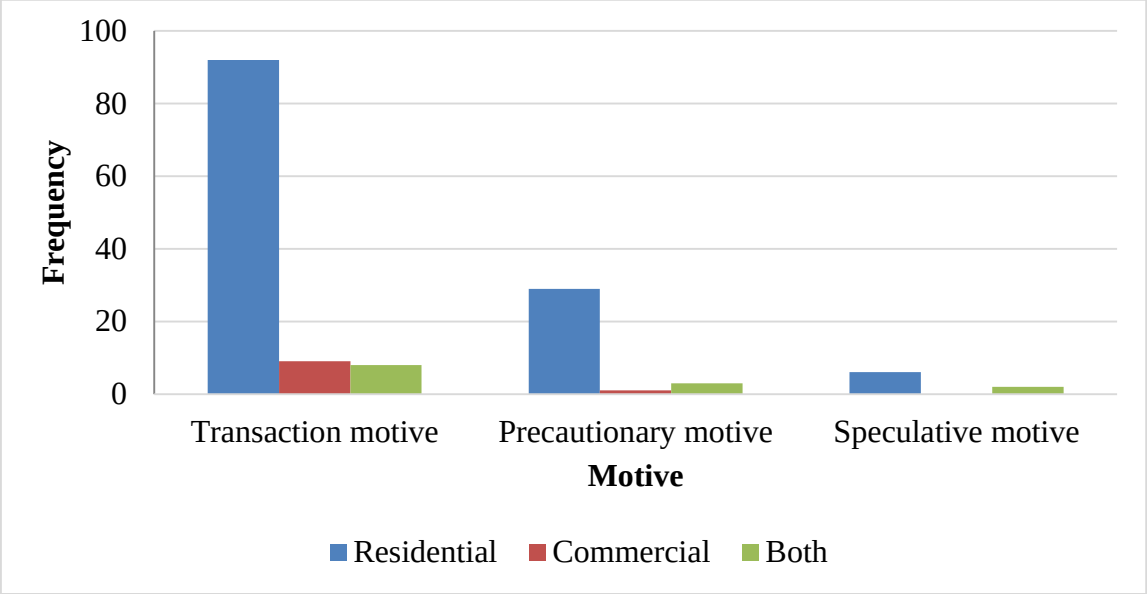

Figure 2 Motive of Holding Cash in The Projects * Category of The Construction Projects Taken Up

The Table 3 shows the cross-tabulation between the motive of holding cash in the projects and the category of the construction projects taken up. The analysis reveals that in the case of residential projects, transaction motive (72.4%) is the main motive of holding cash in the projects. The other motives of holding cash in the projects are precautionary motive (22.8%) and speculative motive (4.7%). In the case of commercial projects, the motives of holding cash in the projects are transaction motive (90%) and precautionary motive (10%). In the case of both residential and commercial projects, the main motive of holding cash in the projects is transaction motive (61.5%), followed by precautionary motive (23.1%) and speculative motive (15.4%). The graphical representation of the relationship between the motive of holding cash in the projects and the category of the construction projects taken up is shown in Figure 2. Thus, it can be observed that transaction motive is the major motive of holding cash in the projects of the construction firms. The Table 4 shows the chi-square test relating to the relationship between motive of holding cash in the projects and the category of the construction projects taken up. [19] It can be observed that the Pearson chi-square statistic value ($\chi 2$ = 4.422; p=0.352>0.05) indicates that these variables are independent of each other and there is no statistically significant relationship between the motive of holding cash in the projects and the category of the construction projects taken up.

Table 4 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.422[a]	4	.352
Likelihood Ratio	4.271	4	.371
Linear-by-Linear Association	.598	1	.439
N of Valid Cases	150		

Thus, it can be concluded that the results show strong support for the acceptance of the null hypothesis (H01) and reject the alternative hypothesis (HA1).

H02: There is no significant relationship between the motive of holding cash in the projects and the types of organization.

HA2: There is a significant relationship between the motive of holding cash in the projects and the types of organization.

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e ISSN: 2584-2854
Volume: 02
Issue: 04 April 2024
Page No: 1053-1064

Table 5 Cross-Tabulation between the Motive of Holding Cash in the Projects and the Types or Organisation

Motive of holding cash in the projects		Types of organisation				Total
		Sole Proprietorship	Partnership firm	Joint Stock Company	Family Business	
Transaction motive	Count	51	45	10	3	109
	% within Types of organisation	77.3%	66.2%	76.9%	100.0%	72.7%
Precautionary motive	Count	13	18	2	0	33
	% within Types of organisation	19.7%	26.5%	15.4%	0.0%	22.0%
Speculative motive	Count	2	5	1	0	8
	% within Types of organisation	3.0%	7.4%	7.7%	0.0%	5.3%
Total	Count	66	68	13	3	150
	% within Types of organisation	100.0%	100.0%	100.0%	100.0%	100.0%

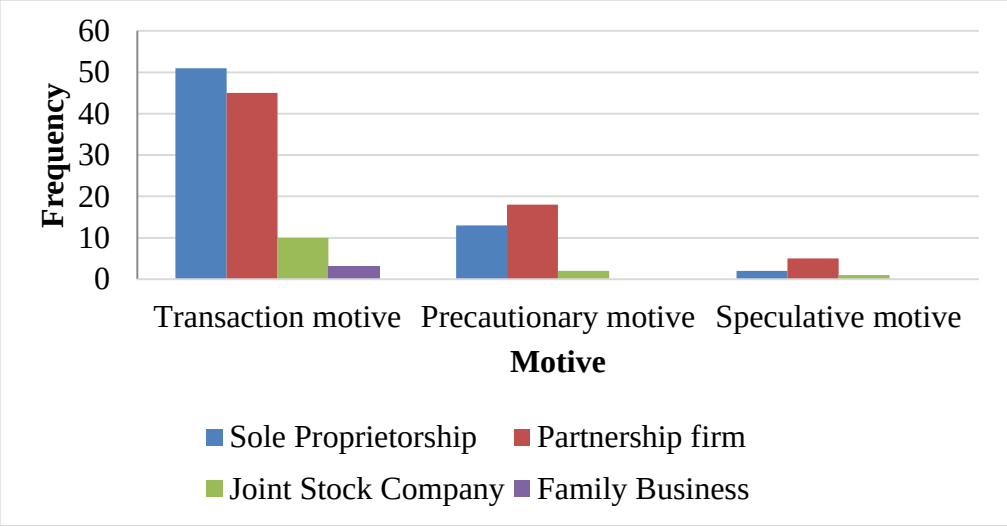

Figure 3 Motive of Holding Cash in The Projects * Types of Organisation

The Table 5 shows the cross-tabulation between the motive of holding cash in the projects and the types or organisation. The analysis reveals that in the case of sole proprietorship, transaction motive (77.3%) is the main motive of holding cash in the projects. The other motives of holding cash in the projects are precautionary motive (19.7%) and speculative motive (3%). In the case of partnership firm, the motives of holding cash in the projects are transaction motive (66.2%), precautionary motive (26.5%), and speculative motive (7.4%). In the case of limited companies, the main motive of holding cash in the projects is transaction motive (76.9%), followed by precautionary motive (15.4%) and speculative motive (7.7%). The graphical representation of the relationship between the motive of holding cash in the projects and the types of organization is shown in Figure 3. Thus, it can be observed that transaction motive is the major motive of holding cash in the projects of the construction firms.

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e ISSN: 2584-2854
Volume: 02
Issue: 04 April 2024
Page No: 1053-1064

Table 6 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.095[a]	6	.664
Likelihood Ratio	4.939	6	.552
Linear-by-Linear Association	.221	1	.638
N of Valid Cases	150		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is 16.

The Table 6 shows the chi-square test relating to the relationship between motive of holding cash in the projects and the types of organisation. It can be observed that the Pearson chi-square statistic value ($\chi 2 = 4.095$; $p=0.664>0.05$) indicates that these variables are independent of each other and there is no statistically significant relationship between the motive of holding cash in the projects and the types of organisation. Thus, it can be concluded that the results show strong support for the acceptance of the null hypothesis (H02) and reject the alternative hypothesis (HA2).

Table 7 Mechanism Of Cash Planning

Parameter	Frequency	Percent
Yes	126	84.00
No	24	16.00
Total	**150**	**100.0**

The Table 7 shows the respondents opinion on the mechanism of cash planning. It can be observed that 84% of the firms have a mechanism of cash planning, while, 16% of the respondent firms do not practice any mechanism of cash planning.

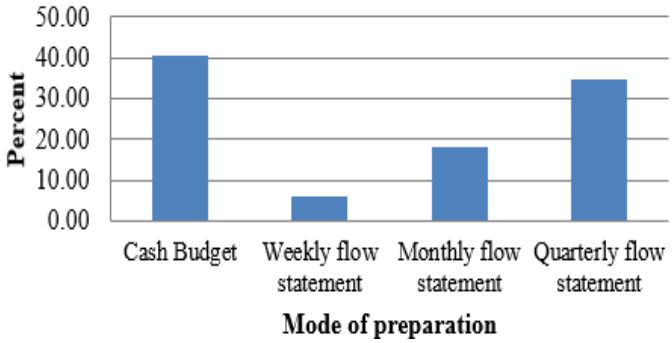

Figure 4 Mode of Preparing Budget

Table 8 Mode of Preparing Budget

Parameter	Frequency	Percent
Cash Budget	51	40.48
Weekly flow statement	8	6.35
Monthly flow statement	23	18.25
Quarterly flow statement	44	34.92
Total	**126**	**100.0**

The respondents opinion on preparation of various statements is shown in Table 8. The analysis reveals that 40.48% of the construction firms prepare a cash budget. There are 34.92% of the construction firms preparing quarterly flow statement, 18.25% of the firms prepare monthly flow statement, and only 6.35% of the firms prepare weekly flow statement. The graphical representation of the same is shown in the Figure 4. Thus, it can be observed that most of the construction enterprises prepare cash budget.

Table 9 Respondents Opinion On Facing Shortage of Cash During the Last One-Year

Parameter	Frequency	Percent
Yes	67	44.67
No	83	55.33
Total	**150**	**100.0**

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Table 10 Overcoming Shortage of Cash Problem

Sl. No.	Parameter	Frequency	Percent
1	Bank Loans	52	77.61
2	Loans from Relatives and Friends	41	61.19
3	Own funds	14	20.90
4	Advance from customers	28	41.79

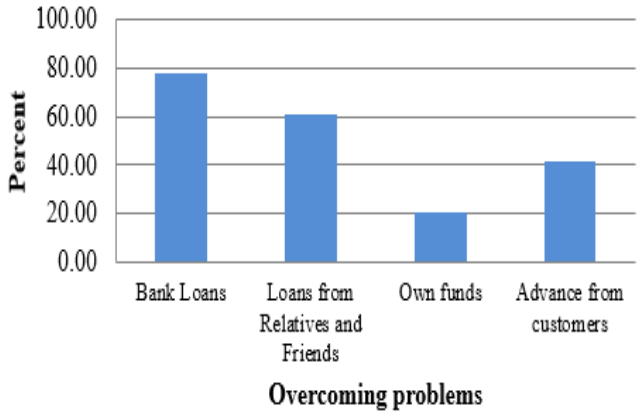

Figure 5 Overcoming Shortage of Cash Problem

The respondents opinion on whether they have faced a shortage of cash during the last one year is shown in Table 9. It can be observed that 55.33% of the firms have not faced any shortage of cash during the last one year, whereas, 44.67% of the firms have faced a shortage of cash during the last one year. The Table 10 shows the respondents opinion on how they overcame this problem if they faced shortage of cash during the last one year. The analysis reveals that the construction firm's overcame the shortage of cash problem during the one year by taking bank loans (77.61%), loans from relatives and friends (61.19), advance from customers (41.79), and own funds (20.90%). The diagrammatic representation of the same is shown in the Figure 5. Thus, it can be observed that most of the construction enterprises have taken bank loans to overcome the shortage of cash during the last one year.

Table 11 Methods Adopted for Accelerating Cash Inflows

Parameter	Frequency	Percent
Prompt payment by customers	81	54.00
Quick conversion of payment into cash	39	26.00
Decentralised Collection	30	20.00
Total	**150**	**100.0**

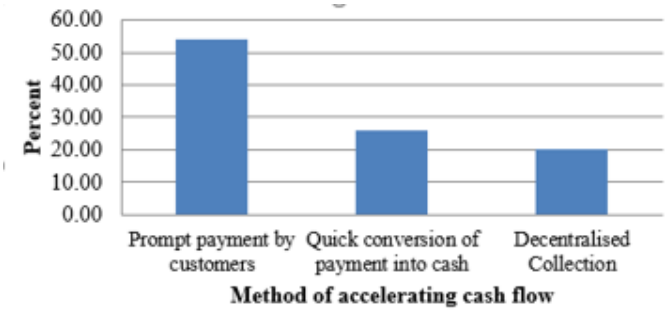

Figure 6 Methods Adopted for Accelerating Cash Inflows

The analysis of the various methods adopted by the construction firms for accelerating cash inflows are shown in Table 11. The most effectively adopted method for accelerating cash inflows is prompt payment by customers with 54%. The other methods adopted for accelerating cash inflows is quick conversion of payment into cash (26%) and decentralized collection (20%). The graphical representation of the various methods adopted for accelerating cash inflows is shown Figure 6. Thus, it can be observed that the majority of the construction firms adopted prompt payment by customers for accelerating cash inflows.

6. Findings of the Study

- The analysis reveals that most of the firms have transaction motive of holding cash in their projects.
- It can be observed that the majority of the firms have a mechanism of cash planning, while, some firms do not practice any mechanism of cash planning.
- The analysis reveals that most of the

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Page No: 1053-1064

construction firms prepare a cash budget as well as a quarterly flow statement.

- It is found that the majority of the firms have not faced any shortage of cash during the last one year.
- The analysis reveals that the construction firms overcame the shortage of cash problem during the one year by taking bank loans, loans from relatives and friends, advance from customers, and own funds.
- The effectively methods adopted by the construction firms for accelerating cash inflows are prompt payment by customers, quick conversion of payment into cash, and decentralised collection [20].
- The chi-square test there is no statistically significant relationship between the motive of holding cash in the projects and the category of the construction projects taken up indicating a strong support for the acceptance of the null hypothesis.
- The analysis results indicate there is no statistically significant relationship between the motive of holding cash in the projects and the types of organisation. Thus, show a strong support for the acceptance of the null hypothesis [21].
- The Pearson chi-square statistic results indicate that there is no statistically significant relationship between the methods adopted for accelerating cash inflows and category of the construction projects taken up, thus, show strong support for the acceptance of the null hypothesis.
- It is found that there is no statistically significant relationship between the methods adopted for accelerating cash inflows and the types of organization indicating a strong support for the acceptance of the null hypothesis [22].

Conclusion

The cash flow problems of many businesses are worsened by poor financial management and in particular, the lack of planning cash requirements. While the performance levels of business have traditionally been attributed to general managerial factors such as manufacturing, marketing and operations, working capital management have a consequent impact on business survival and growth. The management of working capital is important to the financial health of the business of all sizes. The amount invested in working capital is often high in proportion to the total assets employed and so it is vital that these amounts are used in an efficient and effective way [23-26].

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