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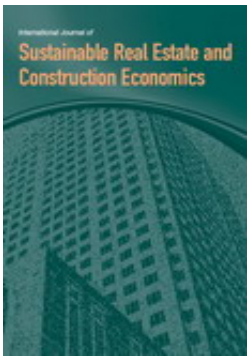

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Abstract: In proffering solutions to emerging global environmental challenges, e.g. management, risks and opportunities toward effective participation, and performance of construction small and medium enterprises (SMEs) financial management challenges, this study necessitated the appraisal of project financing options for construction SMEs in the Nigerian built environment. Variables options were identified from an intensive literature review and grouped into six primary sources: commercial banking, traditional sources, non-financial institutions, modern financing arrangement, World Bank related and non-interest (Islamic banking). These variables are requirements to develop a framework for the selection of appropriate project financing options available for construction SMEs to determine most suitable project financing options. The research data were collected using semi-structured questionnaires. 363 questionnaires were administered randomly to some selected construction SMEs in Abuja. They are registered with Corporate Affairs Commission and pay their taxes through Federal Inland Revenue Services. 219 questionnaires were received, validated and suitable for descriptive statistics analysis. Term loans are common among small construction enterprises, while medium enterprises are primarily familiar with overdrafts. These are among the options required in a framework developed for construction SMEs' selection of appropriate project financing options.

Keywords: construction industry; project financing; construction; SMEs; small and medium enterprises.

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1 Introduction

The construction industry, both in emerging, transition and emerging nations' economies globally, experienced a relatively high proportion of business failure in the construction sectors, mainly in Africa to which Nigeria belong (Yan et al., 2017; Abdullahi, 2018). This often resulted in poor financial performance challenges (Baños-Caballero and Martínez-Solano, 2016; Abbasi et al., 2017). Owing the inadequacy of internal sources of finance, external finance sources become imperative and construction SMEs face the challenges of selecting appropriate project financing options (Tang et al., 2010; Kuruppu and Azeez, 2016; Wang, 2017). Scholars have identified a selection toolkit with the potential to improve the performance of construction SMEs' participation in project financing as very needful and demanded by scholars (Kuruppu and Azeez, 2016; Wang, 2017; Ali et al., 2019). Therefore, construction SMEs must undertake regular appraisal and assessment of their finances, efficient book-keeping, and loan accessibility to enjoy creditworthiness to enhance their access to finance for expansion, growth and business management performance (Gambo et al., 2016; Onwuamaeze, 2021). Researchers advocated for a framework to aid construction SMEs' selection of appropriate project financing options (Gambo et al., 2016; Kumar and Rao, 2016) to enjoy creditworthiness, expansion growth and cash flow for purchasing new and maintaining old equipment for construction project execution.

Construction SMEs in Nigeria is officially classified by the National Bureau of Statistics (NBS) and Small & Medium Enterprises Development Agency of Nigeria SMEDAN (NBS & SMEDAN, 2012) as Microenterprises: refers to construction enterprises whose number of employees does not exceed thirty (30); Small construction enterprises are those whose number of employees are between thirty-one (31) and seventy (70), while the Medium construction enterprises are those whose number of employees are from seventy-One (71) to two hundred (200) employees. Abdulsaleh and Worthington (2013) and Ayirebi et al. (2017) posited that construction SMEs play a crucial role in both emerging and emerging economies as the engine propeller of innovations, wealth creation, poverty reduction, employment generation and creation, functioning as a catalyst for economic growth and backbone for development (Abor and Quartey, 2010; Kuruppu and Azeez, 2016; Arthur-Aidoo et al., 2018). Despite their vast relevance, the management of construction SMEs has not achieved the expected success in project financing selection for emerging global Environmental challenges: management, risk and opportunities towards sustainable built environment and adaptability.

Construction SMEs in emerging, transition and emerging economies, particularly Africa, to which Nigeria belong, should be able to select easily from the available project financing options most appropriate for construction business (Bosede et al., 2016; Yan et al., 2017). However, this is hardly the case, as these construction SMEs appear not to have any standard template that guides their selection from the numerous project financing options (Rodrick, 2010; Harrison and Baldock, 2015; Kumar and Rao, 2016). As revealed from the pilot survey and previous studies conducted, construction SMEs' participation in project financing is high, over (90%) and the success rate is low, 27%. It revealed that construction SMEs are disproportionately affected by these financing challenges, as earlier suggested by literature (Aruwa, 2006; Ayodele, 2016; Osmond and Paul, 2016; Ali et al., 2019). This can be attributed to the lack of a framework to guide the construction SME selection process from the numerous project financing options. Therefore, it requires improvement. This study appraises the numerous project financing Options by Construction Small and Medium Enterprises in the Nigerian Built Environment towards developing a framework to serve as a feasible template for construction SMEs' selection of appropriate project financing options. The objectives of this research, therefore, are to: identify various project financing options available for construction SMEs in the Nigerian built environment, appraise the various project financing options available for construction SMEs in the Nigerian built environment and in other to determine the most suitable project financing options for construction SMEs in the Nigerian built environment. In what follows, the paper reviews the literature, research method, data analysis and findings; and finally the conclusion.

2 Review of related literature

Construction SMEs financing is of vital interest to academics, construction SMEs and practising managers in various industries, particularly in transition and emerging nations' economies worldwide (Gambo et al, 2016; Ayirebi et al., 2017; Ali et al., 2019). Construction SMEs serve as the engine of development, generation and creation of employment and the bedrock of any nation's economy (Arthur-Aidoo et al., 2018; Onwuamaeze, 2021). Consequently, financial managers at every organisation's level must decide when, where, and how to acquire the monies needed to meet their investment requirements (Bosede et al., 2016; Ayirebi et al., 2017). Once the financial manager can determine the best financial mix, raise the appropriate amount through the best available sources (Gambo et al., 2016; Kuruppu and Azeez, 2016; Yan et al., 2017). There are two significant types of financing sources that are most crucial to any form of business, particularly construction SMEs' financial decision-making (Onwusonye and Nzotta, 2003; Ojha and Pandey, 2017). Construction SMEs can effectively and efficiently raise finance through formal (internal) and informal (external) sources.

Internal sources: This comprises retained earnings, capital reserves, capital surplus, the sinking fund (March, 2016; Ojha and Pandey, 2017), vendor financing of equipment (Nevitt and Fabozzi, 1998), disposal of assets (Sales), contingency fund, services (contract on agreed price over a fixed period) and cash inflow (income) (Kenley, 2003; Hassanein and Adly, 2008).

External sources: Forty-Eight (48) project financing options were identified through an intensive literature review and were categorised into the following sub-headings, namely:

World bank and related sources of finance: World Bank and other development banks provide debt, or a mixture of equity and debt, for developing countries through grants/aids or loans to finance some specific projects, which include; educational institutions facilities, portable water supply and healthcare facilities (Adekunle, 2011; Adelekan et al., 2014; Abdullah et al., 2014). Some international agencies such as the African Development Bank (ADB), Asian Development Bank (ADB), Commonwealth Development Bank (CDB), Inter-American Development Bank (IDB), International Bank for Reconstruction and Development (IBRD), word bank International Development Association (IDA), International Finance Corporation (IFC) and European Investment Bank (EIB) act as lenders.

Traditional financing options: it is the most reliable and efficient way of raising a small amount of money for a short period, particularly the initial start-up sums and working capital, for setting up of operations of any business; these external sources of finance are obtained from:

1 The money owners of construction firms (SMEs) can contribute from their resources in the form of shares, stocks or equities.

2 Undistributed company profits are re-invested or ploughed back into the business.

3 Depreciation funds which have been put aside to replace worn-out equipment used for production and other operations. These external financing options, including equity/debt or loan capital, can be further subdivided into thrift associations: saving and loan associations and Osusu, Adashe and Ajo (Onwusonye and Nzotta, 2003; Zayed and Liu, 2014)

Non-financial institutions: These external sources of project financing options can either be in the form of loans or equity capital and can be divided into two groups of lenders and sponsors; these include the institutional investors (local markets for equity and bonds) (Nevitt and Fabozzi, 1998; Kenley, 2003) thus; Insurance Companies/Firms, Pension Funds and National Housing Funds (NHF).

Government financing arrangement: Government financing is a means to raise money from the public by using a series of fiscal measures activities and then distributing the funds raised to all sectors of the economy; as a government responsibility, the purpose of government financing is to promote economic development (Khmel and Zhao, 2015; Yan et al., 2017). These are financing initiated by the government at all levels in both economies of the world, which include the annual budgetary and appropriation allocation by the government at all levels. These include various government financing arrangements (Onwusonye and Nzotta, 2003; Liu and Zayed, 2014). These are usually allocated from the government's yearly budget into all sectors of the economy education, infrastructure development, health and sanitation and services, etc.

Islamic banking (interest-free loans): Interest-free loans; is a financing method based on Islamic law principles (Sharia). It is Sharia-compliant and constitutes more than a localised and culturally specific differentiation as it is becoming increasingly prevalent in the major metropolitan centres of North America, Western Europe and Asia (Zawawi et al., 2014; Abdullah et al., 2014). Unlike conventional financing models, the payment or

receipt of interest on loans is not obtainable. Modern financial arrangements, non-interest (Islamic banking) and other institutions are attributed to a manageable size suitable for selection by construction SMEs to improve construction SMEs' effective participation and performance in the Nigerian built environment.

3 Research method

3.1 Population and sample selection

The population of this research consists of construction MSMEs registered with the corporate affairs commission CAC and equally pay their taxes to Federal Inland Revenue Service FIRS within the Federal Capital Territory FCT. The population as of 23rd March 2018 stands at 2360 as published by the 2010–2018 Vconnet global services limited website (https://www.vconnect.com).

3.2 Sample and sampling technique

To determine the appropriate sample size for this study, Krejcie and Morgan's (1970) table will use the following:

$$= \frac{X^2 NP(1-P)}{d^2(N-1) + X^2 P(1-P)} \tag{1}$$

where S = required sample size; X^2 = table of value of Chi-square for 1 degree of freedom at the desired confidence level (3.832); N = Population size 1888 (https://www.vconnect.com); P = Population proportion (assumed to be 0.50), d = degree of accuracy expressed as a proportion (0.05). Substituting for S in equation (1) gives the sample size population of 330. 'Researchers recommended that 10% to 20% be added for non and invalid responses to account for lost questionnaire mails and uncooperative subjects'. Therefore, the sample size for this research is based on equation (1) is 363.

3.3 Sampling technique

The sampling technique is obtaining information about an entire population by examining only a part of it (Morenikeji, 2006; Haque, 2013). In most research surveys, the usual approach is generalising or drawing inferences based on samples about the parameters of the population from which the samples are taken. A sample can now be defined as any number of persons, units, or objects selected to represent the entire population according to some rule or plan see details Table 1, for the composition, number and actual sample size of the construction SMEs selection in Abuja – FCT.

Table 1 Sample stratum and sample frame

Composition	*Number*	*Actual sample size*
Small	1416	218
Medium	944	145
Total	2360	363

A purposive sampling technique was employed in order to have an unbiased selection from the list of registered construction SMEs obtained from CAC and FIRS as respondents operating in Abuja – FCT, given the elements in the population equal chances of being chosen and thirdly, to get a representative number from the population the sample size to be used for the study**.**

3.4 An instrument for data collection

The instrument with which data will be collected from the target population is a good structure close headed questionnaire with Sections A and B. Section A involves questions regarding the respondent's construction SMEs features/characteristics. Section B focused on construction SMEs' project financing options, appraisal and the determination of the most suitable project financing options in Nigerian built environment on a questionnaire for respondents' appraisal on 1-5-point Likert type of scale Construction SMEs view where: Extent of familiarity; 1 = not familiar, 2 = less familiar, 3 = neutral, 4 = familiar, 5 = very familiarity. Level of importance; 1 = unimportant, 2 = important, 3 = moderately important, 4 = highly important 5 = extremely important and Frequency of use; 1 =never, 2 = less often, 3 = neutral, 4 = often, 5 = always.

3.5 Survey administration

An invitation to participate in a survey was sent to prospective respondents using their FCT contact address. FCT comprises six (6) area councils, including the municipal. Two quantity surveyors who possess Higher National Diploma HND were recruited for the distribution and retrieval of the questionnaires; this exercise lasted for two months in the same way, and some copies were sent electronically. A total of two hundred and ninety-one (291) questionnaires were distributed. Two hundred and twenty-four (224) were received, out of which five (5) questionnaires were void and not suitable for analysis; this implies that two hundred and nineteen (219) are valid for analysis which gives 60.33%. Ankrah (2009) and Hassanein and Adly (2008) suggested response rates of 15.42%, 32.42%, respectively. In the study of Agumba and Haupt (2014), where questionnaires were both self and mail administered, the response rate was 15.72%. Using these to justify the response rate, this study is adequate.

3.6 Data analysis

Data from the questionnaire survey were collated, sorted, coded and entered into Microsoft Excel MSE and transformed into Statistical Package for Social Sciences SPSS version 24 for analysis. Descriptive statistical tools were used; percentage, means scores MS and standard deviation SD, relative importance index RII ranking as used by Gündüz et al., 2013; Rooshdi et al., 2018; Ayarkwa et al., 2022). RII was used to determine the most suitable project financing options as perceived by the respondent's construction MSMEs in Nigerian built environment. The results obtained were presented using tables.

3.7 Mean score

$$\frac{\sum f(x)}{\sum F} \tag{2}$$

where f = Number of respondents for the attribute rated scale (1, 2, 3, 4 or 5), x = Observed Value or rated scale (1, 2, 3, 4 or 5), $f(x)$ = Product of number of respondents for attribute rated scale and observed value, $\sum f(x)$ = Number of respondents for the attribute rated 3 on scale used

$\sum F$ = Total number of Respondents.

3.8 Relative important index RII

$$RII = \sum W / (A \, xN) \tag{3}$$

where W = Weightage given to each factor by the respondents, A = Highest weight (i.e., 5 in this case), N = the total number of response questions.

4 Data presentation, analysis and discussion

4.1 Respondent's firms' demographics/profile

Eight questions were asked, including construction MSMEs; respondents' highest academic qualification, level of professional membership, status, category construction MSMEs belong, the approximate number of employees, business category construction MSMEs was registered, the speciality of construction MSMEs' significant engagement and years of experience. Data obtained using questionnaire surveys were analysed using frequency and percentage.

Table 2 shows three cases of selected construction SMEs profile/characteristics. The construction SME profile respondents, micro, small and medium enterprises, have the following frequency and percentage of 31, 14.20%, 92, 42.00% and 96, 43.80%. The numbers of an employee in a firm's payroll, 1–11 employees, have a frequency of 96, 43.80%, while 12–71 employees have a frequency of 97, 44.30% and 72–250 employees, have a frequency of 26, 11.90%, respectively. The construction SMEs' years of existence, 16–20 years has a frequency of 75, 34.20%, followed by above 21 years with a frequency of 69, 31.50%. This revealed that construction medium MEs enterprises have the highest frequency and percentage 96, 43.80%, followed by construction small enterprises SEs with a frequency and percentage of 92, 42% and 16–20 years has the highest frequency of 75 and 34%, as revealed in Table 2.

Appraisal of various project financing options available for construction SMEs in Nigerian built environment using the extent of familiarity, level of importance and frequency of use.

Cronbach's alpha is a measurement of the internal consistency or measurement of scale reliability, i.e., how closely related a set of items is as a group, e.g., Cronbach's alpha test to see if multiple item question Likert scale survey is reliable (AlSanad, 2015; Quansah, 2017), in a score more than 0.7 is usually okay, therefore the Cronbach's alpha

value of 0.981 and 0.983) are good and indicate that the data set are good and internally consistent and reliable.

Table 2 Respondent's Profile/Characteristics

Profile/Characteristics		*Responses*	*Percent %*
1	Category firm belong		
	Micro firm	31	14.20
	Small firm	92	42.00
	Medium firm	96	43.80
	Total	219	100
2	Approximate number of employees in your firm		
	1–11 employees	96	43.80
	12–71employees	97	44.30
	72–250 employees	26	11.90
	Total	219	100
3	Year of existence of firm		
	1–5 years	8	3.7
	6–10 years	36	16.4
	11–15 years	31	14.2
	16–20 years	75	34.2
	Above 21 years	69	31.5
	Total	219	100

Tables 3 and 4 shows the analysis of construction SMEs' extents of familiarity, level of importance and frequency of use of the available project financing options in the Nigerian built environment. Table 3 revealed construction SEs' extents of familiarity ranked and chose first; term loan, followed by overdraft and Small and Medium Enterprises (SME) loan scheme. Level of importance; appropriations (government budgetary allocation) were ranked and chosen first, followed by term loans and an overdraft. It revealed that construction SEs are familiar with project financing options, the level of importance is fundamental and frequency of use is often used. Furthermore, Table 4 shows construction MEs ranking and choice use of appropriate project financing options using; the extent of familiarity. Overdraft was ranked and chosen first, followed by PPP and appropriation (government budgetary allocation). Level of importance; appropriation (government budgetary allocation) was ranked and chosen first, followed by PPP and appropriation (government budgetary allocation). It revealed that construction MEs are familiar, very familiar, with project financing options, the level of importance is fundamental, and frequency of use often use in Nigerian built environments. In addition, Tables 3 and 4 revealed construction SMEs' extents of familiarity, level of importance and frequency of use of project financing options; they are familiar, essential and often used in the Nigerian built environment.

Table 3 Various project financing options by construction SMEs using: the extent of familiarity, level of importance and frequency of use, with (Cronbach's alpha = 0.981 and 0.983), respectively

S/N	External Sources	Familiarity					Level of importance					Frequency of use				
		Total	RII	Rank	Mean	STD	Total	RII	Rank	Mean	STD	Total	RII	Rank	Mean	STD
Traditional Sources																
1	Thrift association (Saving and loan Association)	92	0.84	5	4.207	1.27	92	0.765	14	3.826	1.11	92	0.652	37	3.26	1.28
2	Esusu, Adashe and Ajo	92	0.73	36	3.652	1.27	92	0.778	12	3.891	1.01	92	0.667	30	3.34	1.49
Non-financial Institutions																
1	Insurance companies	92	0.73	33	3.674	1.35	92	0.709	36	3.543	1.29	92	0.735	5	3.67	1.57
2	Pension funds	92	0.78	13	3.88	1.42	92	0.791	8	3.957	1.24	92	0.637	42	3.18	1.39
3	National housing funds (NHF)	92	0.77	15	3.837	1.24	92	0.741	27	3.707	1.18	92	0.665	32	3.33	1.53
4	Conditional Sale/Title Retention	92	0.75	24	3.761	1.22	92	0.763	16	3.815	1.22	92	0.7	19	3.50	1.49
Government Financing																
1	Appropriations (government budgetary allocation)	92	0.77	14	3.848	1.16	92	0.828	1	4.141	1.28	92	0.709	12	3.54	1.39
2	Subsidised and unsubsidised loans	92	0.76	20	3.804	1.22	92	0.739	29	3.696	1.11	92	0.709	12	3.54	1.26
3	Intergovernmental Revenues	92	0.73	33	3.674	1.22	92	0.765	14	3.826	1.3	92	0.707	14	3.53	1.34
4	Taxes incentives and fees	92	0.83	6	4.13	1.3	92	0.746	22	3.728	1.35	92	0.657	36	3.28	1.31
5	Inter-government bilateral grants	92	0.75	26	3.728	1.16	92	0.741	27	3.707	1.28	92	0.691	23	3.46	1.35
6	Direct equity investment by multinational corporations	92	0.71	39	3.554	1.27	92	0.733	31	3.663	1.21	92	0.715	10	3.58	1.32
7	Issuance of Government debt Instruments	92	0.74	30	3.696	1.25	92	0.724	32	3.62	1.21	92	0.691	23	3.46	1.36
8	loans from international financial institutions	92	0.72	37	3.609	1.38	92	0.81	4	4.054	1.27	92	0.707	14	3.53	1.53
9	Loans from the international commercial banks and	92	0.7	40	3.522	1.35	92	0.709	36	3.543	1.19	92	0.707	14	3.53	1.41
10	capital market (international)	92	0.82	7	4.087	1.15	92	0.754	20	3.772	1.19	92	0.7	19	3.50	1.50

Table 3 Various project financing options by construction SMEs using: the extent of familiarity, level of importance and frequency of use, with (Cronbach's alpha = 0.981 and 0.983), respectively (continued)

S/N	External Sources	Familiarity					Level of importance					Frequency of use				
		Total	RII	Rank	Mean	STD	Total	RII	Rank	Mean	STD	Total	RII	Rank	Mean	STD
Financial institutions, Commercial, Merchant, Mortgage and Investment Banking																
1	Overdrafts	92	0.85	2	4.261	1.21	92	0.811	3	4.054	1.04	92	0.78	1	3.90	1.41
2	Term Loans	92	0.85	1	4.261	1.08	92	0.824	2	4.12	0.91	92	0.722	9	3.61	1.60
3	Mortgage	92	0.8	12	4.022	1.05	92	0.757	18	3.783	1.1	92	0.778	2	3.89	1.35
4	Unsecured Advances	92	0.75	26	3.728	1.3	92	0.8	5	4	1.2	92	0.641	41	3.21	1.38
5	Traditional Loan	92	0.77	17	3.826	1.13	92	0.739	29	3.696	0.99	92	0.659	35	3.29	1.41
6	Equipment Leasing	92	0.81	9	4.043	1.09	92	0.783	10	3.913	1.02	92	0.711	11	3.55	1.31
7	Debt factoring	92	0.7	40	3.522	1.28	92	0.793	7	3.967	1.3	92	0.704	18	3.52	1.31
8	Loans Syndication/Consortium Loan	92	0.73	35	3.663	1.25	92	0.72	34	3.598	1.12	92	0.667	30	3.34	1.36
9	Development Bank Fund	92	0.76	22	3.793	1.13	92	0.791	8	3.957	1.09	92	0.724	8	3.62	1.42
10	Bond/ debenture	92	0.7	43	3.5	1.31	92	0.757	18	3.783	1.21	92	0.672	29	3.36	1.21
Modern financing arrangement																
1	Private Finance Initiative (PFI)	92	0.77	17	3.826	1.1	92	0.778	12	3.891	1.12	92	0.661	34	3.30	1.47
2	Public Private Partnership (PPP)	92	0.85	4	4.228	1.27	92	0.746	22	3.728	1.02	92	0.77	3	3.85	1.53
3	Securitisation (capital markets financing mechanism)	92	0.75	25	3.75	1.15	92	0.689	43	3.446	1.12	92	0.68	26	3.40	1.25
4	Unitisation (convert investment trust into a unit)	92	0.62	45	3.109	0.84	92	0.8	5	4	1.27	92	0.696	21	3.48	1.40
5	Real Estate Investment Trust (REITS) (Asset securitisation	92	0.81	9	4.043	1.06	92	0.743	24	3.717	1.16	92	0.726	7	3.63	1.45
6	Global financial market	92	0.76	20	3.804	1.23	92	0.709	36	3.543	1.27	92	0.696	21	3.48	1.37
7	Equity Capital	92	0.76	23	3.783	1.28	92	0.743	24	3.717	1.19	92	0.663	33	3.32	1.37
8	Foreign Sources (Foreign Direct investment (FDI)	92	0.81	8	4.054	1.15	92	0.743	24	3.717	1.18	92	0.648	39	3.24	1.43

Table 3 Various project financing options by construction SMEs using: the extent of familiarity, level of importance and frequency of use, with (Cronbach's alpha = 0.981 and 0.983), respectively (continued)

S/N	External Sources	Familiarity					Level of importance					Frequency of use				
		Total	*RII*	*Rank*	*Mean*	*STD*	*Total*	*RII*	*Rank*	*Mean*	*STD*	*Total*	*RII*	*Rank*	*Mean*	*STD*
World Bank related sources of finance																
1	National Economic Reconciliation Fund (NERFUND) facilities	92	0.74	29	3.707	1.23	92	0.683	44	3.413	1.32	92	0.752	4	3.76	1.53
2	Small and Medium Enterprise (SME) loan Scheme	92	0.85	2	4.261	1.11	92	0.763	16	3.815	1.38	92	0.643	40	3.22	1.37
3	Export Stimulation Loan (ESL)	92	0.72	38	3.598	1.17	92	0.663	45	3.315	1.22	92	0.68	26	3.40	1.34
4	Nigerian Export Credit Guarantee and Insurance Scheme (NEXIM)	92	0.77	17	3.826	1.14	92	0.724	32	3.62	1.27	92	0.707	14	3.53	1.32
5	Word Bank Pilot Mutualistic Credit Guarantee Scheme Loan	92	0.74	31	3.685	1.27	92	0.783	10	3.913	1.35	92	0.68	26	3.40	1.38
Non-Interest (Islamic banking)																
1	Murabaha; credit that enables customers to make a purchase on deferred payment	92	0.74	28	3.717	1.27	92	0.704	39	3.522	1.3	92	0.622	44	3.11	1.44
2	Takaful; debt finance	92	0.68	44	3.38	1.42	92	0.702	40	3.511	1.46	92	0.685	25	3.42	1.55
3	Wakala – Ijarah; in this contract arrangement, the borrower is engaged as an agent or "Wakil"	92	0.77	15	3.837	1.4	92	0.72	34	3.598	1.45	92	0.617	45	3.09	1.31
4	Islamic Sukuk (Bonds); Islamic Bonds	92	0.7	42	3.511	1.31	92	0.748	21	3.739	1.26	92	0.65	38	3.25	1.49
5	Musharakat-Musharakat Al-Istisna'a; equity participation contract	92	0.74	31	3.685	1.28	92	0.702	40	3.511	1.23	92	0.733	6	3.66	1.46
6	Al-Ijarah (Leasing): A lease agreement whereby a bank buys an item for a customer	92	0.81	11	4.033	1.43	92	0.691	42	3.457	1.29	92	0.635	43	3.17	1.38

Familiarity where: 1 = not familiar, 2 = less familiar, 3 = neutral, 4 = familiar, 5 = very familiarity

Extent of importance where: 1 = unimportant, 2 = important, 3 = moderately important, 4 = highly important 5 = extremely important

Frequency of use where: 1 =never, 2 = less often, 3 = neutral, 4 = often, 5 = always

Table 4 Appraisal of various project financing options by construction medium enterprises (MEs) using; extents of familiarity; level of importance and frequency of use, with (Cronbach's alpha = 0.981 and 0.983), respectively

S/N	*External Sources*	*Familiarity*					*Level of importance*					*Frequency of use*				
		Total	*RII*	*Rank*	*Mean*	*STD*	*Total*	*RII*	*Rank*	*Mean*	*STD*	*Total*	*RII*	*Rank*	*Mean*	*STD*
Traditional Sources																
1	Thrift association (Saving and loan Association)	96	0.81	12	4.052	0.97	96	0.76	21	3.813	1.03	96	0.7	29	3.60	1.13
2	Esusu, Adashe and Ajo	96	0.77	21	3.854	1.13	96	0.75	24	3.771	1.2	96	0.7	18	3.74	1.33
Non-financial Institutions																
1	Insurance companies	96	0.81	10	4.063	1.07	96	0.74	35	3.677	1.21	96	0.8	4	4.00	1.42
2	Pension funds	96	0.81	12	4.052	1.15	96	0.81	7	4.042	1.15	96	0.7	29	3.60	1.23
3	National housing funds (NHF)	96	0.81	10	4.063	0.99	96	0.75	29	3.729	1.06	96	0.7	22	3.69	1.29
4	Conditional Sale/Title Retention	96	0.78	20	3.885	1.13	96	0.79	10	3.927	1.15	96	0.8	16	3.76	1.37
Government Financing																
1	Appropriations (government budgetary allocation)	96	0.89	3	4.438	1.12	96	0.87	1	4.365	1.1	96	0.8	3	4.03	1.40
2	Subsidised and unsubsidised loans	96	0.79	15	3.927	1.07	96	0.77	14	3.854	1.09	96	0.7	19	3.71	1.22
3	Intergovernmental Revenues	96	0.74	39	3.677	1.23	96	0.74	35	3.677	1.26	96	0.7	25	3.68	1.22
4	Taxes incentives and fees	96	0.86	5	4.323	1.09	96	0.78	12	3.885	1.39	96	0.7	34	3.53	1.27
5	Inter-government bilateral grants	96	0.75	32	3.74	1.15	96	0.74	32	3.698	1.22	96	0.8	5	3.97	1.38
6	Direct equity investment by multinational corporations	96	0.76	28	3.781	1.23	96	0.75	25	3.76	1.14	96	0.7	38	3.47	1.28
7	Issuance of Government debt Instruments	96	0.74	39	3.677	1.24	96	0.73	40	3.635	1.22	96	0.7	33	3.56	1.28
8	Loans from international financial institutions	96	0.75	34	3.729	1.17	96	0.86	2	4.292	1.15	96	0.7	32	3.57	1.33
9	Loans from the international commercial banks and	96	0.74	37	3.719	1.26	96	0.74	30	3.708	1.2	96	0.7	19	3.71	1.34
10	capital market (international)	96	0.84	8	4.177	1.21	96	0.75	25	3.76	1.29	96	0.7	34	3.53	1.36

Table 4 Appraisal of various project financing options by construction medium enterprises (MEs) using; extents of familiarity; level of importance and frequency of use, with (Cronbach's alpha = 0.981 and 0.983), respectively (continued)

S/N	External Sources	Familiarity					Level of importance					Frequency of use				
		Total	RII	Rank	Mean	STD	Total	RII	Rank	Mean	STD	Total	RII	Rank	Mean	STD
Financial institutions, Commercial, Merchant, Mortgage and Investment Banking																
1	Overdrafts	96	0.89	1	4.479	0.92	96	0.77	17	3.833	1.04	96	0.8	11	3.83	1.55
2	Term Loans	96	0.78	17	3.917	1.05	96	0.77	17	3.833	1.11	96	0.7	39	3.46	1.28
3	Mortgage	96	0.78	19	3.896	1.1	96	0.74	34	3.688	1.15	96	0.8	1	4.21	1.14
4	Unsecured Advances	96	0.76	26	3.813	1.21	96	0.8	9	3.99	1.22	96	0.7	31	3.59	1.19
5	Traditional Loan	96	0.77	23	3.833	1.19	96	0.74	30	3.708	0.99	96	0.7	22	3.69	1.32
6	Equipment Leasing	96	0.82	9	4.115	1.04	96	0.8	8	4.01	0.95	96	0.8	9	3.85	1.07
7	Debt factoring	96	0.75	34	3.729	1.22	96	0.83	5	4.135	1.22	96	0.8	11	3.83	1.20
8	Loans Syndication/Consortium Loan	96	0.74	39	3.677	1.13	96	0.72	43	3.615	1.25	96	0.7	43	3.33	1.33
9	Development Bank Fund	96	0.8	14	4	0.88	96	0.75	28	3.74	1.24	96	0.8	8	3.88	1.42
10	Bond/debenture	96	0.75	32	3.74	1.14	96	0.78	11	3.896	1.29	96	0.7	39	3.46	1.23
Modern financing arrangement																
1	Private Finance Initiative (PFI)	96	0.77	23	3.833	1.27	96	0.77	16	3.844	1.13	96	0.8	16	3.76	1.28
2	Public Private Partnership (PPP)	96	0.89	2	4.438	1.01	96	0.84	3	4.219	1.13	96	0.8	2	4.15	1.22
3	Securitisation (capital markets financing mechanism)	96	0.75	34	3.729	1.1	96	0.73	38	3.656	1.08	96	0.8	14	3.78	1.02
4	Unitisation (convert investment trust into a unit)	96	0.61	45	3.031	0.88	96	0.78	12	3.885	1.01	96	0.7	22	3.69	1.32
5	Real Estate Investment Trust (REITS) (Asset securitisation	96	0.79	15	3.927	1.14	96	0.76	23	3.781	1.1	96	0.8	6	3.91	1.34
6	Global financial market	96	0.77	21	3.854	1.15	96	0.75	27	3.75	1.21	96	0.8	14	3.78	1.18
7	Equity Capital	96	0.75	30	3.76	1.17	96	0.73	40	3.635	1.23	96	0.7	25	3.68	1.25
8	Foreign Sources (Foreign Direct investment (FDI)	96	0.86	6	4.281	1.11	96	0.76	19	3.823	1.19	96	0.7	28	3.61	1.28

Table 4 Appraisal of various project financing options by construction medium enterprises (MEs) using; extents of familiarity; level of importance and frequency of use, with (Cronbach's alpha = 0.981 and 0.983), respectively (continued)

S/N	*External Sources*	*Familiarity*					*Level of importance*					*Frequency of use*				
		Total	*RII*	*Rank*	*Mean*	*STD*	*Total*	*RII*	*Rank*	*Mean*	*STD*	*Total*	*RII*	*Rank*	*Mean*	*STD*
World Bank related sources of finance																
1	National Economic Reconciliation Fund (NERFUND) facilities	96	0.77	23	3.833	0.96	96	0.73	40	3.635	1.21	96	0.7	21	3.70	1.29
2	Small and Medium Enterprise (SME) loan Scheme	96	0.89	3	4.438	1.02	96	0.84	4	4.177	1.06	96	0.7	36	3.48	1.29
3	Export Stimulation Loan (ESL)	96	0.73	43	3.656	1.15	96	0.72	45	3.604	1.03	96	0.8	9	3.85	1.25
4	Nigerian Export Credit Guarantee and Insurance Scheme (NEXIM)	96	0.76	26	3.813	1.18	96	0.77	14	3.854	1.2	96	0.7	41	3.45	1.38
5	Word Bank Pilot Mutualistic Credit Guarantee Scheme Loan	96	0.74	38	3.708	1.1	96	0.82	6	4.104	1.33	96	0.7	27	3.65	1.35
Non-Interest Islamic (banking)																
1	Murabaha; credit that enables customers to make a purchase on deferred payment	96	0.73	42	3.667	1.28	96	0.72	43	3.615	1.28	96	0.7	45	3.25	1.38
2	Takaful; debt finance	96	0.7	44	3.51	1.25	96	0.73	38	3.656	1.29	96	0.8	13	3.79	1.49
3	Wakala – Ijarah; in this contract arrangement, the borrower is engaged as an agent or "Wakil"	96	0.78	18	3.906	1.27	96	0.76	19	3.823	1.43	96	0.7	44	3.29	1.32
4	Islamic Sukuk (Bonds); Islamic Bonds	96	0.75	31	3.75	0.93	96	0.76	22	3.802	1.18	96	0.7	36	3.48	1.51
5	Musharakat-Musharakat Al-Istisna'a; equity participation contract	96	0.75	29	3.771	1.23	96	0.74	32	3.698	1.21	96	0.8	7	3.90	1.51
6	Al-Ijarah (Leasing); A lease agreement whereby a bank buys an item for a customer	96	0.84	7	4.198	1.24	96	0.73	37	3.667	1.26	96	0.7	42	3.36	1.36

Familiarity where: 1 = not familiar, 2 = less familiar, 3 = neutral, 4 = familiar, 5 = very familiarity

Extent of importance where: 1 = unimportant, 2 = important, 3 = moderately important, 4 = highly important 5 = extremely important

Frequency of use where: 1 =never, 2 = less often, 3 = neutral, 4 = often, 5 = always

4.2 The most suitable project financing options for Construction SMEs in Nigerian built environment

The most suitable project financing options for construction SMEs in the Nigerian built environment including term loans and overdrafts were ranked first by construction SEs and MEs, followed by overdrafts; construction SEs preferred PPP under the extent of familiarity. In addition, the level of importance of project financing options by construction SMEs in the Nigerian built environment revealed that appropriation (government budgetary allocation) was ranked and chosen first by construction SEs and MEs, respectively, followed by term loans and loans from financial institutions. Furthermore, the frequency of project financing options used by construction SMEs revealed that overdrafts and mortgage financing were ranked first by both construction SEs and MEs in the Nigerian built environment.

4.3 Summary of findings, conclusion and recommendations

From the survey data analysed, it was revealed that construction MEs have the highest frequency and percentage use of 96, 44%, followed by construction SEs. Construction SEs' approximate number of employees 12–71 has a frequency of 97, 43% and 16–12 years of experience has the highest frequency of 74, 34%; therefore, this affirmed that the result obtained is adequate for research data analysis. Appraisal of external sources of project financing options by construction SMEs to select appropriate project financing options in the Nigerian built environment revealed that term loans and overdrafts were ranked and chosen first under commercial banking by construction SMEs with extents of familiarity with project financing options.

Conclusively, the study reveals respondents' responses using; extent of familiarity, level of importance and frequency of construction SMEs using project financing options. It was revealed that amongst external sources of construction SMEs, project financing options; term loans and overdraft is with the highest RII and are the most critical options required by construction SMEs amongst other components to be considered for developing a procedural framework for selecting suitable project financing options toward improving performance in built environment emerging global environmental challenges: management, risk and opportunities particularly developing country Nigeria.

The research recommendations that government at all levels should formulate and implement policy to use a standard framework to guide construction SMEs in selecting appropriate project financing options in the Nigerian built environment, equally workshop training and conference to educate construction SMEs for financial discipline towards improving its performance.

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