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# PERSPECTIVE OF NIGERIAN BUILDING AND CIVIL ENGINEERING CONTRACTORS ON THE DETERMINANTS OF FIRM PROFITABILITY

Christian Fidelis Asuquo<sup>1\*</sup> and Chukwuemeka Patrick Ogbu<sup>2</sup>

<sup>1</sup>Department of Quantity Surveying, University of Uyo, Uyo, Nigeria

<sup>2</sup>Department of Quantity Surveying, University of Benin, Benin City, Nigeria

E-mail: \* fidelischristian@uniuyo.edu.ng

## ABSTRACT

Profitability is crucial to the success, growth and survival of construction firms. This study investigated the factors affecting the profitability of construction contractors in Akwa Ibom State, Nigeria. It also determined if there are differences in the perspectives of building and civil engineering contractors on the important factors affecting profitability. Data were collected with the aid of a well-structured questionnaire and were analysed using mean score and Mann-Whitney U test. A total of 173 adequately completed questionnaires were analysed. Turnover or volume of sale of the contracting firm is considered as the most important factor influencing contractors' profitability, while other key factors include low profit margin of projects, contractor's productivity and shortage of working capital or liquidity issue. Findings also revealed that there is a difference in the perception of building and civil engineering construction contractors on most of the factors affecting profitability of contracting firms. It is recommended that that construction contractor should create a work bank or increase the amount of construction work at hand in order to keep turnover flowing steady. In addition, the distinction between building and civil engineering contracts should be recognised when considering the factors affecting contractors' profitability.

**Keywords:** Building, Civil Engineering, Contractors, Nigeria, Profitability

## 1. INTRODUCTION

In Nigeria, the construction sector is an important component of the national economy. Its contribution to the real Gross Domestic Product (GDP) was 4.18% in first quarter of 2022 and 3.21% in the second quarter of 2022 (National Bureau of Statistics (NBS), 2022). Moreover, it has potential for employment generation (Adeagbo, 2014). The public sector is the major promoter of construction in Nigeria (Isa, Jimoh and Achuenu, 2013), as government often stimulate economic activities through the development of infrastructure (Macharia, 2016). The sector serves other real sectors of the economy and is therefore sensitive to the economic policies of government (Odediran, Babalola and Adebisi, 2013). Conversely, the economic environment generated by the activities of other real sectors affects construction activities (Yin, 2013). Consequently, the construction business environment is often characterised by complexity, dynamism, volatility and high degree of risks (Lam, 2017; Le, Mai and Nguyen, 2020). This complexity of construction has been further heightened by the involvement of different stakeholders (Jin, 2018), one of which is the contractor. Construction contractors include individuals, firms or organisations that execute construction work for a client and offer their expertise in exchange for financial rewards (Mafimidiwo and Iyagba, 2015). Like other entrepreneurs, the contractor has multiple objectives among which is to sustain itself and succeed in business (Abu-Bakar *et al.*, 2011). Authors are unanimous that profit maximization is one of the main goals of construction firms (Macharia, 2016; Babalola and Anifowose, 2018; Skuflic Mlinaric and Druzic, 2018). Without any doubt, an appropriate level of profit is required by the contractors in order to thrive and grow in the volatile construction business environment (Lee, 2009; Lam, 2017).

Despite being closely related and mutually inter-dependent, profit and profitability are two different concepts. Profit is the amount that is left after all costs or expenditures have been deducted from sales revenue, while profitability is a relative term which refers to the operating efficiency of a business, or the ability of the business to obtain adequate returns on capital invested (Babalola and Anifowose, 2018). Profitability is an important measure of the performance of a construction firm (Skulufic *et al.*, 2018) and a key indicator of a firm's competitiveness as well as the quality of its management (Lee, 2009). It is one of the most important objective and a critical measure of satisfaction for stakeholders involved in construction business (Jahan *et al.*, 2022). Profitability of construction firms is capable of promoting growth and sustainability of firms as well as the construction industry at large (Tuni-Olayeni, 2015). Construction companies reporting low profitability are at increased risk of collapse, and failure to acknowledge this may lead to serious implication for the construction industry and the economy (Chan and Martek, 2017). It is therefore important to understand the factors that drives profitability so that stakeholders can identify and implement appropriate business policy and decisions (Skulufic *et al.*, 2018, Jahan *et al.*, 2022).

Few related international studies on construction firm profitability have been undertaken. However, studies highlighting the determinants of construction contractors' profitability in Nigeria are scarce. This implies that location-specific factors influencing profitability of construction contractors may not yet have been identified. This will make the formulation of profitability improvement strategies for construction contractors to be difficult. In Nigeria, where the harsh construction business environment has limited contractors' capabilities (Bala *et al.*, 2009) and endangered their survival, growth and competitiveness (Adamu *et al.*, 2011; Odediran *et al.*, 2013; Tunji-Olayeni, 2015), it is imperative that there is adequate research effort to unravel the factors influencing the profitability of contractors. Profitability of construction contractors is affected by numerous factors (Lee, 2009; Bolek and Wilinski, 2012; Macharia, 2016). It is therefore necessary to undertake sector-specific studies covering a wide range of causal factors affecting construction contractors' profitability. This will help in formulating appropriate strategies for improving profitability, survival and growth rates of construction contractors. The study examined the factors affecting construction contractors' profitability. It also determine if any difference exists in the perception of building and civil engineering contractors on the factors affecting profitability.

## 2. LITERATURE REVIEW

### 2.1 Factors affecting profitability of construction firms

According to Bolek and Wilinski (2012), profitability of construction contractors is affected by internal and external factors. While the internal factors are within the control of the firm, and depend on the firm's resource, structure and working capital, the external factors include phenomena beyond the control of the firm. In other words, the external factors comprise everything that is not the result of the decision taken by the management of the firm. The risks inherent in construction business has often threatened the level of profitability of contractors, and has also increased the likelihood of failure among construction firms (Kivrak and Arslan, 2008). Furthermore, the dynamic nature of the industry, coupled with the impact of competition, globalization, technological advancement and changing client need, poses a monumental challenge for the profitability, survival and success of construction companies (Abd-Hamid, Aziza and Sorooshia, 2015; Buys and Rooyen, 2014; Adamu *et al.*, 2011; Jahan *et al.*, 2022). In most cases, construction contractors are faced with a difficult situation in which they must submit tenders with a reasonable profit level to keep them in business and at the same time remain competitive against other contractors (Akintoye and Skitmore, 1991).

Studies have shown that more than 50% of failure in construction businesses were due to low profit margins resulting from the very intense competition for works among contractors (Kivrak and Arslan, 2008). Construction contracting business is highly competitive, with the strong and unwholesome level of competition being attributed to the large number of contractors in the sector (Arslan and Kivrak, 2008; Oyewobi, Windapo and Cattell, 2014). In the construction industry, contracts are often awarded to contractors who submits the lowest responsible and responsive bid. Therefore, construction industry profit is significantly affected by the degree of competition among existing firms (Tunji-Olayeni, 2015), as very stiff competition may compel construction companies to reduce profit margins in their tenders in an attempt to secure the contract as the lowest responsive bidder (Jagafa and Wood, 2012).

Fluctuations in construction demand is also a major concern of the construction sector (Christidis and Kalfakakou, 1996). Dwindling demand suggests a reduction in the volume of construction works available to contractors, and by implication a reduction in business turnover. Lee (2009) observed that profitability is a function

of sales volume or turnover, and that most construction firms experienced a reduction in business turnover, which negatively affected their profits and threatened their survival. Failure rates and bankruptcy are also known to be high among construction contracting firms (Abd-Hamid *et al.*, 2015; Zaid *et al.*, 2014), and financial factors have been attributed to be an important causal agent of construction business failure (Holt, 2013). Some of these financial factors include payment issues and liquidity problems which are known to influence the profitability of construction enterprises (Bolek and Wilinski, 2012; Lam, 2017; Jahan *et al.*, 2022). In the light of the foregoing, one may be compelled to agree with Akintoye and Skitmore (1991) that the low profitability level that is endemic in construction contracting business may be traceable to the highly competitive construction business environment, the desire by contracting firms to gain more market share or lack of familiarity with the numerous risks involved in construction.

Other factors influencing firm profitability include the rising cost of construction materials (Jahan *et al.*, 2022), size of the firm (Zaid *et al.*, 2014; and Macharia, 2016; Le *et al.*, 2020), degree of subcontracting (Lee, 2009; Arora, 2012), competitiveness of firm (Tunji-Olayeni, 2015), and macroeconomic factors (Zaid *et al.*, 2014; Lim, 2017). Moreover, Lee (2009) suggested that management competence, productivity, complexity of project, technical expertise of firm, degree of mechanization of site operations, profit margin, interest rates and recession are capable of influencing the overall profitability of construction contractors.

## 2.2 Empirical Review

Due to the importance of firms' profitability in the construction sector, a few international studies have been undertaken on the subject. A study by Akintoye and Skitmore (1991) examined the profitability of construction contractors in the United Kingdom (UK). The study noted that low profitability is prevalent in the construction contracting business possibly due to the keen competition in the construction industry, the intention to gain more market share or due to lack of familiarity with risks involved in construction contracting. Christidis and Kalfakakou (1996) reviewed profitability in the Greek construction sector and concluded that the unpredictability of construction contractors' profitability severely inhibits long-term planning and investment. The study also identified liquidity as the main problem affecting profitability in the construction industry. Lee (2009) conducted an investigation into the factors that influence the profitability of construction companies in Hong Kong. The thesis analysed income and expense data of 891 construction firms in Hong Kong from 1981-2002, and found that profitability varies with company's size, extent of subcontracting and material content in projects. Specifically, the result of the study shows that as size of a construction firm increase, profit margin declines initially, then increases up to a particular firm size and then slowly diminishes when the firm size exceeds the optimal level. The implication of this result is that there is an optimal size for a construction company that makes it more profitable.

A study by Bolek and Wilinski (2012) contended that liquidity and profitability are two major aspects of a company's activities and are important measures of its performance, and went further to confirm that financial liquidity influences the profitability of Polish construction sector companies. Furthermore, Zaid *et al.* (2014) examined the determinants of profitability of public-based construction companies in Malaysia from 2000-2012, using Return on Equity (ROE) as a measure of profitability and sales (turnover) as a measure of company size. The results indicate that liquidity and firm size have significant positive relationship with profitability while a negative non-significant relationship was found between capital structure and profitability. Interestingly, macroeconomic variables were found to exert non-significant impact on profitability. Achenef (2016) investigated the factors affecting the profitability of 12 private construction firms in Ethiopia, using panel data covering a five-year period from 2011-2015. Return on asset (ROA) was used as a measure of profitability, and secondary data obtained from individual construction firm's annual financial report were analysed. The results show that liquidity and working capital have significant and negative relationships with profitability. However, firm size had negative and insignificant relationship with profitability.

Macharia (2016) examined the relationship between the capital structure and profitability of construction and allied firms listed at the Nairobi Securities Exchange. The outcome revealed that there is a weak negative relationship between long-term debt and profitability. The study also noted that firm size was positively related with profitability. Lim (2017) attempted to identify the macroeconomic variables influencing construction firm's profitability using a top construction contractor in Malaysia as a case study. The study used Return on Asset (ROA) as a measure of profitability and the results indicate that liquidity, GDP, inflation rate, exchange rate and total assets size are not significantly related with ROA, and therefore have low impact on profitability. Similarly, Adjei *et al.* (2018) revealed that delayed payment greatly affects the profitability of projects and the survival of construction contractors in Ghana. Moreover, Skuflic *et al.* (2018) investigated the determinants of construction sector profitability in Croatia using data obtained from 8678 construction companies sampled between 2003 and 2014. The researchers

used net profit after tax as a proxy for profitability. It was found that company size, sales growth, lagged profitability and number of employees show strong relationship with profitability.

Likewise, Pordea, David and Mates (2020) conducted a study on the influence of Operating Cash Flow and Current Ratio on profitability of construction firms in Romania, with Return on Equity used as measure of profitability. The result of the linear regression analysis suggests that both financial variable did not exert a statistically significant influence on profitability. Furthermore, Le *et al.* (2020) examined the determinants of profitability using data from 2008-2015 obtained from 73 construction companies listed on the Vietnam Stock Exchange. Results indicate that the age of the company and debt ratio have negative impact on profitability while company size has a positive impact. Omopariola *et al.* (2021) examined the level of financial performance of 32 selected construction companies in South Africa. Result indicates that companies with specialisation in civil engineering and project management have higher liquidity and profitability. In addition, a study by Daryanto, Rizki and Mahardhika (2021) analysed the financial performance of construction firms in Indonesia before and during the Covid-19 pandemic. Data were collected from the company quarterly financial statement from 2019-2020, and t-test was used to compare the data before and during the pandemic. Results show a lower financial performance during the pandemic, suggesting that Covid-19 pandemic greatly affected the financial performance of companies. Another study by Jahan *et al.* (2022) found that rising cost of materials, payment issues, planning and scheduling problems, financial difficulty and effective control of manpower and equipment are keys factors influencing profitability. In Nigeria, studies that specifically focus on the profitability of contracting firms in the construction sector are limited. Most of the available local studies on firm profitability have largely been undertaken among firms operating within the manufacturing sector. The present a research gap for the present study.

### 3. METHODOLOGY

A survey research design was adopted in this study to achieve the outlined objectives. The study was conducted in Akwa Ibom State, located along the eastern coastline of the Niger-Delta region of Nigeria. It is also a leading oil producing state and has been receiving huge revenues from the federal government of Nigeria. Recently, the state has undertaken a large volume of building and civil engineering construction works thereby attracting construction contractors of different sizes and categories to the area. This is complimented by the high demand for residential and commercial buildings by the private sector clients, which all together have created a robust construction market in the state. Some of the construction works and development projects are contracted to building and civil engineering construction firms that are keen to sustain their profitability in order to survive and grow.

The population of the study comprises building and civil engineering construction contractors of all sizes and categories that are based in or operating within Akwa Ibom State. Citing an online business directory platform, Asuquo, Udo and Otali (2020) noted that there are 918 building and civil engineering construction contractors operating in the state. The simple random sampling technique was adopted in this study. This is a probabilistic sampling technique where the study respondents have equal chance of being selected in the sample. The sample size was determined using Taro Yamane's formula for determination of sample size. According to Singh and Masuku (2014), the formula is given as follows:

$$n = N / [1 + N (e)^2]$$

Where n is the sample size, N is the population size, and e is the level of precision.

At 95% confidence level or 5% precision level, the sample size for a population of 918 construction contractors is calculated to be 279 contractors.

A structured questionnaire was used as the principal instrument for data collection. In an attempt to determine the suitability or reliability of the instrument to elicit the required responses from construction contractors, a pilot study was conducted by administering a test-questionnaire on four construction firms within the study area. The observations made were then used to improve on the final version of the questionnaire. Moreover, the content validity of the instrument was assessed by two senior lecturers in the Department of Quantity Surveying in the University of Uyo, Uyo, Nigeria. The Cronbach Alpha ( $\alpha$ ) test score of the questionnaire was 0.859, which indicates a significantly high internal consistency or reliability score for the instrument. The questionnaire consisted of two sections. The first section of the questionnaire elicits information on the characteristics of the respondents, and include among others, information about their professional background, nature of operation, and category and size of firms. The second section highlight the factors that affect profitability of construction contractors and present them to respondents to evaluate. The questionnaire was administered to the respondents, with the key personnel involved in the management of construction business as targets.

Data for the study was processed and analysed with the aid of SPSS (Statistical Packages for Social Science). Data measured on nominal scale was analysed using descriptive statistics such as frequency distribution, percentages and mean score. The hypothesis of the study was tested using Mann-Whitney U test. The Mann-Whitney U test is non-parametric in nature. It is applicable where there are only two independent groups (Pietersen and Maree, 2007), and was therefore employed in testing the hypothesis that there is no difference in the perception of building and civil engineering contractors on the factors affecting firm profitability. Non-parametric statistics are more suitable to use in this study, since data were obtained using Likert-type scale where there may be wide variation in the opinion of respondents. Moreover, there is no need for the assumption of normality of the variables where non-parametric tests are adopted (Pietersen and Maree, 2007; Ostertagova, Ostertag and Kovac, 2014).

#### 4. RESULTS AND DISCUSSION

Of the 279 questionnaires distributed, only 173 completed questionnaires were returned, thus representing about 62% response rate. All returned questionnaire were well completed and were therefore used for analysis. Table 1 shows the distribution of the questionnaire.

Table 1: Distribution of Questionnaire

	Number	Percentage
Questionnaire Distributed	279	100%
Questionnaire Returned	173	62.00
Questionnaire not well completed	0	0%
Questionnaire used in analysis	173	62.00

Table 2 shows the summary of the characteristics of the respondents. From Table 2, it is clear that Engineers constitute the highest proportion of respondents with 34.1% while Builders, with 13.3%, make up the least proportion of respondents for the study. Majority of the respondents (53.3%) are engaged solely in building construction works while the least share of 19.7% were drawn from contractors concentrating on civil engineering operations. About 73% of the respondents have worked in the construction industry for more than 10 years, with about 47% of the respondents working in firms with not less than 50 employees.

More than 84% of respondents have been engaged in more than one construction contracts in the last one year suggesting that they may currently have workload at hand. In terms of annual turnover, about 61.3% have made construction sale volume of not less N50 million, suggesting that there are more respondents be in the medium to large firm categories. In addition, majority (about 51%) of construction firms sampled in the study employ the net-profit-after-tax approach as a measure of firm profitability. Others use return on investment (about 27%) and amount of profit divided by turnover (22%) as a measure of firm's profitability. However, the result shows the net sales, return on asset, return on equity, construction contractors in the study area do not use debt-equity ratio and liquidity ratio as an approach to determination of profitability.

The study identifies *net profit after tax* as the most commonly adopted approach to determine contractors' profitability. Achenef (2016) observed that most entrepreneurs invest in order to make a return, and the profit earned by a business can be used to measure the success of that investment. Moreover, Babalola and Anifowose (2018) posited that profitability represents the operating efficiency of a firm, and the ability of the firm to get sufficient returns on the resources deployed in the business operation. It therefore appears that the use of net profit after tax is a much more convenient approach employed by contractors for measuring profitability. Findings also show that a few contractors use return on investment and amount of profit divided by turnover to measure profitability. Akintoye and Skitmore (1991) noted that profitability might be expressed as a profit percentage of turnover (POT) or return on investment (ROI). Both POT and ROI have been used extensively in studies of profitability in construction and manufacturing sectors (Lee, 2009). The turnover of capital employed is said to measure the level of investment made against the volume of sales or work done by the contractor.

Table 2: Respondents Characteristics

	Frequency	Percentage (%)	Cumulative Percent %
<b>Designation of Respondents</b>			
Engineer	59	34.1	34.1
Architect	44	25.4	59.5
Quantity Surveyor	47	27.2	86.7
Builder	23	13.3	100.0
<b>Nature of Operation of Firm</b>			
Building construction	92	53.2	53.2
Civil engineering	34	19.7	72.8
Building & Civil engineering	47	27.2	100.0
<b>Years of Experience in Construction Industry</b>			
1 - 5 years	12	6.9	6.9
6 - 10 years	34	19.7	26.6
11 - 15 years	65	37.6	64.2
16 -20 years	53	30.6	94.8
Above 20 years	9	5.2	100.0
<b>Size of Firm in terms of Number of Employees</b>			
1 - 49 employees	91	52.6	52.6
50 - 199 employees	68	39.3	91.9
Above 200 employees	14	8.1	100.0
<b>No. of Contracts Secured in Last One year</b>			
One	27	15.6	15.6
Two	68	39.3	54.9
Three	46	26.6	81.5
More than 3	32	18.5	100.0
<b>Average Annual Turnover in the last 3 years</b>			
N 1 - 50 million	67	38.7	38.7
N 51 - 500 million	79	45.7	84.4
More than N 500 million	27	15.6	100.0
<b>Approach to Determination of Profitability</b>			
Amount of profit divided by turnover	38	22.0	22.0
Return on investment	46	26.6	48.6
Net profit after tax	89	51.4	100.0

#### 4.1 Factor Affecting Profitability of Construction Contractors

Table 3 presents the factors affecting the profitability of construction contractors as expressed by small, medium and large contractors respectively and collectively. While the small and medium size contractors rank turnover or volume of sale as the most important factor affecting profitability, large contractors ranked low profit margin in contracts as the most important factor influencing profitability of construction contractors. Moreover, medium size contractors consider shortage of working capital and liquidity problem (mean score = 4.82, rank = 2nd) as a very important factor whereas for large contractors, this factor (mean score = 3.83; rank = 15th) is not rated highly as an important determinant of profitability.

Collectively, the responding contractors indicate that turnover or volume of sale of the contracting firm, with a mean score of 4.75, ranks as the most important factor influencing contractors' profitability. Other key factors include low profit margin of project, contractor's productivity and shortage of working capital or liquidity issue. The extent of mechanization of site operation with mean score of 2.39, was rated as the least important factors affecting profitability of construction contractors. Other less important factors include contractors' competitiveness, extent of subcontracting and economic recession, all of which recorded a mean score of less than 3.0 on a 5-point scale. Moreover, it is shown from the findings of the study that turnover or volume of sale of the contracting firm is the most important factor influencing contractors' profitability. Profit flows from sales volume or monetary value of work executed by construction firm less the outgoings or expenditures (Lee, 2009). Therefore, the business turnover or sales volume of a construction contractor could be used to a greater extent to assess the firm's profitability (Akintoye and Skitmore, 1991; Skuflic *et al.*, 2018). Again, it suggests that construction contractors that suffer a decline in turnover are likely to record lesser profitability. As noted earlier, this situation has often prompted several construction contractors to create a large bank of work to maintain steady turnover at all times.

Other key factors affecting contractors' profitability, as observed from the study, include low profit margin of project, contractor's productivity and shortage of working capital or liquidity issue. Construction contractors often operate in a challenging business environment often characterised by extreme competition which compel contractors to submit desperate tenders with comparatively low mark-up (Kivrak and Arslan, 2008; Tunji-Olayeni, 2015). The submission of such abysmally low-margin bids in turn adversely affects the contractor's profitability (Adjei *et al.*, 2018). In addition, the construction contracting business thrives heavily on cash flow. Earlier, liquidity, debt and payment delay have been identified as key issues influencing firm profitability, as Christidis and Kalfakakou (1996) and Adjei *et al.* (2018) observed that liquidity issues in construction firms may lead to poor cash flow and negatively impact on the firms' profitability. The result is supported by other previous studies by Bolek and Wilinski (2012), Owolabi and Obida (2012), Owolabi and Alu (2012), Zaid *et al.* (2014), and Raymond, Adigwe and John-Akamelu (2015) which found a positive relationship between liquidity and firms' profitability. However, the result is not in agreement with the outcomes of studies by Achenef (2016) and Lim (2017) where liquidity exerted either a negative or relatively weak positive impact on profitability of construction firms.

The extent of mechanisation of site operation, contractors' competitiveness, extent of subcontracting and economic recession are not considered as important factors affecting profitability of construction contractors in the study. In Nigeria, most construction activities are still being undertaken manually (Idoro, 2012), as there is low utilization of mechanisation within the construction sector (Sani *et al.*, 2015). This may explain why mechanisation of operations is not rated highly as a factor affecting profitability. Moreover, the extent of subcontracting may not have had much influence on profitability because most main contractors get involved in price-cutting when engaging the services of domestic subcontractors. It is possible too that most construction contractors have relied more on their social relationship and connection with clients to obtain construction contracts rather than raise the level of their competitiveness. In such circumstance, competitiveness may not necessarily play any key role in determining the profitability of construction firms.

Table 3: Factors Affecting the Profitability of Construction Contractors

Factors affecting contractors profitability	Small contractors		Medium Contractors		Large Contractors		Overall	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Turnover/volume of sale of contracting firm	4.60	1	4.94	1	4.79	4	4.75	1
Low profit margin of project	4.45	3	4.49	4	4.98	1	4.51	2
Contractor's productivity	4.54	2	4.07	9	4.85	3	4.38	3
Shortage of working capital/liquidity issue	4.08	7	4.82	2	3.86	15	4.35	4
Complexity of project	4.20	4	4.38	5	4.78	6	4.32	5
Fluctuation in price of construction resources	4.07	9	4.65	3	3.93	14	4.28	6
Contractors cost control activities	4.09	6	4.37	6	4.36	7	4.22	7
Managerial competence of contracting firm	4.12	5	4.04	10	4.79	5	4.14	8
Size of contracting firm	4.08	8	3.99	15	4.07	9	4.04	9
Non-payment by client	3.73	12	4.35	7	4.00	10	3.99	10
Level of competition in construction market	3.97	10	4.00	14	4.00	13	3.98	11
Delay payment from client	3.73	13	4.00	11	4.07	8	3.86	12
Contractor's technical expertise	3.65	14	4.00	12	4.00	12	3.81	13
Interest rate movement	3.45	17	4.00	13	4.97	2	3.79	14
Lack of business experience	3.48	16	4.32	8	3.14	16	3.78	15
Fluctuation in construction demand	3.82	11	3.46	18	3.00	19	3.61	16
Debt profile of contracting firm	3.59	15	3.50	17	4.00	11	3.59	17
Fluctuation in exchange rate	3.09	19	3.93	16	3.00	18	3.40	18
Contractor's competitiveness	2.84	20	2.93	20	2.00	22	2.80	19
Extent of subcontracting by contractor	2.81	21	2.94	19	2.00	21	2.79	20
Recession/economic crisis	3.26	18	2.09	22	3.00	17	2.78	21
Extent of mechanization of site operation	2.37	22	2.40	21	2.00	20	2.39	22



#### 4.2 Perception of Building and Civil Engineering Contractors on Profitability Factors

In this study, it is hypothesized that there is no difference in the perception of building and civil engineering contractors on the factors that affect profitability. The Mann Whitney U-test was used to determine whether any difference exists between the perception of building and civil engineering contractors on the factors that affect profitability of a construction firm. The decision rule is that where the  $p$ -value of the test for a particular factor is less than 0.05 at 95% confidence level, the null hypothesis is rejected (Pietersen and Maree, 2007). In such situation, it implies that there is enough evidence to conclude that a significant difference exists in the perception of the building and civil engineering construction contractors on such factor.

The result of the Mann Whitney U-test for the difference in the perception of building and civil engineering construction contractors on the determinants of profitability is presented in Table 4. The result suggests that the  $p$ -value for most of the factors is less than 0.05. However, the  $p$ -value for the following factors exceeds 0.05: contractor's technical expertise ( $p = 0.388$ ), turnover or volume of sales of contracting firm ( $p = 0.754$ ), contractors' cost control activities ( $p = 0.483$ ) and non-payment by client (0.063). The implication of the result is that for the factors with  $p$ -value less than 0.05, there exists a significant difference in the perception of building and civil engineering construction contractors on their importance in affecting firm profitability. Moreover, for the factors with  $p$ -value greater than 0.05, there is no statistically significant difference in the perception of building and civil engineering contractors on their influence in determining firm profitability.

Table 4: Result of Mann Whitney U-test of the difference in the perception of Building and Civil engineering contractors on the determinants of construction firm profitability

S/n	Determinants of Construction Firm Profitability	Mann Whitney U Test ( $p$ -value)
1	Turnover/volume of sale of contracting firm	0.754
2	Low profit margin of project	0.000
3	Contractor's productivity	0.000
4	Shortage of working capital/liquidity issue	0.000
5	Complexity of project	0.000
6	Fluctuation in price of construction resources	0.000
7	Contractors cost control activities	0.483
8	Managerial competence of contracting firm	0.000
9	Size of contracting firm	0,002
10	Non-payment by client	0.063
11	Level of competition in construction market	0.000
12	Delay payment from client	0,025
13	Contractor's technical expertise	0388
14	Interest rate movement	0.000
15	Lack of business experience	0.000
16	Fluctuation in construction demand	0.000
17	Debt profile of contracting firm	0.004
18	Fluctuation in exchange rate	0.000
19	Contractor's competitiveness	0.000
20	Extent of subcontracting by contractor	0.000
21	Recession/economic crisis	0.028
22	Extent of mechanization of site operation	0.002

Civil engineering projects are known to possess attributes or characteristics that are quite different from those of building works, and research findings about civil engineering contracts may also be different due to these unique characteristics (Ismail *et al.*, 2018). It is therefore not surprising to find differences in the perception of building and civil engineering contractors on most factors affecting profitability. Moreover, since the construction business environment affects all categories of contractors in the industry, it is not unusual to also find building and civil contractors sharing a common experience in few aspects of the construction business. Like some buildings, civil engineering works require a much higher technical capability in terms of conceptualisation, design and construction.

Both usually involve the application of engineering knowledge in the design, planning and development of technical specifications (Akyazi *et al.*, 2020). Moreover, like most complex building projects, civil engineering projects are generally full of uncertainties, are largely unpredictable, and are therefore difficult to manage (Ismail *et al.*, 2018). Therefore, the performance of a construction project would be greatly influenced by the contractor's ability to handle its unpredictable character. Civil engineering contractors also share same perception with building contractors on the importance of business turnover in determining profitability. Lee (2009) noted that construction companies generally use surplus capital to tender for more construction contracts and potentially increase their turnover or sales volume. The argument is that more work will reduce overhead costs, keep the firm productive and increase profitability.

Although the result of this study suggest that there is no difference in the perception of building and civil engineering contractors on cost control activities on profitability, Ojo, Ogunsina and Ogunsemi (2020) argued that the exorbitant cost of procurement of civil engineering projects in Nigeria calls for a more effective framework for cost control and management. The authors noted that cost management process in civil engineering projects is not as detailed as in building, as the cost control process involve arbitrary supervision of cost at pre-contract stage, with no comprehensive cost planning process. In addition, there is no adequate documentation of cost information of completed civil engineering projects for cost analysis of future projects. Lastly, although delay payment and non-payment are widespread in construction sector, it could possibly affect building and civil engineering contractors in almost the same manner. European Construction Sector Observatory (2020) observed that both large civil engineering contractors and smaller building contractors are heavily affected by payment problems although the smaller firms are generally more sensitive in comparison to the larger companies.

## 5. CONCLUSIONS

As a result of the importance of turnover in determining profitability, it is recommended that construction contractors should create a 'work bank' in order to keep turnover flowing steady. Work bank refer to the amount of construction contract or work that a contractor has at hand. This can be achieved by expanding operations, gaining more market share and making effort to secure additional construction contracts. Most factors affecting profitability of building contractors are not the same with the factors affecting profitability of civil engineering contractors. Therefore, the distinction between building and civil engineering contracts should be recognised when considering the factors affecting contractors' profitability, while also not ignoring the common aspects they both share. One of the major limitations of this study is that the findings are most reflective of the perception of building and engineering construction contractors operating in Akwa Ibom State, which is located in the oil-rich region of Nigeria. It would be inappropriate to use the result of study in a single resource-rich state in Nigeria to generalize on the practice of construction contractors across other states in the country. Therefore, to make a countrywide generalization of the outcomes would require a more representative sample of construction contractors across other states and regions in Nigeria. Future work could consider covering additional states in Nigeria, increasing the sample size and listing additional profitability-influencing factors.

Despite the limitation, the study contributes to knowledge in that it provides additional insight into the factors influencing the profitability of construction contractors in Nigeria. It is an addition to the growing body of knowledge on the subject matter of construction contractors' profitability and complements existing literature on the subject, which presently are relatively scarce. The study sets the foundation upon which researchers and practitioners can develop effective measures for improving profitability of Nigerian construction contractors and provides a springboard upon which future studies can be conducted. Moreover, the study has provided location-specific factors influencing contractors' profitability in a state in Nigeria, and has therefore provided an indication of, or insight into, the possible factors affecting construction contractors' profitability in other parts of Nigeria. In addition, the study provided further insight into the perception of profitability by different sizes and categories of construction contractors operating within the industry.

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