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**EXTERNAL ENVIRONMENT AND SMEs
INVESTMENT IN THE GHANAIAN OIL AND GAS
SECTOR**

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ABSTRACT: There is the need to integrate SMEs into the high-value Oil and Gas Sector to enhance socio-economic development of Ghana particularly Job creation and Gross Domestic Product (GDP) growth. This study examined the impact of external business environment on SMEs willingness to invest in the Ghanaian oil and Gas Sector. Using binomial logistic regression analysis we analyzed primary data from 245 SMEs from Ghana during the periods between 2015-2016. The study found that SMEs that had ready access to finance, reliable electrical supply, required technical qualification, no competition from foreign companies, well informed on Oil and Gas investment opportunity were more likely to invest in Ghanaian oil and gas sector. We also find that corruption perception, political stability and training support in the capacity building had no significant influence on SMEs willingness to invest. We suggest that future studies should cover internal firm factors, perceived barriers as well as macro-level factors. Also, the study was limited to Ghanaian SMEs, future researchers may replicate this study in other oil-producing countries in Africa including; Nigeria, Uganda, Angola and South Africa.

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Introduction

Worldwide, Small and Medium Enterprises (SMEs) are regarded as the engine for growth, job creation and human development, particularly in developing countries. Avalanche of studies have over the years confirmed that SMEs provides a strong foundation for economies around the world providing about 60% of employment and constitute about 95% of enterprises around the globe (Abor and Quartey, 2010; Ayyagari *et al.*, 2011; World Bank Group (WB), 2015; Quartey *et al.*, (2017). A report released by the World Bank Group on registered formal SMEs is that they contribute up to 45% of employment and 33% to GDP in developing economies. These start increases significantly when the informal sector is included in the estimation process.

The business environment is clustered with or dominated by SMEs (WBG, 2015). According to the Economist Intelligent Unit (EIU) (2010), Japan has the highest number of SMEs accounting for almost 99% of their total enterprises. By the year 2008, India's SME's hit a record mark of 13 million enterprises and this was revealed by the Ministry of Micro, Small and Medium Enterprises in India which is equivalent to 80% of all businesses in the country (Ghatak, 2010). Data from the EU countries (EU-27) as at 2012 stated that small and medium enterprises within the EU are about 99.8% of all businesses and employs nearly 67% of the unemployed and contributes 58% to the Gross Value Added (GVA) in the EU countries. GVA refers to the value of their output less their intermediate consumption which is very significant when dealing with GDP. SMEs contribution to economies in terms of employment and GDP varies from one country to another. Although developed countries benefit a lot from SMEs, they have notable influence on developing countries in shaping their economies in terms of employment and their contribution to GDP (Dalberg, 2011). They also act as subsidiaries to larger organizations and promote new technologies through experimentation.

In Africa, Abor and Quartey (2010) averred that SMEs consisted of 91% of the formal business entities in South Africa and contribute between 52-57% to GDP. In Ghana they asserted that the SMEs contribution is more pronounced, the sector accounts for 92% of all formal businesses, contributing about 70% to GDP and offer over 80% employment to Ghanaians (Osei *et al.*, 1993; Abor and Quartey 2010; Quartey *et al.*, (2017). However, the SMEs sector is bedevilled with number of constraints with financial access being the most critical among them. Quartey *et al.* (2017) had reported that formalization of business is one of the best ways to increase financial access. Better still, the government should ensure SMEs readily access to finance by formulating more relax policies to encourage borrowing from financial institutions (commercial banks, finance companies, micro-finance institutions and other credible sources). Also, the government should act as a guarantor for the SMEs to support their financial access. Again, the government through the central bank can create strategic measures to enhance SMEs. Moreover, the government should set up commercial bank purposely to lend to SMEs. SMEs are also encouraged to choose strategic business locations to increase their chances of investing in the oil and gas sector.

In spite of the socioeconomic significance of SMEs to the Ghanaian economy, the sector is wallowing in myriads of challenges stretching from finance to investment opportunity, particularly in the mainstream Ghana oil and gas value chain. Several external factors affect SMEs degree of investment (Ariweriokuma, 2009; Chittithaworn, Islam, Keawchana, Yusuf, 2011; Casas & Dambrauskaitė, 2011). In a related study by the Uganda Investment Authority (UIA) led by Wanomo *et al.* (2012) a case was made on how exactly to integrate the SMEs in the oil and gas value chain although willingness on the part of the SMEs was reportedly high. Juxtaposing the Uganda situation with that of Ghana a clear similarity could be established so far as the linkage between the SMEs and the oil and gas

sector is concerned. Sequel to the above narrations, in Nigeria, Oyejide & and Adewuyi (2011) asserted that the dearth of linkages between the oil sector and the other sectors of the Nigerian economy and concluded that there is a critical developmental problem since multinational firms dominate the oil sector, followed by the joint venture, and few are national. The only public power supply was rated grossly inadequate by the servicing firms. Currently, no such study has been conducted in Ghana. The present study is therefore aimed to contribute knowledge in this field by investigating the impact of SMEs external business environment on SMEs willingness to invest (WTI) in the Ghanaian oil and gas sector.

Contextual Considerations

The Ghanaian economy is diverse in resources and as such has perpetuated varied manufacturing companies and currently has facilitated the exportation of digitally related technology products, industrial materials and hydrocarbons, automated ship constructions and the exportation of other rich resources. Within the West Africa sub-region, Ghana became one of the fastest growing economies in 2011 through the immense contribution of its resources to GDP per capita. The service industry alone in Ghana accounted for 50% of GDP in 2012 and employed 28% of the workforce of the country. Although industrialization according to the global perspective is related to minerals and oil, Ghana's industrialization at a time was likened to the production of plastics like chairs, bags, pens and razors

In July 2007 Ghana has to embark on currency re-denomination from Cedi (¢) to the new Ghana Cedis (GHC). The rate was 1 Ghana Cedis (GHC) for 10,000 Cedis. After this initiative, the country has to undergo massive sensitization to educate the public about the new currency. Value Added Tax in Ghana is known as the tax administered on every food consumed in Ghana. The tax rate started in Ghana around 1998 and thrived on a single rate but later in September 2007, it shifted into a multiple rate regime. The rate of tax as at 1998 was 10% and it increased to 12.5% as at the year 2000 (Obeng-Odoom, 2014; Agbenyega, 2014). Corporate taxes and other top income taxes were pegged at 25%. There were also other taxes like the Value Added Tax (VAT), capital gains taxes and the national health insurance levy.

Ghana's total tax demanded from the citizens is 12.1% while the county's budget has reduced to 39.8% of GDP. Aside from South Africa, Ghana is the second largest exporter of gold as well as the second largest exporter of cocoa. The country Ghana has also been blessed with diamond, bauxite, oil and pure manganese. In 2005, the debts of the country were cancelled but mismanagement and corruption have increased the debt of the country again. On top of the ever-increasing debts, escalating prices in fuel price at the global market compelled the government to negotiate a 920 million dollar credit package from the International Monetary Fund in April 2015 (WEO, 2016). Reports from the World Bank revealed that the performance of Ghana's economy in the year 2016 was a mix of ups and downs. The country made sound progress in managing its fiscal variables from 10.2% in 2014 to 6.3% in 2015 of GDP but this was contrasted by an increase to 9% of GDP as at 2016 (World Bank, 2017).

Literature Review

External Business Environment

The preponderance of research studies on the influence of external business environment and SMEs growth, performance and investment decisions. A study conducted by Chittithaworm *et al.* (2011) in Thailand sought to identify the factors that affect the success of SMEs and found that SMEs in Thailand predominantly uses Porters' Generic Strategies by

Michael Porter which focuses on cost leadership and differentiation. Success can be holistically ensured through the development of resources and finance as well as SMEs market and customer size. There is evidence of external factors like social networking, transaction costs, knowledge and capital, transaction cost and reducing risks and improving access to business ideas.

Caesar and Vilar-Lopez (2010) found that external environment in the business context are factors that have either positive or negative effect business activities but operate from the outside of the company making it difficult for the company to control it. Companies are operating at the global front and not limited to their domestic markets and the advancement in technology has perpetuated this global business competition. The turbulence and constant change in countries and communities, as well as the dynamism of sociological changes, influence employment and the needs of customers also vary from one geographic region to another. Moreover, the policies and laws that govern a particular country or state vary from one another making decision making very complex and time taking. Hence, there is the need for SMEs to be sensitive to the environment in which they are venturing into and have full knowledge of the external environment. The decisions made by managers of SMEs determine the extent of success they are going to achieve both domestically and at the global level.

In a related study, Thompson *et al.* (2010) revealed that there are two aspects to the external environment; the social environment (societal environment) and the work environment (Task environment). The social environment is made up of the powerhouse of every community which differs from the activity related organization and plays major role in long-term decision making like (1) economic forces that control the exchange of materials, information, energy and money, (2) technological applications that is used to resolve problems, (3) the Political dimensions of the country, the laws and policies that delegate power and provide coercion, (4) sociocultural values that sets the traditions and customs of the local community. The work environments are the elements that the company has direct control over because they are what the company use to operate. There are groups of the local community, customers, government, labour force, competitors, special interest groups, suppliers and trade associations that directly and indirectly influence the societal and working environment

Musran (2010) argued that the external environment is categorized into the general environment, the competitive environment and industrial environment. The general environment is the wider environment in which businesses operate and it has the potential to affect the companies within it. The element found within the general environment is grouped into seven; the socio-demographic characteristics of people, political or legal, technological, economic, socio-cultural and physical and global elements. The industrial environment is related to potential threats as new and emerging companies enter fresh markets; the power of buyers, suppliers, competition and threat of substitute and these influences the steps of the company. Companies use competitor analyses to collect information about their competitors. According to Pearce and Robinson (2013), the external environment is made up of industrial, operating and remote environment. They added that the external environment is grouped into two; the general environment (the socio-demographic characteristics of people, political or legal, technological, economic, socio-cultural and physical and global elements) and the competitive environment which includes (buyers, suppliers, competition and threat of substitute and these influences the steps of the company).

For SMEs to adequately compete, it is imperative to use external sources of support. Mole *et al.* (2016) assessed the use of external support from 2008 to 2011. The study intended to explore whether SMEs seek external assistance or not. It was noted that seeking for

external assistance depends on business characteristics like the size of firm's employment, level of owners' education and gender where women are more likely to seek for assistance compared to males. The orientation of management towards business growth is another factor which influences the demand for strategic advice from liable sources and the challenges businesses are confronted with determining whether they should seek for external assistance. It was further discovered that during the times of recession, businesses are likely to seek for external assistance than when economic indicators are at the normal state. Lucky and Minai (2011) re-investigated the effects of individual, external and firm characteristics on the performance of SMEs. The individual, external and firm characteristics are significant in terms of economic turbulence.

According to the life cycle theory and the stages, the model suggested that entrepreneurial growth have no evidence of enterprise growth and development. In reviewing literature for the last 40 years, the believe there is no accepted definition of the stages of growth in enterprises. Much of the literature in this field lacks the basics behind the shift and the progress from one stage to another. They hold the view that organizations are nothing comparable to organisms but their growth is achieved through internal and external environmental factors (Levie and Lichtenstein, 2010). Being dynamic and flexible as a business is an ideal way to grow because businesses can easily adapt to changes in the environment. There is the need to develop a strategy towards growth hence the use of dynamic theories is suitable in today's business environment. Research is needed to ascertain the qualities that foster growth when one is using dynamic state theory. Leitch *et al.* (2010) suggested that understanding the growing phenomenon and its benefits are important for conceptualization. Organizations lack the understanding of the causes, effect and the processes involved in business growth. Deducing from the paragraph, growth is considered a social construct with lots of diversity but helps to answer why, how and how much (Majumdar, 2008; Leitch *et al.* 2010). The heterogeneous nature of enterprises makes understanding of the growth concept complex.

In Nigeria, Olarewaju and Folarin (2012) also assessed the impact of the external business environment and its effect on the performance of organizations within the food and beverage industry of Nigeria. Basically, it was found that external business environment affects the performance of organizations. According to Olarewaju and Folarin (2012), the external environments have a devastating impact on businesses compared to the lack of capital and resources. To some extent, the external business environment can be controlled but this can only be done through continuous monitoring and environmental scanning. It is imperative for businesses to understand how the external environment operates in order to develop measures to control the effects they impose on businesses. Having fair understanding provides the opportunity for businesses to formulate strategies that will neutralize the negative effects of external forces. The business environment has become complex, dynamic and competitive hence there is the need for businesses to maintain their performance level in order to offer the best of products and services to customers.

Similarly, in Nigeria Alkali and Md-Isa (2012) explored the influence of external environment on the performance of small-scale businesses. Alkali and Md-Isa (2012) found that access to funding and support from the government has a positive effect on SMEs. The more companies have experience, the more their chances of succeeding. Integrating variables like entrepreneurial readiness, business plan, technology and others have minimal effect on performance. However, the lack of entrepreneurial skills and knowledge and also finances affects organizational development and growth. The technological environmental factor as a strategic business choice was assessed and the study found that technology has inspired businesses within the beverage and food industry to adopt multi-product marketing strategies.

Based on this, the researcher concluded that technological invention, advancement, availability and others improve firms operations (Dauda and Ismaila, 2013).

Performance of SMEs has also been linked with bribery but in cases where bribery is increasing, their impact on performance becomes negative. Dut (2015) explained the external environmental concept of SMEs and their effect on business performance in the local environment. The researcher asserted that the study is relevant for new entrepreneurs who aspire to develop their own business and assist them in making vital decisions to sustain growth. Bribery has the capacity to enhance SMEs revenue through the use of government resources and avoid red tapes. The use of public resources without remitting it means SMEs pay less or nothing for the resources used hence reducing the risk of running at loss. The availability of labour is another factor that enhances the profit levels of SMEs.

In Vietnam, Nguyen and Nguyen (2013) examined the impact of external environment, technology and innovation capacities and leadership development on organizational performance in the food industry. The model of the study conceptualizes the integration of external factors in the environment, placed technology transfer into perspective, leadership and innovation capacity development. The study of Nguyen and Nguyen (2013) differs from previous studies that examined the independent's factors that influence firm performance by proposing a more complex model to interact with firm performance. Companies can achieve success by focusing on the tendency to create links between universities and industries and the government. Research acts as the backbone of business development where sufficient knowledge is gained through researching into available technologies and emerging innovations. This will allow businesses to identify technology suppliers and be able to bargain technology transfer agreement. Building agreement facilitates companies' chances of adopting and integrating technologies quickly and offers the opportunity for businesses to be innovative.

Companies have to find ways of overcoming the lack of capacity by locating financial resources to invest in innovation and technologies. In some countries, governments offer financial aids that can be accessed by companies and also train the human resource to develop their capacity. The ability to be committed to developing leadership is another significant factor to promote business growth and development. The character and competencies of leaders have expediting positive effective effect on performance through proper strategic planning and policy making. Indeed, for technology to be adopted in a company, the type of leadership is important to sustain and achieve sustainable development. In Turkey, Genc (2014) assessed environmental factors affecting human resource activities and the study found that both internal and external factors affect performance. The study found no relationship between industries, country of origin, the city of headquarters, ownership type, external and internal factors

The human resource management of Turkish firms takes into account the environmental factors that influence company growth. Firms mostly consider internal and external variables when formulating HR policies. Strong strategic Human Resource Management elements shape decisions taken by HR to achieve success within the business environment. The business environment is becoming complex by the day and requires HR officers to be efficient and effective in handling organizations human resource. Due to the dynamic nature of the environmental factors, companies need to be sensitive to the needs of customers to be able to march the changes. In a study, Jankovic *et al.* (2016) investigated how external factors affect businesses. The outcome of the study indicated that the unfavourable conditions in the external environment seriously affect business growth and development. The most common external factor is political activities. In order to neutralize these negative effects, the government must create a conducive environment for companies to thrive and

grow. The term external environments in the business context are factors that have either positive or negative effect business activities but operate from the outside of the company making it difficult for the company to control it. Changes in the business environment vary from one geographical area to another.

Conducting feasibility studies by businesses help them to develop countermeasures against challenges in the external environment. There is a relationship between companies and environment in which they exist. Putting measures in place to respond positively to the external environment leads to efficient use of resources which reflects the growth and development of the company. The complex external business environment and dynamic conditions affect the long-term survival of the study. Understanding the social, economic, demographics, political, technological and legal content of the internal and external environment helps to identify the threats and opportunities within the industry the business operates in and this enables the management of businesses to learn and identify their strengths and weaknesses to achieve growth and development.

Theoretical Framework And Proposed Hypotheses

SMEs Willingness to Invest (WTI)

The emergence of new markets, integration of market economies globally, the advent of technology and susceptibility of the business environment, critical business decisions have become eminent. This is where Willingness to Invest (WTI) plays a major role in investment decisions. The concept is used to describe willingness of business firms or individuals with the will to accept the business risk and increase investment value. The WTI concept has similarities with other alternative concepts. Notably; Willingness to Adopt (WTA) Willingness to Pay (WTP) and Willingness to Accept Payment (WTAP) however WTI is considered a summation of all the related concepts (Abuka et al., 2006; Wamono et al., 2012). The WTI concept had previously been used to assess SMSs investment decisions. For instance, Abuka et al. (2006) used the WTI concept to determine firm-level investment by considering the trends, determinants and constraints. Moreover, Wamono et al. (2012) deployed similar concept to examine the SMEs investment decision in the Uganda oil and gas sector. In the current study, the WTI concept is used in relation to the external business environment and how the later influences SMEs investment decisions in the Ghanaian oil and gas sector.

Conceptual Framework

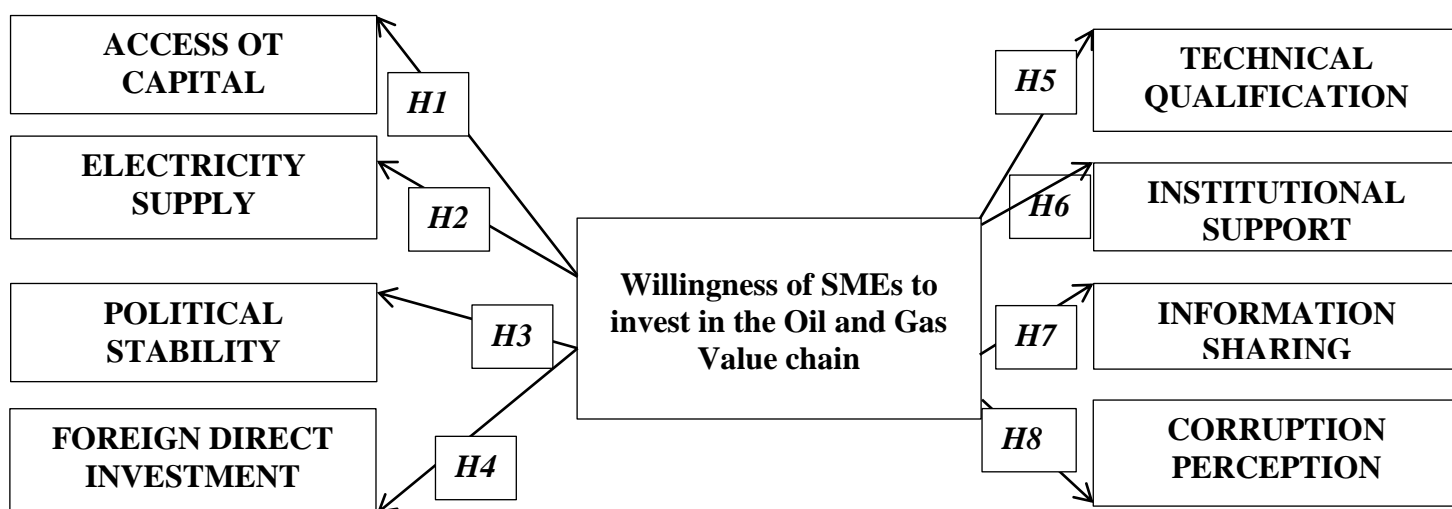


Figure 1: Theoretical Framework and Proposed Hypotheses

Methodology

Research Procedure

The Researchers worldviews are informed by the past research experience and the discipline area of study. In most economics discipline the dominant ontological belief is that reality exists independent or external from the researcher (Flynn *et al.*, 1990; Saunders *et al.*, 2012; Zikmund *et al.*, 2012). Ethridge (2004) avowed that if research's ontological believe is objectivity his corresponding epistemology will be positive and the methodology is usually quantitative research method. The ontological belief in this study is objectivism. The researcher believes that reality exists external from the investigator. The focal point of this study is to understand what is happening and why it is happening.

This study employed the quantitative research design since it is very compatible with the objectivity philosophy. Fox and Bayat (2007) argued that objectivity is a natural partner of quantitative research design. Quantitative research design requires the formulation and testing of hypotheses or answering a set of research questions (Saunders *et al.*, 2003). This study is very empirical hence scientific approaches are strictly adhered to. The findings are generalized to cover the entire oil and gas industry where the samples were drawn from. A survey by questionnaire was the main instrument used in this study because it is compatible with the quantitative research design. When research studies involve quantifiable attributes the survey by questionnaire is particularly required. Every research can be broadly categorized under any four major types according to its purpose; exploratory, descriptive, explanatory and emancipatory research (Saunders *et al.*, 2003; Saunders *et al.*, 2012; Zikmund *et al.*, 2012).

In this study, the explanatory study approach was employed. The explanatory study establishes a relationship between studies and variables, meaning that the aim is to study situations or problems, trying to find a relationship between variables. As seen in this study the researcher is aimed to establish relationships between SMEs external business environment and WTI in the oil and gas sector. Basically, three approaches exist for deciding on the type of investigation to embark on a particular study; e.g. clarification, correlational and causal. In this study, the researcher employed causal investigation. Causal relationship explains how a variable or concept causes a change in another concept or variable (Fox and Bayat, 2007).

Sampling is very important in social science research due to resources constraints. The sampling designs in research are broadly categorized into two. Namely; probability (non-zero chance of participating in the study) and non-probability (specific members of the population has a chance to be included in the study) sampling techniques (Saunders *et al.*, 2012). In this study probability sampling design is employed, specifically, a stratified sampling technique is used. In view of this, the population (SMEs) of the study is grouped into groups (strata) according to the industry of operation. The following groupings are used: Manufacturing, Retailing and Service. Given the diverse nature of the Ghanaian SMEs, the stratified sampling technique is considered appropriate since it guarantees and ensures that sub-groups within a given population are fairly represented. Moreover, this technique supersedes the simply random in a number of ways (Gravetter & Forzano, 2011). E.g – reducing sampling errors and ensuring greater representatives. Overall, 245 respondents took part in this study during the period between 2015-2016

Although individuals answered the questionnaire the unit of analysis for the study was organizational level. This study is a cross-sectional since the time consideration is given to the present situation, unlike longitudinal studies which usually requires long time period. The study was conducted in the natural settings of the respondents hence it was non-contrived. The population of the study was made up of SMEs registered with National Board for Small

Scale Industries (NBSSI) in Ghana. Specifically, SMEs within the following categories were considered: manufacturing, retailing and service. Primary data were gathered with the use of structured questionnaires. The data were analysed with the aid of Statistical Package for Social Sciences (SPSS) version 23. Precisely, chi-square and logit regression analyses were carried out. All the proposed hypotheses were tested at 0.01 and 0.05 significance levels.

Logit Regression Model Specifications

The binary Logistic Regression model is employed in this study due to the dichotomous nature of the dependent variable (WTI). The cross-sectional data and Logit model explains the changes and variations in the WTI based on the changes in the independent variables. The model is based on the assumption that the dependent variable is a linear function of the independent variables with an error term (ε). This has been illustrated in the equation one (1). The study has assumed that the relationship between Access to Finance (AF), Power Supply (PS), Technical Qualification (TQ), Competition from Foreign Companies (CFC), Awareness and Information (INFOR), (TRE), Corruption Perception (CP), Political Stability (PST) and Willingness To Invest (WTI) (DY) is a linear function. Thus,

The binarywith an error term (ε_T)

$$\text{Logit}(P_T) = \text{Log}(P_i/1-P) = \text{Log}(P_i) - \text{Log}(1-P_i)$$

Where:

$$\text{WTI} = \alpha + \beta_T X_T + \varepsilon$$

WTI = Willingness to Invest

α = The intercept

β_i = coefficient of independence variables

X_i = independent variables

ε_i = The error term

Model (1)

$$\text{WTI}_t = \beta_0 + \beta_1 \text{AF}_i + \beta_2 \text{PST}_i + \beta_3 \text{PS}_i + \beta_4 \text{TQ}_i + \beta_5 \text{CFC}_i + \beta_6 \text{CP} + \beta_7 \text{TRE}_i \\ + \beta_8 \text{INFOR}_i + \varepsilon_i$$

Where β_0 = Constant and β_i = regression coefficient

Where; *WTI=WTI, AF=Access to Finance, PS =Pwer Supply, TQ =Technical Qualification, CFC =Competition From Foreign Companies, INFOR = Information, TRE = Training requirement, CP =Corruption Perception, PST = Political Stability*

Data Analysis

SMEs External Factors that Determine their WTI

As indicated in Table 1, the study employed Chi-square (X^2) Goodness of fit test to determine the associations between the SMEs external factors and their WTI in the Ghanaian high oil and gas value chain. The study finds that access to finance, reliable electrical supply, tax rates, technical qualification, competition from foreign companies, awareness and information about oil and gas investment, prior knowledge and skills in oil and gas business are associated with SMEs WTI in the Ghanaian oil and gas sector. The study, however, finds that corruption perception and political instability have no significant influence on SMEs WTI. With the exception of corruption perception and political instability, all the other factors

have been supported by the hypotheses. To estimate the direction and contribution of each factor on WTI (dependent variable) binary logistic regression model is employed

Table 1: Chi-Square Analysis Results

External Firm factors	Chi square (X^2) value	Df	Phi (ϕ) value	P-value	Hypotheses Decisions
Access to finance	93.75	1	0.619	0.000*	Supported
Political stability	9.21	1	-0.012	0.479	Rejected
Power/Electricity	85.88	1	.592	0.000*	Supported
Tax rate	187.03	1	0.874	0.000*	Supported
Technical Qualification	86.46	1	0.594	0.000*	Supported
Competition from Foreign Companies	133.65	1	0.74	0.000*	Supported
Corruption Perception	0.391	1	-.040	0.315	Rejected
Knowledge and Skills Requirement	3.9	1	-.126	0.033	Supported
Information about oil and gas investment	118.67	1	.696	0.000*	Supported

Source: Field data *significant at 95% ($p=0.05$) **significant at 90 % ($p=0.1$)

The Logistic Regression Model results

A binary logistic regression is used to measure the effects of access to finance, reliable electrical supply, tax rates, technical qualification, competition from foreign companies, awareness and information about oil and gas investment, prior knowledge and skills in oil and gas business on the likelihood that SMEs are WTI in the Ghanaian oil and gas sector.

$$\text{Logit (P)} = \text{Log (P/1-P)} = \text{Log (p)} - \text{Log (1-P)}$$

The final estimated model is;

$$WTI = 3.124 + 1.484FA_i + 0.834PST_i + 2.397 PT_i + (-3.300TQ_T) + (-3.309CFC_i) + 0.718CP_i + 1.349TRE_i + 2.20INFOR_i$$

The explanatory power of the binary logistic model ranges from 62.6% to 87.6% respectively for Cox and Snell R^2 and Nagelkerke R^2 and correctly classifies 95.5% of the cases suggesting a good model.

Table 2: Binary Logistic Regression Analysis Results

Parameter	β	SE	Wald	P- value	Exp(B)
finance(1)	1.484	.732	4.103	.043	.227
Politic(1)	.834	.764	1.192	.275	2.303
Power(1)	2.397	.845	8.047	.005	.091
qualifications(1)	-3.300	.936	12.435	.000	.037
competition(1)	-3.309	.741	19.926	.000	.037
corruption(1)	.718	.828	.751	.386	2.050

training_skills(1)	1.349	.852	2.511	.113	3.855
information(1)	2.200	.755	8.497	.004	.111
Constant	3.124	.910	11.791	.001	22.734
Model fit Statistics					
-2loglikelihood(Final model)	65.802*				
X2(df) Final Model	240.758*				
X2(df) Hosmer and Lemeshow Test	3.570				
Cox and Snell R2	.626				
Nagelkerke R2	.876				

Source: Primary data **significant at 5% and * significant at 10%

The results in Table 2 show that SMEs investment decision is positively associated with access to finance. This implies that as the access to finance/capital increases, it is more likely that SMEs will opt for oil and gas investment. The H1 is supported due to the statistically significant association between access to finance and WTI. There is an avalanche of studies that support SMEs financial access and investment, unfortunately, however, SMEs in most parts of ECOWAS Sub-regions are chunked with serious constraints accessing formal finance. This problem is linked to factors such as SMEs lack of collateral, small cash flow, inadequate credit history, high transaction cost and difficulty in providing creditworthiness. SMEs are required to strengthen their formalization potentials since this has been identified as a determinant for accessing formal credit. More so, SMEs must reconsider joining active business associations to enable them access group lending schemes (Abuka *et al.*, 2006; Adusei and Appiah, 2011; Quartey *et al.*, 2017). The oil and gas sector requires high investment capital hence SMEs are encouraged to enhance their financial and credit potentials to enable them to invest in the high in this sector.

The findings of the study support the assertion that there is a statistically significant positive association between the power supply and SMEs WTI. This implies that power supply is more likely to increase SMEs WTI. Hence H2 is supported. One of the several factors which facilitate business growth is reliable energy sources. Others include; water sources, good road network, communication networks and services (Aryeetey, 1994; Abuka *et al.*, 2006; Thompson *et al.*, 2010).

As indicated in Table 2 the study finds that there is a significant and negative association between the demand for technical qualification and SMEs WTI. This implies that demand for technical qualifications in the oil and gas sector is more likely to have an inverse relationship with SMEs WTI. Therefore H3 is supported. The lack of manpower with the requisite skills and qualifications limit business growth (Aryeetey, 1994;)

As evidenced in Table 2 competition from foreign companies shows statistical negative association with SMEs WTI. This implies that as the competition from foreign companies' increase, it more likely to decrease SMEs WTI. Hence the H4 is supported. Any form of competition from foreign companies significantly affect the performance of the SMEs because the former has several comparative advantages including; large investment capital, ready access to capital, skilled and technical manpower, formal structure and strong network (Aryeetey, 1994; Caesar and Vilar-Lopez, 2010; Quartey *et al.*, 2017).

Surprisingly as demonstrated in Table 2 there is a positive association between corruption perceptions and SMEs WTI but this is statistically insignificant. Thus, it logical to argue that corruption perception in Ghana is not likely to influence SMEs decisions to invest. Hence H5 is rejected. Ghanaian SMEs do not perceive corruption as an obstacle in business

and investment decisions in spite of their lamentations over high costs associated with business registration and licensing (Aryeetey *et al.*, 1994)

Moreover, Table 2 shows that prior training and skills are positively and significantly associated with SMEs WTI. This implies that SMEs which have been trained in SMEs are more likely to invest. Hence H6 is supported. SMEs with access to regular and better training and capacity building opportunities are positioned to perform better than those without such experiences (Aryeetey, 1994;)

Table 2 shows that awareness through information sharing has positively significantly associated with SMEs WTI. This implies that increase in information access is more likely to influence SMEs investment decisions. Therefore H7 is supported. Enterprises which have regular access to information and are well informed about the happening in the industry are able to make informed decisions. Such companies stand the chance of succeeding as compare to those who lack credible information in their sphere of operations. Many Ghanaian SMEs do not have access to useful business operation ranging from credit to managerial capacity building (Aryeetey *et al.*, 1994; Abor and Quartey, 2010; Thompson *et al.*, 2010; Ayyagari *et al.* 2011)

Last but not the least, Table 2 depicts that political stability has a positive but insignificant association with SMEs WTI. This logically implies that Ghana current political structures do not exert any influence on SMEs WTI. This finding is consistent with Thompson *et al.* (2010); Caesar and Vilar-Lopez (2010)

CONCLUSIONS AND LIMITATIONS

This study is aimed to examine the impact of external business environment factors on SMEs WTI in the Ghanaian oil and gas sector. Using binomial logistic regression analysis the researchers analyzed data from 245 SMEs from Ghana. Based on major findings of the study, we are inclined to conclude that SMEs that have ready access to finance, reliable electrical supply, required technical qualification, no competition from foreign companies, well informed on Oil and Gas investment opportunity are more likely to invest in Ghanaian oil and gas sector. We also conclude that corruption perception, political stability and training support in capacity building have no significant influence on SMEs WTI. These findings build on avalanches of studies on SMEs investment decisions. The following limitations have been observed in this study: The sample size was relatively small considering the size and structure of Ghanaian SMEs in general. Moreover, the present study employed cross-sectional design meanwhile longitudinal study would have been more appropriate since investment decisions keep changing over time. Also, only external business environment factors are considered in this study, we suggest that future studies should cover internal firm factors, perceived barriers as well as macro-level factors. Geographically, this study is limited to Ghanaian SMEs, this may be replicated in other oil-producing countries in Africa including; Nigeria, Uganda, Angola and South Africa. This notwithstanding, the study contributes greatly to literature by examining the impact of external business environment on SMEs WTI in the Ghanaian oil and gas sector using binary logistic regression analysis to determine the significant environmental factors.

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