Major Finance Sources in Construction Project Delivery and Impact of Financing in the Construction Industry

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ORIGINAL ARTICLE

Major Finance Sources in Construction Project Delivery and Impact of Financing in the Construction Industry

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ABSTRACT - Financing is critical to the success of every construction project. Construction projects are capital intensive and require a sustainable flow of financial resources for project targets and objectives to be met. The purpose of this study was to examine the major finance sources in construction project delivery and their impacts on the construction sector. A well-structured quantitative questionnaire was administered to construction experts in client, consultants and contractors organisations for gathering data via electronic means using the snowball sampling technique in Nigeria. The collected data were analysed using appropriate descriptive statistical tools and the Kruskal-Wallis test. The study found that finance is critical to the success of every construction project and the frequency of need ranges from high to very high. The impact of financing equally ranges from high to very high as financing affects different aspects of the functioning of the construction organisations and their projects. The major sources of Finance for Construction Projects in Nigeria are Credit from suppliers, Bank loans, Bank overdrafts, Personal savings, and Retained profit. Financing impacts the construction organisations and projects, particularly in areas such as improved investment in technology, enabling early mobilisation of work on-site, improved managerial capacity, better competitive strength, and high quality of the project. Clients, as well as contractors, should establish a good relationship with suppliers of building materials and equipment to ensure that needed materials are obtained on credit for the smooth running of construction projects. Project managers would leverage the various financing sources for financing investment in modern construction technologies and equipment.

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INTRODUCTION

The majority of the building and infrastructure development observed in most nations of the world is brought about by the activities of the construction industry. According to Eze *et al.* [1], the construction sector influences and accelerates the economic growth and development of nations globally. Onyeagam *et al.* [2] described the industry as a powerful sector that creates employment and stimulates sustainable economic impact in other non-construction sectors. Similarly, Gorshkov and Epifanov [3] posit that the construction sector is responsible for the number of capital construction projects being undertaken to stimulate further development in other sectors of the economy, as well as guarantee, sustained national income and potential economic growth of countries. For the construction sector to continue adding value to the national and economic value chain, finance is needed, especially to allow the industry players to continue to invest in construction and developmental projects of economic significance. This has however been a problem in both developed and developing countries, as the lack of funds and access to finance have hindered industry players from contributing meaningfully to the construction sector and the economy at large [4]; [5]; [6]. Ofori *et al.* [7] also confirmed that contractors' performances are negatively impacted by financing, especially in public projects.

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Financing is the supply of critical investment resources such as cash and other investments that are expressed in monetary/financial terms. Examples of other investments include current and fixed assets, credits, property rights, intangible assets, land-use rights, and loans and liens; which are essential for the implementation of construction projects that will bring returns on investment and other personal interests [3]. Pinto [8] posits that financing of projects involves projects owners or investors investing in specific projects of economic importance. Finance plays a critical role in any project, especially for construction projects to ensure sustainable and continuous materials procurements, labour and other project resources requirements. Finance also impact project success as a lot of activities, and even the project completion date could be affected. According to Gundes *et al.* [9, p.2], "the success of construction contractors largely depends on the specific terms and the availability of sufficient funds for realizing planned projects". Abdul-Rahman *et al.* [10] posit that poor cash flow management, late payment, insufficient financial resources and instability of the financial market; impact significantly on construction project schedule performance. However, securing financing for capital and large projects that are done in the construction industry is most times challenging. Different contracting forms, lengthy processes involved in approvals and others are some of the examples of the challenges [11].

The funding construction project is not cheap and this is made worse by the influence of some factors such as macroeconomic variables, domestic economic cycles, commodity prices, and others, which control the sector [12];[13]. This makes lending by banks to construction firms riskier. Securing finance for construction projects by construction firms has become a difficult enterprise even for firms with sound financial records in the industrialized nations [13]. Matara [14] reported that construction firms face serious drawbacks in securing finance and these hurdles come majorly from high-interest rates and the small size of the majority of the firms that operate in the construction market. Ofori *et al.* [7] reported that the delays in honouring payment certificates and meeting collateral requirements are a major drawback to the financing of projects. However, keeping good records of financial transactions, excellent capital base and improved revenue generation; have been highlighted as important to construction firms getting finances. Thus, sound financial management and control are important for firms to secure money from financial institutions or any corporate organisations for the operation and management of their operations, projects and other necessities. Cachia and Borg [15] reported that trade credit, finance obtained from related parties and bank overdraft topped the source of finance for the construction industry.

Extant literature shows that studies based on sources of finance for construction projects abound in the international construction markets [8]; [11]; [16], but scanty in developing countries like Nigeria and particularly in Rivers state. For example, Nasir's [17] study focused on construction SMEs in Abuja, Anamege [18] focused on strategies required by Small contractors to obtain finance from banks, Ibrahim *et al.* [19] focused on real estate financing, Ebhohimen and Oke [20] effect of project finances on infrastructure in Ondo and Ekiti states. Furthermore, no related study exists in the study area of this study. This present study was carried out in Port Harcourt, River state in order to fill the research gap identified in construction management literature. Gundes *et al.* [9] posit that construction finance has remained a fundamental research theme that has not gained adequate attention among construction management experts and academia.

In construction management literature, the sources of finance for building construction firms and projects are an area that has been understudied. The products of the construction sector are unique and the construction firms operate in a market that is faced regularly with a cyclical and volatile environment, with projects undertaken having time and cost limitations [14]. The focus of this study is on the sources of finance for construction firms to procure equipment and to ensure that projects awarded to them are delivered within schedule, cost and meeting performance requirements. The aim of this study is to examine the major finance sources in construction project delivery and their impacts on the construction industry. The specific objectives are; (1) to determine the major sources of financing for construction projects, and (2) to determine the impact of financing in the construction industry. This study contributes to the little available literature on the sources of finance for construction projects. Knowing the most common and cheap finance sources will help construction firms know where to get funds to upgrade their technology, and management capacity and drive innovation and research. Managers of construction businesses will be equipped with the needed knowledge and information regarding the sources of finances that are available.

LITERATURE REVIEW

Sources of Financing and Impact of Financing in Construction

Matara [14] posits that contractors in the construction industry are responsible for the supervision of the execution and repair of construction projects and this includes the erection and repair of stationary facilities. The activities that are required to be performed by the contractor calls for adequate funding from sources that are cheap and economical. Construction projects are capital intensive and access to finance is critical for every client and construction organisation. It is therefore very important to understand the various sources of financing for construction projects. Valle [21] identified eight sources of financing for construction projects, and they are commercial banks, life insurance companies, real estate investment trusts, government agencies, and alternate sources (e.g. crowdfunding). Crowdfunding is a viable alternative source of finance that has gained ground in other sectors, and its potential application has no sectorial limitations [4]; [22]. Financial management covers decisions associated with long-term financing as well as short-term sources of financing [23]. Short-term financing is usually important for the completion of transactions in a quick and timely manner [24]. Examples of this source of financing are trade credit, bank overdraft, bank loans, revolving credit agreements, and factoring [15]. Cachia & Borg [15] reported that trade credit is the most commonly used source of financing for construction projects, especially for their day to day production activities. Chakravarthi and Aravindan [11] in the Indian construction sector highlighted five major financing vehicles for the delivery of sustainable construction projects. Their finance sources are; bank loans, green bonds, private capital, international assistance program, and government funds and tax refunds. Matara [14] in a related study in Kenya found that own savings and bank loans were the most important source of finance available to building construction firms.

Trade credit is an outcome of a mutual agreement that is based on trust in which a customer (e.g. clients, consultants or contractors) obtained goods (e.g. building materials) from a supplier or building materials dealers. Trade credit does not require immediate payment by the buyer for the materials to deliver to the site. The payment is usually deferred and it is a short-term source of finance [14]. Trade credit is easy to get from suppliers, it does not require a lengthy negotiation but depends on the already established relationship, it is suitable for small contractors, it is flexible and it is an informal and spontaneous source of capital. The bank is the major finance source for construction projects and other needs. Banks provide both long term and short term loans. Banks equally provide secured, unsecured, subsidised and concessional loans. Loans from commercial banks come with a high cost, the procedure is complicated and it has limited credit amount [11]. For Anamege [18], the major sources of finance are Own Money, Family & Acquaintances, Supplier (trade) Credit, Governmental Agencies, and Guarantors.

Development projects such as mass housing, real estate, commercial or industrial projects require huge and sustainable financing. Fidelis and Chinedu [25] identified six sources of financing for such projects, and they are "the mortgage finance, institutional unsecured lending, joint venture equity and debt financing, leaseback sales funding, advance payment key money, and securities sales". Furthermore, in the real estate industry, the well-known and established and tested methods of financing in Nigeria are; "equity capital, loan capital, contractor financing, debenture, and mortgage lending" [19, 25]. It was advocated for government agencies, financial institutions, and investors (corporate and private) should focus on providing a sustainable solution to the lack of finance for real estate and other developmental projects [19].

Construction projects usually take a long time duration to get completed, and from the view of the facility owners, investment in a construction facility denotes a short term cost that will bring returns in the long run when the facility will be in use [14]. Due to the understanding that costs must occur earlier than the returns, owners of the construction facilities must secure capital resources for financing the cost of construction. It was argued by [26] that the traditional contractual elements like insurance policies and surety bonds in the construction industry are all related to the financing of firms.

In Honk Kong, [27] submitted that the local contractors raise capital preferably from their savings (reserves) than from bank loans and debt issues. This is because of the time lag between construction work execution and the period of release of payment. Therefore, before the release of funds by the client, the contractor would proceed into using their funds to keep the construction work moving. Aside for the main contractor, the sub-contractors and suppliers of construction materials and equipment are also concerned with financing [14]. Finance is highly beneficial to the construction sector as it would help the

contractors take upon investment in technology and improve their management capacity. Chiang *et al.* [27] reported that a link exists between finance and technology and managerial development. This is needed to keep the contractors above competitors. [20] found that the most important impact of finance sources are; High quality of project, Promptness in project delivery, the Reduced burden from the sheet of government, Risk sharing among all the parties, and Does not influence the financial liquidity and debt ratios. The benefits of project finance according to [28] are; better returns on investment, lead to risk showing and diversification, preserve the corporate borrowing capacity of a firm, better access long term financing, political risks mitigation and tax benefits. [11] Highlighted some of the impacts of the utilization of finance sources on construction projects. These include; enhancing the investment in the industry, eliminating the risks of project completion and abandonment, help secure returns on investment, among others.

A summary of some selected sources of fiancés for construction projects from the literature review is shown in Table 1 below. Similarly, the impact of the sources of finance on construction projects is summarised in Table 2 below.

Table 1. Sources of finance for construction projects

S/N	Source of Finance	Source(s)
1	Credit from suppliers	[14], [15]
2	Equity	[14]
3	Bank loan	[14], [15], [17], [21] ,[11], [27]
4	Bank overdraft	[14], [15]
5	Personal saving	[17], [27
6	Retained profit	[17]
7	Family and friends	[17]
8	Green Bonds	[11]
9	Private Capital	[11]
10	International assistance Program	[11]
11	Government Funds and tax Refunds	[11], [21]
12	Direct equity investment funds	[20]
13	Life insurance companies	[21]
14	Real estate investment trusts	[21]
15	Crowdfunding	[21]

Table 2. Impact of finance on construction

S/N	Impact of finance on construction	Source(s)
1	Improve managerial capacity	[27]
2	Improve investment in technology	[27]
3	better competitive strength	[27]
4	Enable early mobilizations of work on site	[14]
5	work can proceed without undue delays	[14]
6	High quality of the project	[20]
7	Promptness in project delivery	[20]
8	Reduced burden from the sheet of government	[20]
9	Risk-sharing among all the parties	[20]
10	Does not influence the financial liquidity and debt ratios	[20]
11	enhance the investment in the industry	[11]
12	eliminate the risks of project completion delay and abandonment	[11]
13	helps secure returns on investment	[11]

Theoretical Framework

The underlying theory that guided this study is the pecking order theory. This theory was used to reflect on the sources of financing for construction projects. The proponents of this theory argued that managers

of placed preferences on retained earnings, followed by debts, and equity financing, when making a choice of the sources of finance [29];[30]. Hierarchies of factors are considered when making a choice of financing. This theory arises because of information asymmetry (information failure), which gives one party better information than another, thus, causing an imbalance in transaction power. Access to funds is governed by different information regarding the availability of various financing sources [29];[31]. There is limited access to finance from banks due to a lack of collateral security, poor creditworthiness, poor record-keeping, and insufficient project proposals [32]. Most managers of the business have poor knowledge of what source of finance is available for them, especially for business expansion, growth and development [33]. The absence of Information transparency also compounds the businesses to source finance [34].

MATERIALS AND METHODOLOGY

The purpose of this study was to examine the major finance sources in construction project delivery and their impacts on the construction sector. The well-structured questionnaire was adopted to gather data from construction professionals working in construction-related organisations (client, consultants and contractors) in Port Harcourt, Rivers State, Nigeria. A lot of construction projects are undertaken in Port Harcourt by the Federal and state government since it is the capital of River state, an oil-rich state and a major revenue earner for the government. In addition to this, Port Harcourt is a destination for investors in oil and gas and other developmental projects. Construction experts such as Architects, Builders, Engineers and Quantity Surveyors form the larger proportion of the key experts' employees in the construction industry [35]. The questionnaire is a widely used research instrument in social research and its suitable for covering a wider audience at a shorter time and economical cost [36]; [37]; [38].

Prior to the administration of the Questionnaire, it was piloted to determine its suitability and completeness in meeting the study objective. It was submitted that the questionnaire should be subjected to a pilot survey in which the questions contained therein will verify whether they are intelligible, easy to answer, unambiguous, determine the time to attend to them and improve the questions [39]. Four (4) industry experts and two (2) academics were recruited for the pilot survey and the final draft of the questionnaire was made following their feedback. The sample selection criteria that guided the administration of the questionnaire are; i) knowledge of the financing of construction projects, ii) having at least 5 years of work experience, iii) being involved in an active constructions site and working in port Harcourt. These criteria were to make sure that quality and objective data are obtained. The Questionnaire used was divided into three sections; the first section gathered data on the respondents' background details. The second section gathered data on the sources of finance for construction projects, and the third section gathered data on the impact of finance on construction projects. The questionnaire was designed to have a 5-point response scale which ranges from 1 to 5 with (1= lowest scale, 5=highest scale).

The snowball sampling was used to administer the questionnaire to the participants using electronic means. Snowball sampling was used as there was no established sample size for the study which could have warranted the use of a probabilistic technique. Furthermore, the snowball sampling technique tends to increase the study's response rate and it depends on referral [40]; [41]. According to Obonadhuze *et al.* [38], the electronic administration of questionnaire is economical and save time and is a means to reach difficult to access areas. Electronic questionnaire administration helps to save the environment by avoiding the use of hardcopy paper questionnaires, thus, is it eco-friendly means of surveying [42]. The sampling period lasted for 12 weeks (3 months) and 121 usable responses were received and used for the analyses.

The analyses of the garnered data were done using frequency, percentages, and mean item score (MIS) and the Kruskal-Wallis test. Reliability tests and normality tests were performed on the gathered data. The reliability test utilised Cronbach's alpha test which gave a coefficient of 0.833 and 0.913 for the sources of finance and impact of finance on construction projects respectively (see Table 3). The Cronbach's alpha coefficient obtained is greater than 0.70 suggested by [43]. This shows that the research instrument is highly reliable, has better internal consistency and the data obtained are of good quality. The normality test was done using the Shapiro-Wilk test, this test is recommended for a study in which the sample size is fewer than 2000 [44]. A p-value of below 0.05 was obtained for all the variables assessed, thus, indicating non-parametric data. This justified the use of the Kruskal-Wallis test. There is the possibility to have differing opinions from the different participants from different organisations. The Kruskal-Wallis test was applied to establish if a statically significant difference exists in the rating of the

assessed variables by the participants. The entire methodological flow chart for the study is indicated in Figure 1 below.

Table 3. Reliability test for a research instrument

	Case Processing Summary			Reliability Statistics	
		N	%	Cronbach's Alpha	Number of Items
Cases 1: sources of finance for construction projects	Valid	121	100	0.833	15
	Excluded[a]	0	0.00		
	Total	121	100		
Cases 2:impact of finance sources on construction	Valid	121	100	0.913	13
	Excluded[a]	0	0.00		
	Total	121	100		

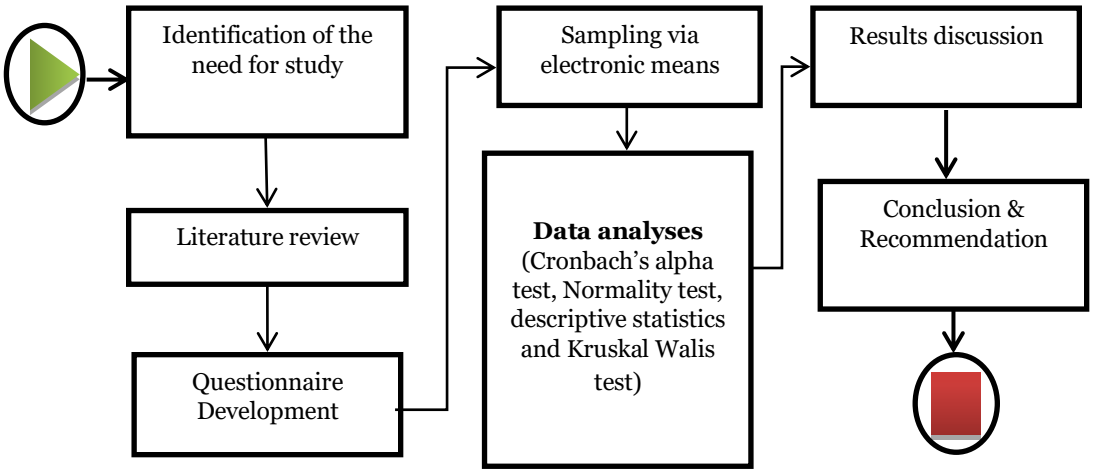

Figure 1. Research methodological flow chart

RESULTS AND DISCUSSION

Participants' Background Information

Table 4 shows the background details of the study participants. In terms of organisational type; 14.05% of them work with client organisations, 25.62% work with consultant organisations, and the majority of them are from contractors' organisations (60.33%). In terms of professional representation; Architects are 14.05%, Builders (10.74%), Engineers (42.5%) and Quantity Surveyors are 33.06%. these showed a fair representation of the key professional in the built environment.

The respondents are quite experienced and this is premised on the distribution of the years of experience. 31.40% had 5-10 years of experience, 39.67% had 11-15years, 17.36% had 16-20years and 11.57% had over 21years of experience. In terms of the highest education qualification, those with BSc/B.Tech is 45.45%, this is closely followed by MSc./M.Tech. (25.62%), HND (15.70%), PGD (11.56%) and only 1.65% had PhD. Also, the professional status of the participants shows that 92.56% are corporate members of their various professions.

The outcome of the examination of the background information of the respondents showed that they are professionally and educationally qualified and have the requisite experience to give information that will aid this study.

Table 4. Respondents' profile

Variables	Classification	Freq.	%	Cum. %
Organisational type	Client organisations	17	14.05	14.05
	Consultant organisations	31	25.62	39.67
	Contractors organisations	73	60.33	100.00
	TOTAL	**121**	**100.00**	
Profession	Architects	17	14.05	14.05
	Builders	13	10.74	24.79
	Engineers	51	42.15	66.94
	Quantity Surveyor	40	33.06	100.00
	TOTAL	**121**	**100.00**	
Years of experience	5-10years	38	31.40	31.40
	11-15 years	48	39.67	71.07
	16-20 years	21	17.36	88.43
	21-above	14	11.57	100.00
	TOTAL	**121**	**100.00**	
Highest education qualification	HND	19	15.70	15.70
	PGD	14	11.57	27.27
	BSc/B.Tech	55	45.45	72.73
	M.Sc/M.Tech	31	25.62	98.35
	PhD	2	1.65	100.00
	TOTAL	**121**	**100.00**	
Professional status	Corporate members	112	92.56	92.56
	Probationer members	9	7.44	100.00
	TOTAL	**121**	**100.00**	

Frequency of Need for Money and Impact of Finance Sources

From figure 2, it is obvious that a construction project requires a regular and uninterrupted flow of financing to enable it to meet its objectives. The study participants corroborated this from their responses. About 77.69% of them noted that the frequency of need for money in construction ranges from high (34.71%) to very high (42.98%). This goes to show how important financing is in the delivery of construction projects. This cut across both developed and developing construction markets of the world.

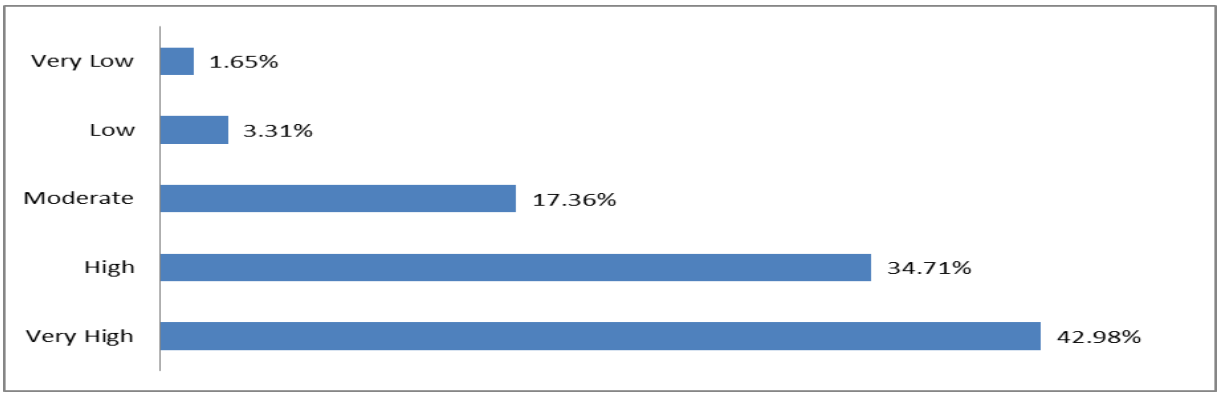

Figure 2. Frequency of need for money for management/site operations

In a similar manner, the figure shows that the impact of finance on a construction project is high. This further reflects the usefulness of financing in the construction industry of both developed and developing nations. This study observed that about 86.78% of the participants acknowledge the importance of

financing as they noted that financing has a high (45.45%) to very high (41.32%) impact on construction projects.

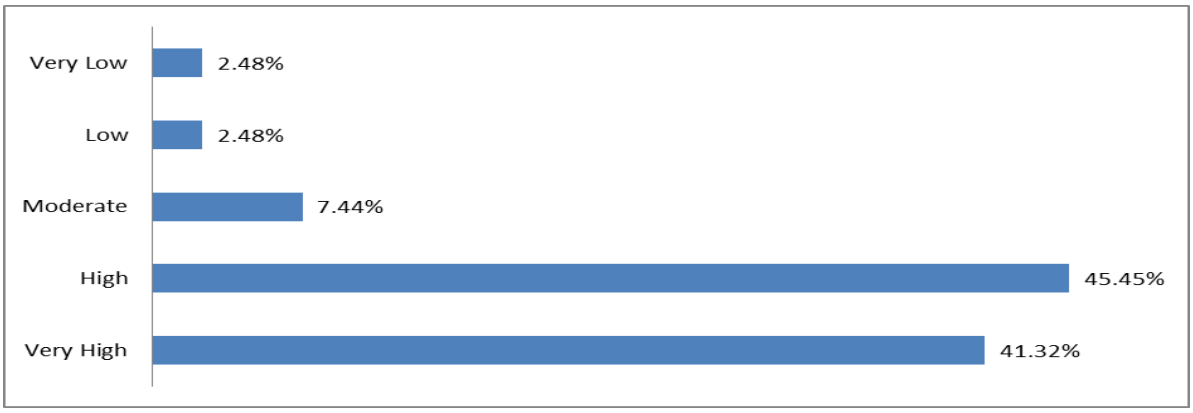

Figure 3. Level of the impact of finance source on construction project perform

Sources of Finance for Construction Projects

From the Sources of Finance for Construction Projects in table 5, the top five most widely used are; Credit from suppliers (MIS=4.60; SD=0.7369), Bank loans (MIS=4.40; SD=1.1066), Bank overdraft (MIS=4.33; SD=1.1859), Personal saving (MIS=4.03; SD=1.2841), and Retained profit (MIS= 4.03; SD=1.2710). While the least most widely used from this study are; Real estate investment trusts (MIS=3.61; SD=1.5404), Green Bonds (MIS=3.60; SD=1.5082), Life insurance companies (MIS=3.58; SD=1.564), Crowdfunding (MIS=3.47; SD=1.5656), Government Funds and tax Refunds (MIS=3.18; SD=1.4776).
Overall, the minimum and maximum MIS are 3.18(63.64%) and 4.60 (91.90%) respectively, with an average mean score of 3.87 (77.47%). This implies that these are viable sources of financing for construction projects in Nigeria. The finding regarding the sources of finance is in line with previous studies such as [14]; [21]; [15]; [11]; [18]; [19]; [25].

This study corroborates the findings of Matara [14] in the Kenyan construction industry. It was found that the most important source of financing variables for construction organisations are their savings and bank loans. The finding of this section is in line with the finding of [21] regarding the sourcing of funds from commercial banks (loan and overdraft from banks) but disagrees with the study on crowdfunding. Crowdfunding is among the top eight sources of finance in the study [21] but was ranked 14th in this present study. Crowdfunding was however regarded as a viable source of funding for businesses in any sector of an economy [4];[22]. Credit from suppliers is the most widely used financing source among businesses, especially in the running of their daily activities of production. It is equally regarded as trade credit and this is the most common source of financing for construction projects as reported by [15]. The report of this study also supports what was reported by Chakravarthi and Aravindan [11] in the Indian construction sector. Bank loans were among the top five sources of construction project financing. The use of own money and trade credit from suppliers topped the major source of financing projects reported by [18]. The finding of this study disagrees with the findings of [25]; [19] regarding the top sources of financing projects except for the loan capital. In Hong Kong, financing from savings (reserves) is preferred over bank loans and debts issued by local constructors [27].

The Kruskal-Wallis test conducted (see columns 6 to 8 of Table 5) shows that there is no statistically significant difference in the views of the respondents on 73.33% (11 variables) of the assessed variables. These variables obtained a p-value of more than 5% (0.05) level of significance. This implies the convergence of perceptions among the participant from the 3 organisational types as per the rating of the sources of finance. A divergent view was however observed in 26.67% (4 variables) of the assessed variables. These variable are; International assistance Program (X^2=9.98; p-value=0.007; ranked 9th), Direct equity investment funds (X^2=6.46; p-value=0.040; ranked 10th), Crowdfunding (X^2=6.98; p-value=0.030; ranked 14th), Government Funds and tax Refunds (X^2=16.66; p-value=0.000; ranked 15th). They have their p-value to be less than 0.05, and thus, are said to have a statistically significant difference.

Furthermore, these sources of finance have an MIS of 3.0 and above, this implies that they are also recognised as viable sources of financing construction projects. This observed divergence in opinion could be attributed to the knowledge of these sources and how common it is among stakeholders in the Nigerian construction market.

Table 5. Sources of finance for construction projects

S/Nr	Source of Finance	MIS	S.D	Rank	Kruskal-Wallis Test		
					Chi-square (X^2)	Sig.	Decision
1	Credit from suppliers	4.60	0.7369	1st	2.486	0.289	Accept
2	Equity	3.98	1.3539	6th	1.622	0.444	Accept
3	Bank loan	4.40	1.1066	2nd	5.788	0.055	Accept
4	Bank overdraft	4.33	1.1859	3rd	3.114	0.211	Accept
5	Personal saving	4.03	1.2841	4th	2.586	0.269	Accept
6	Retained profit	4.03	1.2710	4th	4.023	0.200	Accept
7	Family and friends	3.94	1.2403	7th	6.056	0.055	Accept
8	Green Bonds	3.60	1.5082	12th	5.926	0.052	Accept
9	Private Capital	3.93	1.1884	8th	4.595	0.157	Accept
10	International assistance Program	3.74	1.4173	9th	9.976	0.007*	Reject
11	Government Funds and tax Refunds	3.18	1.4776	15th	16.664	0.000*	Reject
12	Direct equity investment funds	3.66	1.5360	10th	6.456	0.040*	Reject
13	Life insurance companies	3.58	1.5639	13th	4.895	0.087	Accept
14	Real estate investment trusts	3.61	1.5404	11th	2.088	0.352	Accept
15	Crowdfunding	3.47	1.5656	14	6.981	0.030*	Reject

*P-value < 0.05

Impact of Finance Sources on Construction

The results in table 6 are the mean item scores and the Kruskal-Wallis test on the impact of sources of finance on construction projects. The top five impacts of the sources of finance are; Improve investment in technology (MIS=4.21; SD=1.0970), Enable early mobilisation of work on-site (MIS=4.18; SD=1.2780), Improve managerial capacity (MIS=4.17; SD=1.1644), better competitive strength (MIS=4.16; SD=1.2583), and High quality of the project (MIS=4.09; SD=1.2649). The list impact of sources of finance are; helps secure returns on investment (MIS=3.88; SD=1.4094), enhances the investment in the industry (MIS= 3.77; SD=1.3709), Promptness in project delivery (MIS=3.74; SD=1.2815), eliminate the risks of project completion delay and abandonment (MIS=3.68; SD=1.4732), and Reduced burden from the sheet of government (MIS=3.66; SD=1.5031).

Overall, the minimum and maximum MIS are 3.66(73.22%) and 4.21 (84.30%) respectively, with an average mean score of 3.96 (79.29%). This implies that the assessed variables have an impact on construction projects in Nigeria. The finding regarding the impact of financing is in line with previous studies such as [27]; [14]; [11]; [20].

Financing is important to the main contractor as well as the sub-contractors and supplies. It enables them to invest in technology and improve management capacity which will in turn improve their performance and productivity [14]; [27]. Financing enhances project delivery through the production of quality output and promptness in the delivery of projects [20]. Better performance enhances the competitiveness position of the organisations. Enhance investment and capacity development, and help eliminate risks of delays in mobilisation to the site have been emphasised as among the major benefits of financing [11]. Financing enables contractors to move to the site as early as practice for the execution of the contract they have entered into. This will enable timely completion of the project and reduction of costs associated with delays.

The Kruskal-Wallis test conducted (see columns 6 to 8 of Table 6) shows that there is no statistically significant difference in the views of the respondents on 10 (76.92%) of the assessed variables. The p-value of these variables is greater than the 5% level of significance. This implies the convergence of perceptions among the participants from the 3 organisational types as regards the rating of the impact of the sources of finance. A divergent view was however observed in 3(23.08%) of the assessed variables. These variable are; Risk sharing among all the parties (X^2=14.00; p-value=0.001; ranked 8th), helps secure returns on investment (X^2=9.32; p-value=0.009; ranked=9th), and enhance the investment in the industry (X^2=10.69; p-value=0.009; ranked 10th). The p-value of these variables is less than 0.05, and thus, are found to be a significant statistically difference. Furthermore, these impacts of sources of finance have an MIS of 3.0 and above, this implies that they impact construction project delivery. This observed divergence in opinion could be attributed to the knowledge of these sources and their impacts and how they are being applied in the delivery and financing of construction projects and construction organisations in the Nigerian construction industry.

Table 6. Impact of finance on construction

S/N	Impact of finance on construction	MIS	S.D	Rank	Kruskal-Wallis Test		
					Chi-square (X^2)	Sig.	Decision
1	Improve managerial capacity	4.17	1.1644	3rd	2.170	0.325	Accept
2	Improve investment in technology	4.21	1.0970	1st	5.708	0.058	Accept
3	Better competitive strength	4.16	1.2584	4th	1.664	0.449	Accept
4	Enable early mobilisation of work on site	4.18	1.2780	2nd	3.512	0.194	Accept
5	Work can proceed without undue delays	4.05	1.2507	6th	4.118	0.123	Accept
6	High quality of the project	4.09	1.2649	5th	4.457	0.108	Accept
7	Promptness in project delivery	3.74	1.2815	11th	3.612	0.164	Accept
8	Reduced burden from the sheet of government	3.66	1.5031	13th	2.070	0.355	Accept
9	Risk-sharing among all the parties	3.97	1.3098	8th	13.997	0.001*	Reject
10	Does not influence the financial liquidity and debt ratios	3.98	1.2481	7th	4.358	0.113	Accept
11	Enhance the investment in the industry,	3.77	1.3709	10th	10.694	0.005*	Reject
12	Eliminate the risks of project completion delay and abandonment,	3.68	1.4732	12th	1.198	0.549	Accept
13	Helps secure returns on investment	3.88	1.4094	9th	9.323	0.009*	Reject

*P-value < 0.05

CONCLUSION

The purpose of this study was to examine the major finance sources in construction project delivery and their impacts on the construction sector. This study utilised electronic means in the distribution of the well-structured questionnaire via snowball sampling techniques among construction stakeholders in Port Harcourt, Rivers State, Nigeria. The collected data were analysed and findings were reported and a conclusion was drawn.

The study revealed that finance is critical to the success of every construction project and the frequency of need ranges from high to very high. Also, the impact of financing equally ranges from high to very high as financing affects different aspects of the functioning of the construction organisations and their projects. The major sources of finance for construction projects in Nigeria are credit from suppliers, bank loans, bank overdrafts, personal savings, and retained profit. Financing has an impact on construction organisations and construction projects, particularly in areas such as improved investment in technology, enabling early mobilization of work on-site, improved managerial capacity, better competitive strength, and high quality of the project. Clients, as well as contractors, should establish a good relationship with supplies of building materials to ensure that the needed materials are obtained on credit for the smooth running of construction projects. This calls for respect and effective management of whatever understanding between the suppliers and clients or contractors. Sustainable digitization of construction work can be achieved only when the relationships and mutual agreement between suppliers and clients and or contractors are maintained.

The outcome of this study is critical to the success of project managers as regards the various options available for financing construction and other developmental projects. Finance is at the centre of every transaction of a construction contract; therefore, it should be on top of the agendas of every meeting. This is important to minimise some of the risks of the project that are financial in nature. This study will assist the project managers to make an informed decision regarding sourcing for funds to expand and invest in modern technologies that have transformed the ways work is carried out in the construction industry. More funding is needed for Investment in modern technologies and equipment and tools that are required to improve the organisations' efficiency, better safety performance record and the overall performance of the project with regards to the project baselines. This study will add to the few existing bodies of knowledge on the subject of this study. Although the study outcome emanates from Nigeria, it can be useful to other developing nations with similar construction and economic terrain as Nigeria. This study is limited by the sampling techniques adopted which are non-probabilistic. It is also limited by the study area which is Port Harcourt. The sample size is not representative enough for generalization to be made. Therefore, a similar study is proposed in other states or regions of Nigeria. The sources of finance such as the international assistance program, direct equity investment funds, crowdfunding, government funds and tax refunds; showed divergence in the way there were rated. A further investigation is needed on these sources to identify the actual role and impact they have on construction project financing.

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