Financial Distress and Highway Infrastructure Delays

Abstract:

Purpose: In developing countries, delays in highway infrastructure projects caused by financial distress-related factors threaten the construction industry's capacity to contribute optimally to economic development. Against this backdrop, this paper determines factors contributing to financial distress and develops a conceptual framework to illustrate the relationship between financial distress and project delay.

Design: A questionnaire survey collected data on factors that contributed to financial distress and delays in highway infrastructure delivery. 78 responses were obtained and factor analysis revealed that factors associated with payment, project financing, cash flow, economic issues, project planning and cost control influenced project delays.

Findings: The research identifies the importance of efficient public and private policies to engender financial sustainability amongst construction firms in developing countries.

Originality: This work presents the first research of its kind and strives to engender wider academic debate and renewed economic development in some of the world's most impoverished nations.

Keywords: Ghana, infrastructure, financial distress, delays, road construction,

Introduction

The infrastructure gap in developing economies is circa US$31 billion per year and culminates in construction and civil engineering project delays (Foster and Briceño-Garmendia, 2009). Consequently, economic development and national productivity performance has been stifled (De

Gregorio, 2015). Within Ghana, successive post-independence governments have initiated and implemented diverse and ambitious infrastructure projects to boost infrastructural and economic development (Badu and Owusu-Manu, 2011). For instance, the Accra-Tema Motorway (Anaman, 2006) and the George W. Bush Highway. Yet despite this firm government commitment, many major projects are delayed and in-turn result in cost escalations. In Nigeria for example, 70% of projects suffer delays, the causes of which are myriad (Odeyinka and Yusif, 1997). Despite its importance, limited research has been undertaken to determine the factors that contribute to financial distress in construction project delivery, and particularly highway construction. Therefore, this paper aims to determine the underlying factors contributing to financial distress of construction firms completing highways projects and investigate the interconnections between these factors and project delays. A primary objective being to stimulate fresh thinking amongst industry stakeholders including government policy-makers and construction organizations (including consultants, contractors, client and suppliers) on how to remove delay-associated problems and improve the construction supply-chain (Badu and Owusu-Manu, 2010). The research also strives to engender wider academic debate and stimulate renewed economic development in some of the world's most impoverished nations.

Financial Distress

Financial distress represents inadequate liquidity and consequential difficulties of meeting financial obligations promptly (Maksimovic and Phillips, 1998). According to Karl (2002), financial distress is a long-term process which negatively impacts upon a company's capital structure, investment policies performance and business survival. Financial distress derives primarily from high gearing or following a highly distressing event such as major fraud (Tsai, 2014). Numerous factors cause financial distress, for example: high interest rates chargeable on loans; lack of regular cash flow

forecasting; low markup/ profit margins; poor credit arrangement with creditors and financiers; and difficulty in loan accessibility. Memba and Job (2013) attribute financial distress to two dichotomous groupings of endogenous and exogenous variables. Endogenous variables are firm specific and include: inadequacy of capital; shortage of skilled manpower; poor accounting records; and poor internal management. Ameriks *et al.*, (2003) revealed human-behavioral factors could also impact upon financial distress including managers' characteristics, which manifest in their capacity for self-control, planning and patience. In contrast, exogenous variables are external to the company and transcend all firms in a market irrespective of their individual characteristics (e.g. company size, type and industry sector operated within). Exogenous risk factors are sensitive to prevailing economic change, competitive pressures, government constraints, social alterations and technological change. Figure 1 provides a conceptual framework of the internal and external risk triggers of financial distress that have been derived from extant literature (refer to Table 1). Within this framework, endogenous and exogenous risk triggers are mapped to a description of the broad range of firms affected in an economy. Based on the above, it is hypothesized that:

H_o: Highway project delays are not positively related to the financial distress factors indicated in Table 1 below.

Research Approach

A deductive methodological approach was adopted using a quantitative survey design based upon an extensive extant literature review. From an operational perspective, a three stage process was adopted to fulfill the research aims and objectives. During *stage one*, (a) descriptive statistics were analyzed and (b) hypothesis testing undertaken using the Chi-Square statistic. *Stage two* then

proceeded to conduct (c) factor analysis once preliminary checks had been undertaken prior to developing the conceptual model in *stage three*.

A questionnaire that was divided into five sections and contained both open and closed questions was distributed by surface and electronic mail using a snowball sampling technique. 100 questionnaires were sent to small to medium enterprise (SMEs) highway contractors operating within Accra and Kumasi metropolitan areas in Ghana because 75% of SME road construction firms are located within these two cities (Badu *et al.* 2011). Respondents' perceptions and opinions on financial distress and delays in highway construction were specifically sought. Section one accrued information on the type of SME construction firm while section two sought to uncover the respondents' years of experience in highway construction. Section three sampled respondents' opinions on the relationship between financial distress related factors and project delay, while section four gave respondents an opportunity to rate 20 financial distress related variables (previously identified within the extant literature – refer to Table 1). Section five afforded respondents with an opportunity to rate the importance of mitigation measures. Question responses were measured with a five point Likert item scale ranging from 1 to 5. A high 78% response rate was achieved primarily due to follow-up telephone calls made to targeted respondents.

Factor Analysis analysis was adopted to uncover potential variables measuring aspects of the same underlying dimensions. To determine sample size, the rule of thumb established by Adadzie (2007) was adopted, namely that: factor analysis is reliable regardless of the sample size if the factor loadings are more than four with loading greater than 0.6 (c.f. Ahadzie, 2007). For this study, the factor loadings and other tests conducted gave the KMO test of 0.705 suggesting the reliability of

factor analysis. The Chi Square Test of Independence was adopted for hypothesis testing because data collected was mainly ordinal.

DATA ANALYSIS

Table 2 exhibits limited data variability in terms of the standard deviation and is an acceptable reflection of the population. For instance, almost all variables have sample mean values > the accepted population mean of 3.5 with standard deviations and standard errors < 1.0. This finding suggests that financial distress factors obtained from the extant literature are applicable to this study. Chi-square test results confirm the null hypotheses that financial distress variables do not contribute to project delays and is therefore rejected (Table 3). From Table 3, for each of the independent variables of financial distress for each of the independent variables, $\chi^2_{cal} > \chi^2\alpha$ at $p <$ 0.05 in all cases of the independent variables, the null hypothesis can be rejected. Logically, it can be concluded that highway construction project delays are positively related to the financial distress factors indicated in Table 3.

Factor Analysis

The adequacy of the sample size was confirmed by the Kaiser-Meyer-Olkin (KMO) which recorded a value of 0.705. Thus, Principal Component Analysis should yield distinct and reliable factors. Bartlett's Test checked for relationships between variables by testing the null hypothesis that the original correlation matrix (R-matrix) is an identity matrix. As the R-matrix is not an identity matrix, it can be concluded that: i) there are no difficulties in determining the unique contribution of the variables to a factor; and ii) some relationships exist between the variables that can be analyzed.

The *communality* of the variable represents the proportion of variance explained by the common factors and can range from 0 to 1, where: 0 implies that common factors do not explain any of the variance; and 1 implies that all the variance is explained by common factors (Mathur *et al*., 2013). Table 4 reveals that the average of variable communalities after extraction was above 0.60 suggesting that the extracted components satisfactorily represent financial distress factors.

Six financial distress principal components were extracted from the twenty causes of project delays based on an eigenvalue greater than 1 (refer to Table 4). These are: component one (*C1*) *payment issues* (21.38%[1]); component two (*C2*) *project financing issues* (15.40%); component three (*C3*) *cash flow issues* (12.39%); component four (*C4*) *economic issues* (9.45%); component five (*C5*) *political influence* (6.12%); and component six (*C6*) *cost control issues* (5.99%). All six extracted principal components cumulatively explained 70.86% of the variation in the data, which is greater than a minimum of 50% required by the cumulative proportion of variance criterion (Comrey and Lee, 1992). The Guttman-Kaiser rule suggests that only those factors with an eigenvalue larger than 1 should be retained (Sá *et al*., 2014), whilst the Cattell scree test suggests that all further components (after the one starting at the elbow) should not be included (Figure 2). The scree plot depicts the relationship between the various components and their corresponding eigenvalues drops below an eigenvalue 1 after the sixth component. Principal component analysis (with varimax rotation) was then conducted (refer to Tables 5 and 6). The eigenvalue and factor loadings were set at conventional high values of 1.0 and 0.50 respectively.

[1] This percentage represents the total variance explained by a component or the remaining variance not explained by previous components cited.

Discussion of Results

Profile of Respondents

Participating firms included sole proprietorship (28.2%), partnership (23.1%) and limited liability companies (48.7%) (refer to Table 7). Practice knowledge of highway construction amongst the sample was varied but over 80% had accrued six or more years' experience on such projects. Figure 3 identifies the relationship between exogenous and endogenous factors that emerged from the analysis and illustrates they work in unison to exert financial distress. These factors are now discussed.

Payment Issues (*C1*)

Five variables loaded onto this component were: i) *contractor's invalid claim*; ii) *withholding of payment by client*; iii) *bureaucracy in honoring payment certificates*; iv) *inaccuracies in valuations for work done by consultants*; and v) *underestimation of project cost*. Zack (1993) observed that payment issues may arise from disputes attributable to 'claimsmanship', which represents lack of fairness in the approach adopted by contract administrators when assessing claims. This adversarial approach reduces transparency and creates mistrust/ unnecessary tension between contract parties. When disputes escalate, a rippling effect further exacerbates the contractor's finance because of invalid claims made by them; the latter may arise from inaccuracies in valuations for work done and/ or underestimation of project cost. Inaccuracies in valuation and underestimation of project cost leads to cost deviations which are systematic and/ or specific in cause. Systematic causes such as macroeconomic perturbations can complicate the forecasting of project costs and valuations hence, subjecting claims to further uncertainty. For instance, during the past 3 years inflation rates have increased year-on-year from 8.73% in 2012 to 8.8% in 2013 and 14.7% in 2014. Cost estimates quoted in 2012 fell considerably below 2014 estimates, making original quotations

inaccurate and unreliable. Employing robust methods for forecasting macroeconomic conditions could alleviate risks and uncertainty; however, Ghanaian contractors lack the expertise for modelling such trends and cannot afford costly consultants.

The unofficial dollarization of Ghana's economy has led to incremental cost increases of projects due to the consistent depreciation of Ghana's currency (the 'Cedi') against other major trading currencies. For example, the US dollar appreciated by over 50% against the Ghana cedi between 2012 and 2014 (US$1 = GHS1.924 and GHS2.70 respectively). Consequently, contractors' claims may not necessarily be invalid but inadequate client planning may lead to financial distress contagion i.e. the transmission of financial distress conditions of debtors to creditors. Contractors' in-turn face a moral dilemma of either passing on the debts/ liabilities onto subcontractors, suppliers and creditors or risk insolvency. Typical claim violations include procedural, typographical or deliberate/ fraudulent errors. Other causes of delay may include: construction defects; disputed works; and failure to comply with any material provisions stated within the contract. A more serious situation arises when the claimant deliberate underestimates costs in order to secure project approval (Ahmed *et al.,* 2003). Thus, project cost overruns delay project delivery because securing extra sources funds to continue the works become problematic.

Project Financing Issues (*C2*)

Four variables loaded onto the second component were: i) *high interest rate*; ii) *poor credit arrangement*; iii) *difficulty in loan accessibility*; and iv) *insolvency*. Project financing encapsulates difficulties in sourcing both project finance and working capital. A firm's ability to obtain credit varies widely based on the perceived loan risk and is consequently dependent on financial economies of scale. This advantage is rarely enjoyed in Ghana's construction industry, which is

dominated by SMEs that account for approximately 90% of all construction firms (Wells, 2007). The major challenge facing SMEs is the inability to satisfy the conventional five Cs lending criteria utilized in credit analysis; namely: i) lack of credit history ('character'); ii) inadequate 'collateral'; iii) inadequate equity 'capital' on their balance sheets; iv) inadequate 'capacity'; and v) adverse macroeconomic 'conditions'. The underlying problem is asymmetric information about these SME construction firms, which is largely attributed to poor accounting standards in Ghana's construction industry. Accounting malfeasance generates asset-liability maturity gapping events leading to insolvency and prolonged project fundraising processes that create project delays.

Cash Flow Issues (*C3*)

The third component consists of three variables, namely: i) *divulging funds*; ii) *fraudulent practices*; and iii) *lack of cash flow forecasting*. Liquidity is a company's lifeblood and facilitates new investments, helps to start-up new projects and ensures that existing projects are delivered on schedule. Regular cash flow forecasting leads to early identification of latent cash flow problems. Robust cash flow forecasting is imperative but most Ghanaian contractors are unskilled and unable to perform complex models required to produce reliable forecasts in Ghana's economically volatile economy. A mismatch in assets and liability may therefore arise and consequently delay projects.

Divulging funds and fraudulent practice are inextricably linked because often project funds in Ghana are channeled into other areas of business operations or personal usage. Fraudulent practices are commonplace across West Africa and in Nigeria, they are the second most important factor affecting construction delays. For SME contractors, fraud is financially disastrous as it denies them the liquidity needed to complete works.

Economic issues (*C4*)

The fourth component comprises: i) *high tax allocation*; and ii) *unstable inflation rates*. SMEs are more likely to face higher tax brackets than larger construction firms (Tanco *et al*., 2015). Tax deductibles are benefits enjoyed for leveraging as construed from the Trade-Off Theory of capital structure; yet, SMEs are unable to access financial economies of scale and so lose out on allowable tax deductions. Tax deductions and low corporate tax payment could be maximized by companies with low equity-to-debt ratios. For instance, 70% equity-to-debt ratio indicates that interest payments on 70% of total return is tax deductible compared with lesser ratios. In other words, SMEs pay high taxes on their substantial sweat equity contributed towards the delivery of construction projects due to high equity-to-debt ratios. High tax payments reduce profitability and could delay the delivery of subsequent larger projects. High inflation leads to underestimation of project cost and inaccurate valuations especially in the absence of a reliable and robust project cost model. This problem is further compounded in capital scarce economies during periods of austerity because payment for unplanned incremental costs claims due to inflation may be delayed. Subsequently, contractors may be financially distressed - leading to project delays.

Political influence (*C5*)

The three variables loaded onto the fifth factor are: i) *budget allocation not made by clients*; ii) *contractor handling many projects at the same time*; and iii) *low profit margins*. The Ghanaian government is the industry's major client yet project budgets are often inadequate due to capital constrains and political pressures. Examples include the neglected affordable housing schemes and the University of Health and Allied Sciences in the Volta region. These white elephants create uncertainty about the timing and adequacy of payment of claims, making it difficult for contractors to balance assets and liabilities. The proliferation of SME construction firms in Ghana is

orchestrated by the desire of company directors to exploit political linkage and cronyism thus avoiding logistical and capital constraints confronting them. Cronyism and political patronage of 'favored contractors' by Government officials is common place in developing economies and prevents a free market from operating (Salleh and Ahmad, 2012). Inadequate resources delay project execution that may subsequently be re-awarded after a significant time lapse – thus incurring further cost and opportunities for corruption. To combat political favoritism, other contractors underestimate project costs to win procurement bids which in turn reduces profit margins and leads to project failure or contractor bankruptcy.

Cost Control Issues (*C6*)

The two variables that loaded onto the sixth component are: i) *high overhead cost*; and ii) *capital lockup*. Businesses must control and manage overhead costs to improve their financial situation (Cilensek, 1991). Overheads are indirect to the profit generation capacity of projects but imperative for the operation of construction firms and include rents, professional fees, interest, insurance, taxes and utilities. Capital lock-up could emanate from high overheads and delays in claim payment on previous works (Agyemang and Asiedu, 2013). When contractors reinvest profits and capital into new projects or assests, they inadvertently raise the risk of facing financial distress and project delays successively. This is because 'locked-up cash' is a major contributor to company failure. The onus therefore rests upon construction managers to control and anticipate the financial situation of projects and its impact upon cash flow during the tendering and post contract stage.

Conclusion

Addressing the underlining financial distress factors militating against SMEs firms in the construction industry will ensure firms' survival; in turn, this provides nations with the industrial

capacity to boost economic growth through infrastructure development and GDP growth. This study completed a synthesis of literature to identify factors that cause financial distress. Data collected on these factors via a questionnaire survey instrument was then interpreted via thematic component groupings emanating from factor analysis. These issues include: i) *payment*; ii) *project financing*; iii) *cash flow*; iv) *economic*; v) *political influence*; and vi) *cost control issues*. A conceptual model that emerged from the analysis reveals how exogenous and endogenous environments (and components within these) can manifest as financial distress. Understanding the relationships between factors and environments is crucial to the avoidance of future delays and financial distress, and importantly, the development of long term solutions to the infrastructure crisis confronting developing nations.

The study's findings will be beneficial to managers of highway construction firms by providing them with the requisite information needed to guard against factors uncovered. This paper, may also initiate discussion among government policy makers (responsible for the management of highway construction projects in most developing countries) on the development of appropriate project and business management systems, processes and tools that mitigate underlying causes of financial distress. Future work is however required to explore pathogenic causes of project delays when measured against a country's level of economic activity – such work will expand the geographical use and application of this research.

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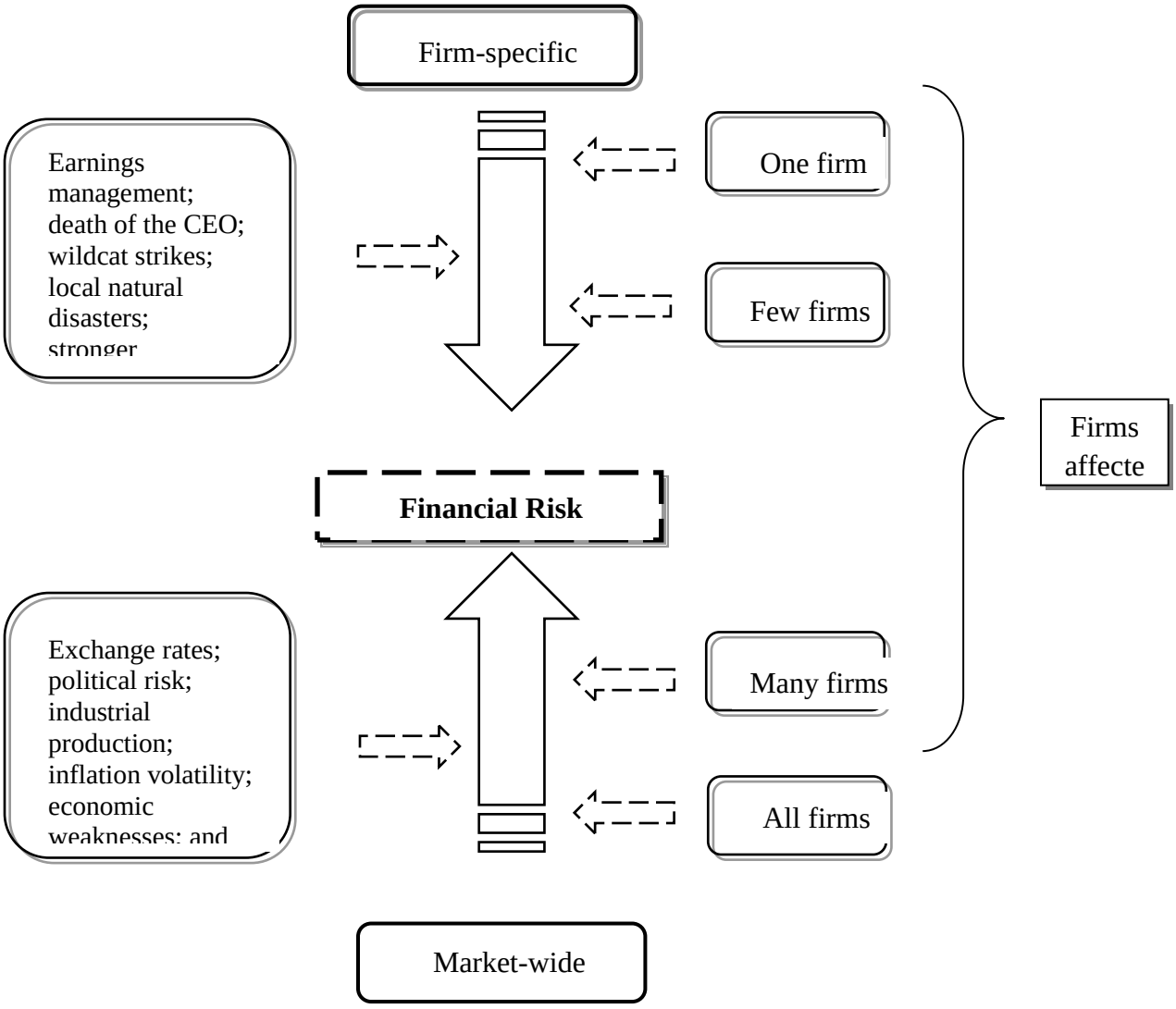
Figure 1 – Financial Risk Triggers



Adapted from Outecheva (2007)

Table 1: **Description of Financial Distress Related (FDR) Factors**

FDR Factors	Description	Reference
1. Client's poor financial and business management	The inability to efficiently control and monitor budgetary and business activities.	Orobia *et al*., 2013
2. High overhead expenses	Compensations in the form of salaries, bonuses and benefits associated with payroll	Cotterman, 2014
3. Contractor's invalid claim	Attempting to acquire rewards for works not duly executed	Korley, 2014
4. Withhold of payment certificates	The tendency of not releasing payment documents to the contractor promptly	Marchais-Roubelat, 2012
5. Bureaucracy in honouring payment certificates	Official bottlenecks delaying payment to contractors	Ndekugri *et al*., 2013
6. High insurance cost	Expenses incurred during indemnification for projects	Lu *et al*., 2011
7. High tax allocations	Government charges on profits for development related projects	Shah and Whalley, 1990
8. Divulging funds	Releasing monies without authority	Brand and Davenport, 2012
9. Fraudulent practices by employees	Illegal actions of individuals in the employ of the firms	Yeoh, 2012
10. Capital lockup	Investment of financial resources in a manner that they cannot have alternative uses	Hackett, 2014
11. Inaccuracy in valuation for work done by consultants	Assigning wrong values to works executed by project professionals	Amoatey *et al*., 2015
12. Unstable inflation rate	Erratic price levels of goods and services	Liozu *et al*., 2013
13. High interest rate chargeable on loans	Amounts charged as rewards for financial institutions for providing services to clients	Kayed, 2012
14. Underestimation of project cost	Providing expenses less than the actual expenditures of the project	Bowers and Khorakian, 2014
15. Contractor handling many projects at the same time	Contractor executing many works within a particular period of time	Emuze and Smallwood, 2014
16. Lack of regular cash flow forecasting	Fluctuations in the flow of funds	Javier and Herminio, 2014
17. Low markups / profit margins	Quoting less amount for profits and overheads	Fisher *et al*., 2014
18. Poor credit arrangement with creditors and financiers	Inability to institute the requisite procedures for honouring debts	Shanks, 2012
19. Difficulty in loan accessibility from financiers	Inability to secure financial assistance from financial institutions	Chowdhury and Maung, 2013
20. Insolvency / liquidity	The inability of the firm to meet its debt obligation to creditors	Leathers *et al*., 2015

Table 2 – Descriptive Statistics

	Financial Distress Factors Critical to Project Delay	N	Sample Mean	Std. Error	Std. Deviation
1	Client's poor financial and business management	78	4.46	0.087	0.768
2	High overhead expenses	78	3.58	0.072	0.635
3	Contractor's invalid claim	78	3.55	0.104	0.921
4	Withhold of payment by client	78	3.71	0.069	0.605
5	Bureaucracy in honouring payment certificate	78	3.53	0.077	0.679
6	High insurance costs	78	3.76	0.107	0.942
7	High tax allocation	78	4.44	0.094	0.831
8	Divulging funds	78	4.00	0.102	0.897
9	Fraudulent practices by employees	78	4.08	0.103	0.908
10	Capital lockup	78	4.08	0.085	0.752
11	Inaccuracy in valuation for work done by consultants	78	3.67	0.075	0.658
12	Unstable inflation rate	78	3.51	0.111	0.977
13	High interest rate chargeable on loans	78	3.56	0.119	0.988
14	Underestimation of project cost	78	3.47	0.907	0.801
15	Contractor handling many projects at the same time	78	3.83	0.080	0.710
16	Lack of regular cash flow forecasting	78	3.92	0.114	1.003
17	Low markups / profit margins	78	3.54	0.079	0.697
18	Poor credit arrangement with creditors and financiers	78	3.49	0.121	1.066
19	Difficulty in loan accessibility from financiers	78	3.69	0.117	1.036
20	Insolvency / liquidity	78	3.23	0.121	1.068

Table 3 - Test of Hypothesis using Chi-Square Test

	Financial Distress Factors	Chi-square	Df	P-values	Decision
1	Clients' poor financial and business management	66.92a	3	0.000	Reject
2	High overhead expenses	56.872a	3	0.000	Reject
3	Contractor's invalid claim	35.333a	3	0.000	Reject
4	Withhold of payment certificates	62.205a	3	0.000	Reject
5	Bureaucracy in honouring payment certificates	31.000b	2	0.000	Reject
6	High insurance cost	17.897a	3	0.000	Reject
7	High tax allocations	65.282a	3	0.000	Reject
8	Divulging funds	26.923a	3	0.000	Reject
9	Fraudulent practices by employees	16.974a	3	0.001	Reject
10	Capital lockup	16.000b	2	0.000	Reject
11	Inaccuracy in valuation for work done by consultants	54.718a	3	0.000	Reject
12	Unstable inflation rate	24.923b	2	0.000	Reject
13	High interest rate chargeable on loans	26.385b	2	0.000	Reject
14	Underestimation of project cost	28.538c	4	0.000	Reject
15	Contractor handling many projects at the same time	15.077c	4	0.005	Reject
16	Lack of regular cash flow forecasting	44.051a	3	0.000	Reject
17	Low markups / profit margins	49.282a	3	0.000	Reject
18	Poor credit arrangement with creditors and financiers	16.051a	3	0.001	Reject
19	Difficulty in loan accessibility from financiers	17.897a	3	0.000	Reject
20	Insolvency / liquidity	29.154b	2	0.000	Reject

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 19.5
b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 26.0
c. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 15.6

Table 4 - Communalities

FDR	Causes of Project Delay	Initial	Extraction
1	Client's poor financial and business management	1.000	.679
2	Contractor's invalid claim	1.000	.912
3	High overhead expenses	1.000	.424
4	Withhold of payment by client	1.000	.810
5	Bureaucracy in honouring payment certificate	1.000	.812
6	Budget allocation not made by client	1.000	.455
7	High tax allocation	1.000	.944
8	Divulging funds	1.000	.851
9	Fraudulent practices by employees	1.000	.564
10	Capital lockup	1.000	.628
11	Inaccuracy in valuation for work done by consultants	1.000	.726
12	Unstable inflation rate	1.000	.917
13	High interest rate chargeable on loans	1.000	.655
14	Underestimation of project cost	1.000	.676
15	Contractor handling many projects at the same time	1.000	.416
16	Lack of regular cash flow forecasting	1.000	.835
17	Low markups / profit margins	1.000	.636
18	Poor credit arrangement with creditors and financiers	1.000	.716
19	Difficulty in loan accessibility from financiers	1.000	.821
20	Insolvency / liquidity	1.000	.696

Extraction Method: Principal Component Analysis.

Table 5 - Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Com-ponent	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	4.277	21.387	21.387	4.277	21.387	21.387	3.794	18.970	18.970
2	3.081	15.405	36.792	3.081	15.405	36.792	2.914	14.570	33.540
3	2.480	12.398	49.190	2.480	12.398	49.190	2.598	12.988	46.528
4	1.909	9.547	58.737	1.909	9.547	58.737	2.054	10.272	56.801
5	1.226	6.129	64.866	1.226	6.129	64.866	1.411	7.056	63.857
6	1.199	5.993	70.860	1.199	5.993	70.860	1.401	7.003	70.860
7	.984	4.918	75.778						
8	.948	4.742	80.520						
9	.725	3.623	84.142						
10	.588	2.942	87.085						
11	.494	2.469	89.554						
12	.467	2.333	91.887						
13	.376	1.879	93.766						
14	.333	1.663	95.429						
15	.263	1.313	96.742						
16	.221	1.107	97.849						
17	.202	1.010	98.859						
18	.093	.464	99.323						
19	.069	.347	99.670						
20	.066	.330	100.000						

Extraction Method: Principal Component Analysis

Figure 2 - Scree Plot for the FDR Variables

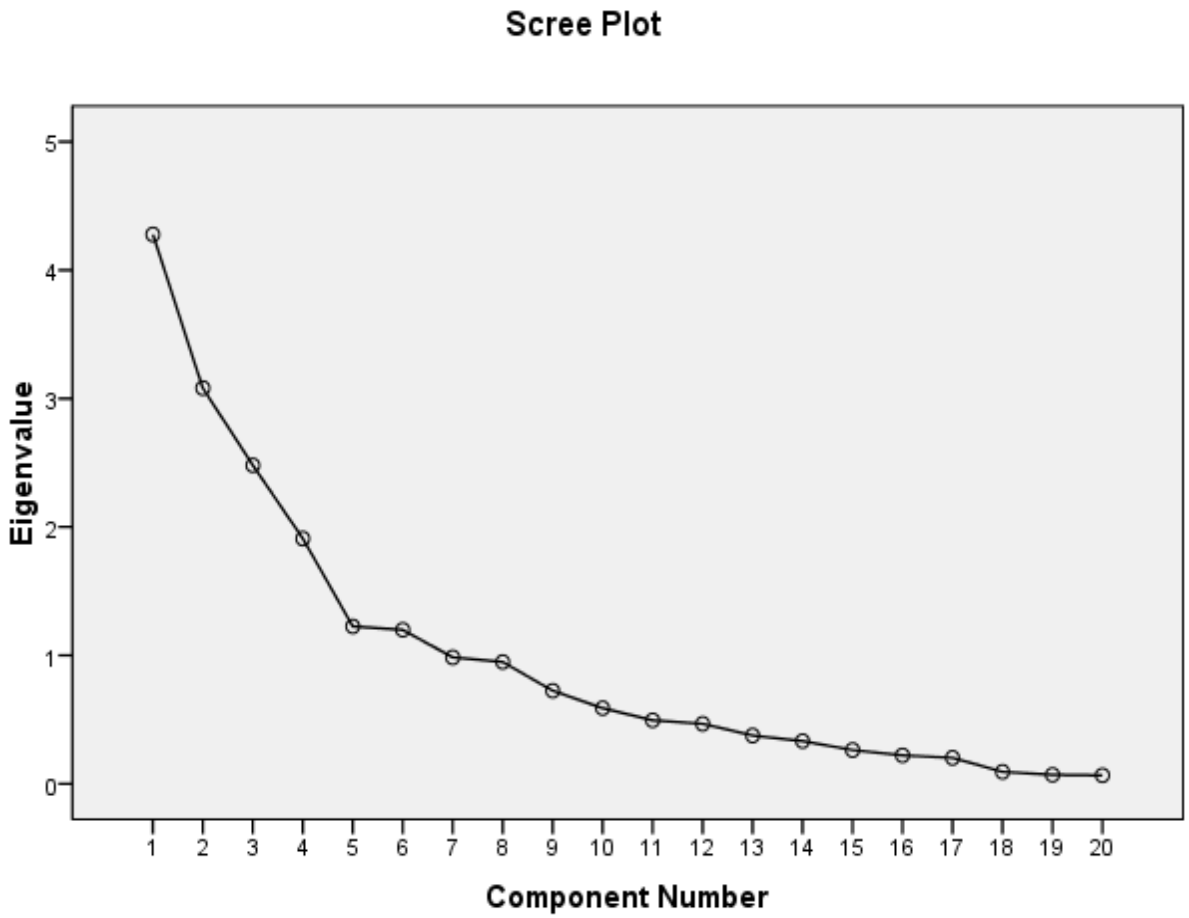


Table 6 - Rotated Component Matrix

		Component					
		1	2	3	4	5	6
1	Client's poor financial and Business management			.578			
2	Contractor's invalid claim	.942					
3	High overhead expenses						.540
4	Withhold of payment by client	.891					
5	Bureaucracy in honouring payment certificate	.884					
6	Budget allocation not made by client					-.596	
7	High tax allocation				.964		
8	Divulging funds			.866			
9	Fraudulent practices by employees			.722			
10	Capital lockup						.784
11	Inaccuracy in valuation for work done by consultants	.848					
12	Unstable inflation rate				.941		
13	High interest rate chargeable on loans		.798				
14	Underestimation of project cost	.657					
15	Contractor handling many projects at the same time					.555	
16	Lack of regular cash flow forecasting			.882			
17	Low markups / profit margins					.662	
18	Poor credit arrangement with creditors and financiers		.841				
19	Difficulty in loan accessibility from financiers		.887				
20	Insolvency / liquidity		.810				

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Table 7: Profile of Respondent Firms

A. Legal Status of firms	Frequency	Percent	Valid Percent	Cumulative Percent
1. Sole proprietorship / enterprise	22	28.2	28.2	28.2
2. Partnership	18	23.1	23.1	51.3
3. Limited liability Company	38	48.7	48.7	100.0
Total	78	100.0	100.0	
B. Work Experience of Firms				
1. up to 5 years	15	19.2	19.2	19.2
2. 6-10 years	27	34.6	34.6	53.8
3. 11-15 years	23	29.5	29.5	83.3
4. 16-20 years	8	10.3	10.3	93.6
5. Over 20 years	5	6.4	6.4	**100.0**
Total	**78**	**100.0**	**100.0**	

77 **Figure 3** – Exogenous and Endogenous Components Impact upon Contractor's Financial Distress
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