


2020

Strategies to Maintain Profitability When Crude Oil Prices Fluctuate

YUSSIF SULEMANA
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Walden University

College of Management and Technology

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Yussif Sulemana

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Walden University
2020

Abstract

Strategies to Maintain Profitability When Crude Oil Prices Fluctuate

by

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MS, University of Liverpool, 2017

BS, Kwame University of Science and Technology, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

June 2020

Abstract

Rapid and sustained fluctuations in the crude oil market have remained a threat to the financial performance of national and multinational oil and gas corporations. Such fluctuations can reduce the profitability of national and multinational oil and gas corporations. The purpose of this qualitative descriptive single case study was to explore strategies oil production leaders used to maintain profitability when crude oil prices fluctuate. The participants included 6 senior oil production leaders in a national oil corporation in Ghana who employed successful strategies to maintain profitability. Kraus and Litzenberger's trade-off theory of capital structure served as the conceptual framework for the study. Data collection methods included semistructured interviews, company documents, direct observation, and a reflective journal. Based on the methodological triangulation and the use of thematic data analysis technique, 3 broad themes emerged: relating to enhancing operational efficiency through organizational restructuring and competitive oil price hedging, business portfolio diversification through effective asset management and innovative technologies, and optimization of capital structure through debt restructuring. Oil production leaders would have to embrace the growth of artificial intelligence and the Internet of Things to improve the efficiency of business operations and maintain profitability. Oil production leaders might apply these findings to enhance business continuity, avoid bankruptcy, and maintain profitability during oil price downturns. Maintaining profitability would help ensure employees' job security and flow of income. Sustained income would benefit employees and their families and could have a positive social impact on employees' local communities.

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Dedication

Praise be to God, Lord of the Worlds, the most Gracious and most Merciful. I dedicate this doctoral study to my creator, the Master of the Universe, for giving me the material and psychological strength to come this far with my doctoral research. To my wives Ruhia and Samira and all my children, I thank you all for your support, unconditional love, patience, and encouragement throughout my doctoral journey. I would never forget your constant reminders on my assignment deadlines. Also, to my late father, Sulemani Saaka Bangbla, and my living mother, Abiba Kejebi, for serving as the conduit to my presence in this world. To my siblings and the entire Bangbla family, thank you so much for the unflinching support and understanding throughout this journey.

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Section 1: Foundation of the Study

The phenomenon of crude oil market fluctuations is not new to the oil and gas industry. A stable oil price market is an essential requirement for critical investment decision-making processes that impact the corporations' profitability. Corporate leaders who wish to remain relevant amidst rapid market fluctuations require resilient strategies to avoid risks of market contagion (Klein, 2018) due to an oil price collapse. The market condition since the 1980s has experienced the most bullish and bearish sentiments, leaving industry leaders, market strategists, and oil production managers in a continuous search for effective strategies to stay competitive and maintain cash flow. For example, the 1998 oil price collapse, which saw Brent crude plunge to less than \$10 per barrel, caused massive supply-demand shocks and a profound shrinkage in global economic activities (Baumeister & Hamilton, 2017). Another case was the 2014-2015 price collapse, which resulted in bankruptcies, especially among high-cost producers, such as those in the U.S. shale patch (Baumeister & Kilian, 2016). The number of bankruptcy filings and the cumulative negative impact on corporations' cash flow make pundits doubt the robustness of the strategies that oil production leaders used in those bearish periods.

Background of the Problem

The volatility in the crude oil market has generated widespread uncertainties in the marketplace and have impacted the financial performance of national and multinational corporations in sub-Saharan Africa (Akinlo & Apanisile, 2015). The

frequency of the shift between bearish and bullish sentiments in this market has posed monumental challenges to contemporary business leaders (Baumeister & Kilian, 2016). Since the 1980s, the crude oil market has experienced the recurrent boom and bust cycles, with the bust cycles threatening corporations' financial stability and the risks of contagion in the marketplace.

The leadership of national and multinational oil and gas corporations' will continue to face the herculean task of maintaining fiscal fluidity in the midst of the volatile regimes (Michael, 2016). While some oil and gas corporations will survive the storm, other corporate leaders who lack the strategies may not sustain their financial performance and profitability (Zhang, Liu, Zhao, & Sun, 2018). As the markets continue to face bearish and the bullish sentiments, with no sign of long periods of stability, pundits such as Knittel and Pindyck (2016) and Wang and Sun (2017) argued that sufficiently large fluctuations could impact negatively on the financial performance of corporations and could even lead to bankruptcy.

Problem Statement

The fluctuations in the crude oil commodity markets have impacted the financial performance of national and multinational corporations in sub-Saharan Africa (Akinlo & Apanisile, 2015). Since the 1980s, the crude oil market has experienced the most recurrent boom-bust cycles with the most price shocks occurring in last quarter of 2014 and into January 2015, where the world market price of the commodity plummeted to \$47 from a high of \$112 per barrel (Baumeister & Kilian, 2016). The general business

problem is that fluctuations in the crude oil pricing market can impact negatively on the profitability of national and multinational oil and gas corporations. The specific business problem was that some national and multinational oil production leaders in sub-Saharan African nations lack strategies to maintain profitability when crude oil prices fluctuate.

Purpose Statement

The purpose of this qualitative, descriptive, single case study was to explore the strategies that national and multinational oil production leaders in the sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate. The population included senior oil production leaders in one national oil and gas corporation in Ghana who had employed successful strategies to maintain profitability when crude oil prices fluctuated and are the focus of this study. Oil marketing leaders, oil production leaders, and energy analysts might use the findings of this study into the dynamics of managing turbulent markets to enable them to maintain a sustained, regular cash flow for their corporations. In this way, the marketing leaders and their families might enjoy a constant flow of income and sustained financial independence for benefiting local communities.

Nature of the Study

Depending upon the methodology, and the need to achieve coherence, researchers can use qualitative, quantitative, or mixed methods. The qualitative method uses open-ended questions to explore and understand a complex phenomenon or event in its natural environment (Baxter & Jack, 2008; Yin, 2018). Qualitative researchers often use

interviews, focus groups and observation to gather data, and usually struggle to mitigate bias. The quantitative method conversely involves the examination of the relationship between two or more variables (Samii, 2016) that are measured numerically and analyzed using statistical and graphical techniques (Yilmaz, 2018). Quantitative researchers generally use close-ended questions and test hypotheses. The mixed method researchers use both qualitative and quantitative techniques in their data gathering and analysis processes (Maxwell, 2016). Since I did not use close-ended questions to gather data nor did I test hypotheses, neither the quantitative nor mixed methods approach were suitable for my study.

I considered four qualitative research designs for my study: ethnography, phenomenology, narrative, and case study. Ethnography is used to describe and interpret group culture and practices over some period of time (Bass & Milosevic, 2018). Since I did not study group culture, ethnography was not appropriate. Phenomenology is used to describe the lived experiences an individual or group of people with a phenomenon (Lewis, 2015). Since I did not inquire into the meanings of lived experiences of individuals or group of people, phenomenology was not appropriate. A narrative design is used to focus on a participant's real-life stories or on historical stories about a cultural unit (Hickson, 2016). Since I did not explore real-life or a historical story, narrative design was not appropriate.

To understand how to maintain profitability when oil prices fluctuate in an uncertain business environment required an in-depth exploration of the contemporary

phenomenon of oil price fluctuations within the real-world business context. Yin (2018) identified the case study as appropriate for exploring a phenomenon or event in its real-life context. Yin (2018) also argued that a single case study is most appropriate for maximizing access to a participant in order to collect rich evidence within a specified period, which rendered the single case study suitable for my research. After considering my research intent, I selected the case study design. I sought through the in-depth interaction with my interviewees to maximize my contact time with them in order to capture all the relevant situations and circumstances in relation to the phenomenon under study to ensure the collection of a rich data set for my study.

Research Question

What strategies did national oil production leaders in sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate?

Interview Questions

1. What strategies did you deploy to maintain financial performance during periods of fluctuating oil price regimes?
2. What specific interventions did you find to have been most useful in maintaining your corporation's profitability when crude oil prices collapsed in 2014?
3. How did you measure the effectiveness of the strategies you instituted in the crude oil price volatile regimes to sustain your company profitability?
4. What is your specific strategy for coping with the phenomenon of rapid price

volatilities?

5. What, if any, specific strategies have you deployed to sustain profitability amidst the shale technology boom?
6. What strategies did you use to address the proportion of debt-to-equity finance to maintain profitability?
7. What additional information would you like to share regarding strategies to maintain profitability during periods of fluctuating oil price regimes?

Conceptual Framework

I used the trade-off theory (TOT) as the conceptual lens to conduct my research. A business leader's firm understanding of the dynamics of a corporation's capital structure is crucial to making critical investment decisions that will impact the corporation's profitability. The TOT relates to the business leader's strategic choice of the proportion of debt finance and equity finance to put into business operations financing by balancing the costs and benefits of the two financing streams (Guizani, 2017). The strength of the TOT lies in the fact that, unlike the counterpart theories in corporate financing, such as the *pecking order* and the *free cash flow* models, the TOT tells the business leader what the optimum cash reserve level should be kept to maintain the corporation's profitability. Knowing the optimum reserve cash holding within a corporation (Rehman & Wang, 2015) enables the corporate leader to make subsequent investment decisions that are informed and prudent.

Kraus and Litzenberger developed the TOT in 1973. The key propositions of the

TOT are: (a) corporations set their optimal cash reserve levels by balancing the marginal cost and marginal benefits of holding cash at that level, (b) bankruptcy and taxes are the key factors that determine leverage within corporations' business operations, and (c) a firm requires a higher level of cash in periods of growth opportunities to avoid financial distress (Rehman & Wang, 2015). I focused on strategies that senior oil production leaders deployed to maintain profitability in rapid crude oil fluctuation regimes. These rapid fluctuations require the business leader to implement appropriate strategies and measures that will guarantee the corporation's positive cash flow. I selected the TOT as the conceptual framework because it provides a lens that helps explain the concept of debt-to-equity finance management strategies, which the business leader can adopt to maintain optimum cash holdings that guarantee a corporation's profitability.

Operational Definitions

Bearish market sentiments: Bearish market sentiments are aggregate of factors that favor downward movement in stock and commodity pricing (Shahzad, Raza, Shahbaz & Ali, 2017).

Bullish market sentiments: Bullish market sentiments are an aggregate of factors that favor upward trends in stock and commodity pricing (Shahzad, Raza, Shahbaz & Ali, 2017).

Debt-to-equity ratio: Debt-to-equity ratio is a corporate capital structure metric that indicates the proportion of shareholders equity and debt, which the corporate leader leverage to make critical investment decisions (Brisker & Wang, 2016).

Free cash flow theory: Free cash flow theory refers to corporate leaders' strategic decision to build up cash to consolidate their discretionary power to make investment decisions independently (Guizani, 2017).

Oil price shock: Oil price shock is a sudden and unexpected change or movement in the price of oil (Balcilar, Bekiros & Gupta, 2017; Baumeister & Kilian, 2016).

Pecking order theory: Pecking order theory refers to a firm's strategic leverage on debt-to-equity financing ratio to make critical financing and investments decisions (Bhama, Jain, & Yadav, 2018).

Assumptions, Limitations, and Delimitations

Assumptions, limitations, and delimitations are crucial components of an independent scholar's research that characterizes the research credibility. Marshall and Rossman (2016) defined assumptions as the assumed factual realities that the researcher cannot prove. The quality and clarity of the assumptions and limitations the researcher makes will determine the extent to which reviewers will understand the research constructs and synthesis (Wolgemuth, Hicks, & Agosto, 2017).

Assumptions

Assumptions form part of a researcher's reflexivity and shows awareness of the influence of her or his background and perspectives on the research (Liao & Hitchcock, 2018). Assumptions are facts considered valid but which are not verified (Marshall & Rossman, 2016; Yin, 2018). In my research, I selected Ghana as the geographical area of focus for the research among the numerous sub-Saharan African countries with the

assumption that the data would be representative of the potential study findings and conclusions. Additionally, I assumed the oil production leaders in the national corporations would willingly participate in the research. I assumed the oil production leaders would have in-depth knowledge of the corporation's strategic financial decision-making process, especially in turbulent market conditions, such as rapid fluctuations in oil prices that would impact the corporation's financial performance.

Limitations

Limitations are the inherent weaknesses in the study that researcher cannot eliminate and which might impugn research credibility (Liao & Hitchcock, 2018). A researcher must acknowledge and be aware of the research limitations to enhance the quality of the research findings (Liao & Hitchcock, 2018). In my research, for instance, the sample size of six may not be representative and could be a research limitation. Furthermore, the selection of Ghana among the numerous oil-producing sub-Saharan African countries could also be a limitation. The assumption that the targeted oil production leaders who are the participants for the study would have the requisite knowledge and willing to share the knowledge of the corporation's capital structure and strategies to maintain profitability when crude oil prices fluctuate may not be accurate and could be a potential source of limitation for the research.

Delimitations

Delimitations are the carefully selected boundaries the researcher imposes on the study that explicate the research focus (Yin, 2016). Marshall and Rossman (2016)

characterize them as the choices the researcher makes that define the parameter of the study. In my research, for instance, a delimitation source is the focus of the study on senior oil production leaders who have employed successful strategies to maintain profitability when crude oil prices fluctuate. The selection of Ghana among the numerous sub-Saharan African countries as the geographical location of the study is also a delimitation of the research. In addition, the choice of a national oil and gas corporation among the myriad oil firms in Ghana is a delimitation of the research as well.

Significance of the Study

Crude oil is one of the unpredictable and volatile commodities whose proper management is crucial to the economies of most sub-Saharan African nations, such as Ghana. For example, in October 2018 alone the market experienced an unprecedented peak price of \$86.7 per barrel only to plummet to \$60 per barrel within 30 days. Such volatility can have cascading effects on the stock market (Ewing & Malik, 2016), leaving investors and business leaders in the industry struggling to find workable and sustainable strategies to maintain their financial performance (Agostinho & Weijermars, 2017). When crude oil prices fluctuate, corporations with a robust fiscal regime can maintain financial performance. The findings of this study may contribute to business leaders' strategies for maintaining good financial performance when crude oil prices fluctuate.

The study's findings could influence positive social change through the insights gained into the dynamics of managing turbulent markets, insights that might enable oil production leaders and market analysts to maintain sustained regular income. In this way,

the production leaders and market analysts and their families might enjoy a constant flow of income and sustained financial independence benefiting local communities. Moreover, when corporations maintain profitability, they may be more inclined to take up the developmental needs of the local communities, which they support through corporate social responsibility initiatives (Banks, Scheyvens, McLennan, & Bebbington, 2016). Together, these factors render this research significant to the contemporary business environment.

A Review of the Professional and Academic Literature

The purpose of this qualitative, descriptive, single case study was to explore the strategies that national and multinational oil production leaders in the sub-Saharan African nations such as Ghana deploy to maintain profitability when crude oil prices fluctuate. To explore the strategies, I interviewed six senior oil production leaders in a national oil corporation in Ghana who have been successful in maintaining their corporation's cash flow in rapid oil fluctuation regimes. The fluctuations in the crude oil prices have always been disruptive to the financial performance of oil and gas corporations (Baumeister & Kilian, 2016).

In this literature view, I covered the following topics: trade-off theory, the conceptual framework of the study; alternative corporate finance management theories, such as the pecking order theory, free cash flow theory, and the Modigliani-Miller theory; corporate capital structure, the history of oil price fluctuations, and the Organization of Petroleum Exporting Countries (OPEC), and other bullish and bearish influences on oil

pricing, such the U.S. shale boom. The in-depth literature review may help explain the strategies that are used by contemporary national and multinational oil production leaders in the sub-Saharan African nations to maintain profitability when crude oil prices fluctuate.

To source peer-review articles for the study, I used the following databases: ABI/INORM, Emerald Management Journals, EBSCOhost, Google Scholar, ScienceDirect, ProQuest, Management & Organization Studies, SAGE Premier, and government databases. I used the following keywords and phrases: *corporate financing strategies, corporate capital structure, free cash theory, pecking order theory, Mogliani-Miller theory, oil price fluctuations, OPEC, the industry wild card, trade-off theory, working capital strategies, working capital sources, corporate business survival strategies, debt-to-equity, corporate finance management, alternative theories for corporate capital structure, sources of corporate working capital, and crisis management.*

Conceptual Framework: Trade-Off Theory

The understanding of a corporation's capital structure might play a key role in exploring the strategies oil production managers in a national oil corporation in Ghana use to maintain profitability when crude oil prices fluctuate. The capital structure management strategy, a corporate leader, deploys, especially in turbulent market regimes such as the rapid fluctuations in crude oil prices, will determine the resilience of the corporation's financial performance (Guizani, 2017). The TOT offers the appropriate lens

to understand the multifaceted financing mix corporate leaders employ to withstand volatile and recessive markets and avoid bankruptcies (Guizani, 2017).

Kraus and Litzenberger (1973) postulated the TOT in 1973. The key propositions of the TOT are (a) corporation leaders set their optimal cash reserve levels by balancing the marginal cost, and marginal benefits of holding the cash at that level, (b) taxation and bankruptcy penalties are the key factors that determine leverage within corporations business operations, and (c) a firm requires a higher level of cash in periods of growth opportunities to avoid financial distress (Rehman & Wang, 2015). The TOT indicates to the business leader the optimum cash reserve levels to maintain a corporation's financial performance. Corporate leaders seeking to remain relevant and maintain robust financial performance in volatile markets may have to resort to optimal debt financing (Abel, 2017).

Kraus and Litzenberger (1973) noted that TOT evolved originally from the Modigliani and Miller (1958) concept of capital structure. Modigliani and Miller (1958) posited in their theory of capital structure that a corporation's capital structure does not impact its market value in a perfect market. Modigliani and Miller (1958,1963) argued further that complete debt financing of capital projects in periods of market uncertainties has often resulted in maximization of the firm's profits and market value. Firms' survival and growth in periods of uncertainties are dependent on the resilient of the corporate financing strategy the firm adopts. Hirshleifer (1966), however, noted that the Modigliani and Miller (1963) failed in their theory of capital structure to take into consideration taxes

and bankruptcy penalties, which contribute to the determination of an optimal financing structure of a firm. The optimization of the firm's financial structure, therefore, involves a trade-off between the tax advantage of the firm's debt and the bankruptcy penalties as proposed in the TOT framework (Kraus & Litzenberger, 1973).

Additionally, corporate leaders could employ their strategic capability of leveraging debt and equity financing streams to survive in volatile markets (Agostinho & Weijermars, 2017; Li & Singal, 2019). Several scholars and theorists such as (Andrade & Kaplan, 1998; Hirshleifer, 1966; Modigliani & Miller, 1963; Welch, 2004) have presented various arguments on debt and equity financing robustness to shield firms from bankruptcy in volatile markets. For instance, while Modigliani and Miller (1963) argued that debt financing enhances firm value through interest tax shields, Andrade and Kaplan (1998) conversely explained that debt shrinks firms' value by inducing both bankruptcy and agency costs. Hirshleifer (1966) posited that in a complete capital market, taxes and bankruptcy would impact the optimal debt-equity mix for a corporation. In a perfect market, the strategy of holding a liquid asset is not an essential requirement since access to liquid funds is not arduous (Guilani, 2017). The modern-day market is a complex one punctuated with uncertainties. The uncertainties within the market system such as commodity and currency volatility (Gevorkyan, 2019; Ma, Wang & Sun, 2018) induce imperfections in the marketplace.

In support of the TOT, Ferreira and Vilela (2004) posited that when shareholders receive no credible guarantees of returns on their investments, then holding cash becomes

the sine qua non. Guilani (2017), a proponent of the TOT theory, also argued that the benefits of maintaining optimum cash holding amidst imperfect and turbulent market regimes such as crude oil fluctuations outweighed the marginal cost of holding the cash. Dierker, Lee, and Seo (2019) in assessing the risk associated with external financing argued that the dynamism in TOT application whereby the business leader can adjust between debt and equity financing to optimally stay within the target leverage zone makes the TOT a superior model in safeguarding corporations against external financing risks.

Sardo and Serrasqueiro (2017), in analyzing the capital structure of some Portuguese firms, posited the corporate leader's quest to achieve an optimum target debt ratio, which is in-line with the dynamic TOT, enhances the firms' competitive financial performance. Sardo and Serrasqueiro in contextualizing capital target ratio argued that while the cost to corporations' survival of deviating from the target capital structure may outstrip the cost of adjusting to such target ratio, the time required to achieve such optimum capital target ratio, however, could be daunting. Abel (2017) also argued that an operative TOT theory would guarantee corporate profitability. Abel (2017), therefore, suggested that corporate leaders exert much effort to determining the optimal region to balance the marginal cost and benefit of cash hold-ups since that is crucial to having an operative and vibrant TOT framework.

Conversely, Brusov, Filatova, Orekhova, and Eskinarov (2018), Dittmar, Mahrt-Smith, and Servaes (2003), and Welch (2004) have critiqued the prudence and strategic

viability of maintaining optimum cash reserve by balancing the debt and equity ratios as postulated in the TOT. For instance, Brusov et al. (2018) argued that a company's capitalization will not improve by varying the debt and equity ratios and that the optimal capital structure companies strive to maintain as proposed in the TOT is relative and may never be achievable. Brusov et al. (2018), therefore, projected a new capital structure theory herein referred to as the Brusov-Filatova-Orekhova (BFO) theory, which seems to differ fundamentally from the MM and TOT theories. Dittmar et al. (2003), in countering the TOT theory, argued that corporations might lose the opportunity of earning returns from investment in liquid assets due to indiscriminate cash hold-ups. Welch (2004) further noted that firms would not necessarily undo the inevitable impacts of commodity price shocks by seeking to maintain optimum cash hold-ups as proposed in the TOT.

In further direct contrast to the dynamic TOT, which indicates that firms, following risk increases (decreases), will buy back debt (equity), the market timing theory proposed by Baker and Wurgler (2002) predicted the opposite. Baker and Wurgler posited in their market timing theory posited that equity misvaluation should drive firms' financing decisions and that firms are more likely to issue equity at times when their market-to-book ratio is high. In this context, Baker and Wurgler suggested that an increase in a firm's risk will have the opposite effect on the firms' equity value and, therefore, diminishes the incentive to issue equity in risky regimes.

Rahman (2019), in the empirical study of the determinants of the capital structure of some listed commercial banks in Bangladesh, suggested that a capital structure such as

the TOT offers the business leader maximum value at minimal financial risk. Rahman, in further support of TOT, argued that banks with a higher return on asset (ROA), which is a crucial indicator of profitability, will prefer external funding to internal funding mechanisms. In sharp contrast to Rahman's argument, Aremu, Ekpo, Mustapha, and Adedoyin (2013) suggested that highly profitable banks will instead prefer internal sources of financing to the external ones. Regardless of the financing source, the financing model that guarantees the shareholder's value and uninterrupted dividend payment is most crucial.

Alternative Theories of Capital Structure

The capital structure of corporations is a crucial component that characterizes its ability to manage debt, especially in the era of capital scarcity (Eisenband & Carroll, 2019). The selection of an appropriate capital structure of a firm contributes to determining the firm's competitive advantage (Guilani, 2017; Muritala, 2018). Some of the commonly applied capital structure theories in addition to the TOT include the pecking order theory, free cash flow theory, agency theory, and the Modigliani-miller theory. Corporate leaders with the requisite capital structure knowledge might select the optimum financing mix that could guarantee the corporation's profitability in a volatile market.

The pecking order theory. The pecking order (PO) theory is another corporate financing technique that relates to corporate cash holding strategy firms adopt when making critical investment decisions. The PO theory is a viable alternative corporate

financing theory to TOT that researchers might use as a conceptual lens to understand the strategies oil production leaders in a national oil corporation in Ghana use to maintain profitability in rapid oil price fluctuation regimes. Donaldson (1961) was the first proponent of the PO theory. Myers and Majluf (1984) modified the PO theory, which was later popularized by Myers in 2001. Myer (2001), in popularizing the PO theory, argued that firms might prefer debt financing to equity financing when internal cash flow is not sufficient to finance capital expenditures. More so, the use of equity to finance capital projects may create doubts in the minds of potential investors. Investors may stay away or offer lower shares prices upon the presumption that the firm's managers may be taking advantage of the potential over-valuation of the firm through the equity issuance (Muritala, 2018).

The PO theory, unlike the TOT, does not require corporations to maintain specified cash holdings threshold as a criterion for ensuring the firm's profitability. Myers and Majluf (1984), in their PO theory, make use of corporations returned earnings followed by debt and then equity to finance investment opportunities. Martinez, Scherger, and Guercio (2019) identified the PO theory to be more appropriate in characterizing the capital structure of small and medium scale enterprises (SMEs) even though the PO theory and TOT theory are not mutually exclusive to explain SME capital structure. The advantage of PO theory lies in the fact that it is flexible and a superior model in rejecting random financing behaviors (Chipeta & McClelland, 2018).

The oil production leader in national and multinational corporations requires a

robust corporate financing management strategy in volatile periods to stay relevant. For example, most firms that filed for bankruptcies during 2014-2016 extreme oil price volatility, which eventually led to an oil price collapse, were due to poor corporate debt management strategies (Agostinho & Weijermars, 2017). Bhama, Jain, and Yadav (2018) further relate the PO theory of firms' capital structure viz-a-viz the financing hierarchy and debt management portfolios to the age of the firm. Bhama et al. (2018) concluded a firm's age does not have any significant impact on the firm's PO theory of corporate debt management and that old firms issue substantially more debt than young and middle age firms. The collapsing of firms has no relationship with how old the firm may be in existence. Firms may collapse when managers fail to deploy the right strategies to circumvent the inevitable negative impacts of market shocks (Bhama et al., 2018).

Sultanov (2018), in a study of some publicly listed firms from Kazakhstan, noted that the PO theory of capital structure might support finance managers in terms of financial risk management and strategic decision-making geared towards shaping firm's capital structure. Muritala (2018) in his empirical analysis of capital structure on firm's performance in Nigeria posited that firm's managers' use of hierarchical structure such as retained earnings, debt, and equity ensures an exhaustive and systematic application of internal and external financing sources for the financing of corporation's business operations. In contrast to Myers and Majluf's (1984) and Muritala's (2018) PO theory of hierarchical financing, Khémiria and Noubbigh (2018) argued that preference of debt to equity financing is possible only if the firm managers act rationally following

requirements of the business environment. However, when firm leaders work to satisfy their interests, then equity financing may come before debt financing to escape the potential strict requirement associated with debt financing (Khémiria & Noubbigh, 2018).

Unlike the TOT were profitable firms with high return on assets (ROA) takeout credit to benefit from tax savings, the PO theory conversely indicates that profitable firms prefer retaining more internal funds (Khémiria & Noubbigh, 2018). Therefore, a typical business manager adopting the PO theory will systematically exhaust the internal financing system, which is the retained earnings before venturing into external financing mechanisms with debt as a preferred option to equity. The act of exploiting the financing source with least resistance such as internal earnings (Muritala, 2018; Rodrigues & Weijermars, 2016) and gravitating towards external sources such as debt and equity could offer solutions to the inherent cost of information asymmetry (Guizani, 2017; Khémiria & Noubbigh, 2018).

Free cash flow theory. Corporations' leadership may find it economically prudent to consolidate their discretionary power through strategic cash hold-ups. The strategy of holding cash is particularly crucial when there are uncertainties in the investment climate (Guizana, 2017), culminating into business leaders' preference for paying out more cash to shareholders instead of investment (Jensen, 1986). Jensen (1986) defined free cash flow as the amount of cash flow above, which required funding all profitable projects as discounted at the relevant cost of capital. Under the free cash flow theory, managers eliminate the dependence on external capital markets by retaining

excess cash. The strategic retention of excess cash enables the business leader to exercise his or her discretionary power during critical investment decision-making processes (Jensen, 1986), without undue monitoring from capital market providers.

However, Smith and Pennathur (2019), in their study of corporate earnings management in the context of dividend payments, questioned the sustainability of such discretionary power granted to managers due to the potential incident of managerial inertial in initiating dividend payments to stakeholders. Smith and Pennathur further argued that corporate leaders institute earnings management not to reduce earnings and evade dividend payments, but to preserve financial flexibility, create earnings reserves, and postpone shareholders' expectations for initiating recurring dividends. Delayed dividend initiations and payments have often resulted in agency conflicts between shareholders and business leaders (Nguyen & Nguyen, 2018; Dogru & Sirakaya-Turk, 2018). More so, the undue delay dividend payments to stakeholders could have a cascading negative impact on a firm's credibility and potential loss of investor confidence (Abdallah, 2018).

Nguyen and Nguyen (2018) study of some Vietnamese listed firms established a positive relationship between a firm's cash flow and corporate profitability. In addition, the presence of potential information asymmetry between shareholders and corporations' managers in developing economies poses difficulty in accessing external sources of financing (Khémiria & Noubbigh, 2018). The apparent complexity of external sourcing of funds to finance capital projects due to the information asymmetry rendered the FCFT

as one of the most credible alternatives to finance corporations' activities (Nguyen & Nguyen, 2018).

While the TOT and PO theory primarily entails external financing (debt and equity), which is unpredictable and vulnerable to exogenous factors, the free cash flow theory conversely is associated with some degree of certainty since the business leader will have absolute control on the inflows and outflows of the corporation's liquid assets (Sheikh, Mehmood, & Kamal, 2018). Sheikh, Mehmood, and Kamal (2018) in their empirical study of the determinants of cash holdings in some multinational corporations (MNCs) in Pakistan concluded that profitability, firm size, dividend, capital expenditure, leverage, and growth opportunities are the key drivers of corporate cash holdings in MNCs in Pakistan. Roy (2018) argued that a corporate entity with a solid track record maintaining adequate cash holdings would inevitably stand a higher chance of withstanding market uncertainties such as crude oil market fluctuations.

Agency theory of capital structure. Corporation leadership structure and the struggle for dominance vis-à-vis critical investment and the corporate financing decision are crucial to building a successful corporate institution. The relationship among the key stakeholders, such as the corporate managers (agent) and shareholders (principal), is critical to the flow of information necessary for an informed investment decision-making process. Berle and Means (1932) were the first to conceive the idea of agency theory and later popularized by Jensen (1986). Berle and Means, in their early thoughts of corporate governance structure, suggested that the quest for dominance in organizational leadership

results in segregation of ownership between the shareholders and the executive managers of large corporations.

Berle and Means (1932), in their seminal work, further argued that such segregation or dilution of the ownership power could potentially impact on the owners' oversight responsibility. Jensen (1986) conceptualized the agency theory to encapsulate how corporate leadership manages the governance structure of a corporation while maintaining the individual competing interest. While the agent, usually the business manager may be risk-averse with profit-driven mentality (Rahmawati & Moeljadi, 2018), the shareholders may be preoccupied with ways of enhancing their dividend payments (Zaman, Hassan, Akhter & Meraj, 2018). In addition, corporate finance researchers such as Al-Thuneibat (2018), Bauer, Kourouxous, and Krenn, (2018) as well as Owusu and Weir (2018) argued that corporate leaders who fail to manage the competing interest between the parties in the agency theory risk facing a phenomenon of agency conflicts. Agency conflicts are counterproductive and impact negatively on a corporation's financial performance. Jensen further argued that the enhancement of dividend payment to shareholders and the increasing of manager's share in terms of ownership have often mitigated agency conflicts.

Rahmawati and Moeljadi (2018), as well as Jaisinghani and Kanjilal (2017) argued that when managers become shareholders, there might be a frictionless relation where the agent and principal interests will converge, culminating into enhanced firm's book and market value, and profitability.. The smooth relation between the agent and

principal is particularly important in the contemporary business environment, where competition is keen. The ability for corporate leaders to leverage on the positive side of agency theory such as building a robust corporate governance structure (Butt, 2019; El-katib, 2017; Buvanendra, Sridharan & Thiyagarajan, 2017) will determine the firm's competitive advantage and profitability (Jaisinghani & Kanjilal, 2017). The agent-principal dynamic relationship may even get complicated when there is the presence of multiple principals in the corporate governance equation (Voorn, van Genugten & van Thiel, 2019). When corporate managers are to deal with multiple stakeholders, then the problem of information asymmetry becomes inevitable (Cohen, Fedele & Panteghini, 2016), impacting negatively of the governance structure with a potential cascading impact corporation's financial performance.

Means (2017), in a later work, argued that the interest of corporate managers and firm's owners are always in divergence with the latter group threatening to overshadow the corporation owners' interest. Means, in further characterizing the power balance, underscored the crucial role investors play in shaping the power balance. In this regard, Means posited that increased activism by intuitional investors further contributes to the dissipation of power balance in decision-making processes. Muritala (2018), in the empirical study of the capital structure of some firms in Nigeria, noted that the strategy of increasing the manager's debt to equity ratio would be useful in diluting the excessive discretionary power of the managers.

Jensen and Meckling (1976), in their empirical study on the theory of firms in the

context of managerial behavior, cautioned corporate leaders' excessive reliance on high debt-to-equity due to the associated agency and bankruptcy costs of debt financing. Jensen and Meckling further warned that corporate managers (agents) are inevitably prone to aberrant activities and may not always act in the best interest of the shareholder (principal). An attractive incentive package for the agent coupled with a vibrant monitoring scheme may be necessary to neutralize the agent's perceived self-interest and achieve some degree of principal-agent convergence.

Modigliani-Miller theory. The nature and constituents of a corporation's capital structure form an integral part of a firm's leadership strategy to remain competitive amidst market shocks. The understanding, building, and maintaining resilient capital structure, therefore, has become a non-negotiable undertaking. Modigliani-Miller (MM) theory of capital structure remains key to understanding modern corporate financing. Modigliani and Miller (1958), in their theory of capital structure, posited that the choice of a firm's financing structure would not impact the firm market value in an ideal market. In other words, the MM theory indicates that a firm's financing structure is not relevant to the share of debt and equity in the capital structure of the firm (Krstevska, Nenovski, & Pogacnik Kostovska, 2017).

Consequently, the MM theory is, therefore, alternatively refers to as *the theory of capital structure irrelevance* (Krstevska et al., 2017). The complex and sophisticated nature of today's business environment indicates that the global economy moved past the ideal market situation and renders the MM theory less applicable. For instance,

Modigliani and Miller (1958), in their approach, failed to consider taxes and bankruptcy costs associated with corporate financing. Miglo (2016), in the study of the MM theory about TOT, drew an interesting correlation between the expected bankruptcy costs and optimal capital structure. Miglo argued that corporate leaders who successfully operate within an optimal capital structure, as proposed in the TOT might stand a greater chance of avoiding bankruptcies and financial distress in market downturns.

Yigit (2018), in the study of the different approaches and history of bankruptcies, suggested that bankruptcy would remain an exciting field that will continue to impact the financial decision-making processes in the current global financial market. Yigit noted that the growing fluidity and uncertainties in the global market mandate that the contemporary business leaders equip themselves with predictive bankruptcy skills to avoid bankruptcy costs. Modigliani and Miller (1958) capital market theory of perfect markets may have outlived the usefulness in today's complex market. For example, the prevailing market anomalies such as information asymmetry (Rahmawati & Moeljadi, 2018), and agency conflicts (Owusu & Weir, 2018) are key to the determination of an optimal capital structure of corporations. Corporate leaders who utilized the fundamental principles of the MM theory of capital structure alongside the other enhanced versions such as the PO theory and TOT may gain the strategic competitive advantage of making rational investment decisions within the firm, especially in volatile markets.

Additionally, Modigliani and Miller (1958), in their seminal work on the cost of capital to a firm, argued that firms would only acquire physical assets if the expected rate

of return on such acquisitions exceeded the rate of interest. In the area of strategic asset acquisitions and divestiture, Agostinho and Weijermars (2017) posited that oil and gas business leaders might invest in asset growth in favorable market conditions.

Furthermore, the leaders may also carry out strategic divestiture of some assets to enhance positive cash flow in periods of financial distress. Brusov, Filatova, Orekhova, and Eskindarov (2018), in their empirical study of the concept of capital structure concerning MM theory, countered the assumptions in MM theory of firms' perpetuity. Brusov et al. suggested that in the presence of corporate taxes, firms' capitalization, equity cost, and the weighted average cost of capital will change corporations' capital structure significantly.

The apparent failure of MM to address firms' capitalization, equity cost, *and the* weighted average cost of capital, which are crucial financial performance indicators in the modern-day corporations' capital expenditure is the key limitation of the MM theory. Brusov et al. (2018) further argued that the MM theory of capital structure had Kim, lost connection with today's real economy and, if relied upon, may impede effective managerial decision-making processes. The corporate leader's understanding of the capital structure of a corporate entity may support in selecting the most relevant financing model that will guarantee the firm's sustainable cash flow in periods of financial distress (Agostinho & Weijermars, 2017). The apparent lack of prudence in making informed business decisions facilitated the collapse of many corporations during the 2008 recession (Agostinho & Weijermars, 2017; Brusov et al., 2018).

Background Information to the Research Topic Area

The volatility in the crude oil market has resulted in widespread uncertainties in the marketplace. The rapid fluctuations in the crude oil commodity markets have impacted the financial performance of national and multinational corporations in sub-Saharan Africa (Akinlo & Apanisile, 2015). More so, the frequency of the bearish and bullish sentiments in the crude oil market has often posed a monumental challenge to the contemporary business leader (Baumeister & Kilian, 2016; Bugden, Kay, Glynn, & Stedman, 2016). The crude oil market over the last four decades experienced the most recurrent boom and bust cycles (Baumeister & Kilian, 2016), with the bust cycles threatening corporations' financial stability and the risks of contagion in the marketplace (Klein, 2018).

Furthermore, national and multinational oil and gas corporations' leadership will continue to face the herculean task of maintaining fiscal fluidity in the volatile regimes (Michael, 2016). While some oil and gas corporations leaders may survive the storm, other corporate leaders who lack the requisite strategies may not sustain their financial performance and profitability (Zhang et al., 2018). As the markets continue to face bearish and the bullish sentiments with no sign of long periods of stability; pundits such as Knittel and Pindyck (2016) as well as Wang and Sun (2017) argued that fluctuations that are large enough would impact negatively on the financial performance of corporations and could lead to bankruptcy.

The unpredictable nature of the crude oil market has become an arduous task for

business leaders in the contemporary business world. Additional factors such as geopolitics have contributed to the disruptive characteristics of the market (Demirbas, Omar Al-Sasi, & Nizami, 2017; Jiang, Ma, Yang, & Ren, 2018). For example, the current trade war between the U.S. and China and the sanction regime the U.S. placed on Iran, the fourth-largest producer and exporter contributing to the Organization of Petroleum Exporting Countries (OPEC) price basket, could have a potential destructive influence in the crude oil commodity pricing (Baruník & Malinska, 2016). These factors, in addition to the purely economic ones driven by demand-supply pricing dynamics, contributed to market uncertainties and volatility (Wang & Sun, 2017; Knittel & Pindyck, 2016).

Additionally, the contribution of other unconventional extractive techniques such as shale technology through hydraulic fracking has posed a potentially serious threat to the current market status quo concerning OPEC monopoly of market pricing. The resurrection of shale technology into full operations in the US, barring all the environmentalist concerns, has contributed to reducing the crude imports into the United States (Baumeister & Kilian, 2016; Kilian, 2016). The ambitious pursuit of shale technology poses supply glut and a potential price collapse, which in itself may be counterproductive to shale technology since a crude oil price below 50 U. S. dollars per barrel may be economically unviable for shale technology (Mohaddes & Raissi, 2019).

Eisenband and Carroll (2019), in their critical analysis of the contemporary oil market dynamics, questioned if another energy market collapse and or recession may be in the offing. Eisenband and Carroll further argued that similar bearish market sentiments

resulted in some 300 energy-related bankruptcy filings in 2015-17. Kraus and Litzenberger (1973) noted that corporate leaders who can leverage bankruptcy costs amidst turbulent market regimes might remain competitive. Bankruptcy cost is a key tenet of the TOT, whereby firms' leadership institutes a fiscal discipline regime through the optimal balancing of the marginal cost and benefits of holding cash (Rehman & Wang, 2015). As the uncertainties in the marketplace continue to show no sign of stability and rig counts in the United States dropping rapidly, corporate financial restructuring may be the only leverage to avoiding bankruptcies (Yigit, 2018).

Historical Background of Oil Price Volatility

Oil price fluctuations date back as far as the post–World War II period, where there was the existence of weak supply rigidity. Even though the oil price fluctuations within these periods were irregular, it was still enough to cause significant market turbulence (Harris, Nguyen, & Stoja, 2019). Hamilton (1985) has documented impressive views on the possible causes of the fluctuations in the postwar era. For example, Hamilton (1985) argued that even though some of the historical price shocks were direct antecedents of postwar experience, price disruptions due to political instability in the producer nations could also be responsible for price shocks.

Baumeister and Kilian (2016), and Baruník and Malinska (2016) corroborated the Hamilton (1985) view by suggesting the frequent political instability in the Middle Eastern nations have often impacted the global demand-supply balance. The rippling effect of rapid price changes often has a devastating consequence on the market. In light

of this, Hamilton sought to relate recessions to oil price shocks. Hamilton argued that major oil price shocks that occurred in the years: 1973, 1974, 1979, 1980, and 1981 have each precipitated into major recessions. Pundits (See Kilian and Viffusson, 2017; Kilian and Baumeister, 2016; Morana, 2017) have, therefore, questioned if the correlation between the oil price shocks and economic recession is causal or just coincidence.

Post Second World-War price shocks: 1947–1972. Oil price shocks, regardless of the root causes, have always originated from the imbalances in the supply and demand of the commodity (Zhang & Zhang, 2018). The immediate periods after World War II, characterized by a strictly regulated market regime, where government agencies control the production levels and fix the prices of the petroleum products, may have inherent inefficiencies. In the US, for instance, the Texas Railroad Commission, which was responsible for 42% nation's petroleum products (Hamilton, 1985), regulated the crude oil requirements by balancing the supply and demand as well as projections of the hydrocarbon product.

Furthermore, Hamilton (1985) predicted that strict price controls were to become a serious bottleneck in the years to come. Knittel and Pindyck (2016) and Zhang and Zhang (2018) in characterizing the market response viz-a-viz the institution of strict regulations posited that determination of production levels and the setting of prices in the market instead of allowing market forces such as supply-demand dynamics to dictate the market trends in real-time may inevitably result in market inefficiencies. Furthermore, Ansari (2017) suggested the political instabilities and geopolitics in the producer nations,

which had resulted in the closure of the Suez Canal in two separate instances, influenced the oil pricing within the period. The natural geological characteristics of oil reserves, coupled with the lack of state of the art production technologies, all affected the crude oil market within the period.

The 1973–74 price shock. As the state-of-the-art technology began to take center stage in global oil extraction, nations such as the United States became economically buoyant. Because of the upsurge in economic activities, market deregulation became inevitable; hence breaking away from the strict governmental control. Baumeister and Kilian (2016) posited that the U.S. and other western nations increased demand for crude oil due to the vibrancy of their economies in the last quarter of 1973 contributed to the price hike within the period. Some researchers (such as Baumeister and Hamilton, 2019; Hamilton, 1985) attributed the 1973-74 price shock to supply-demand market forces.

In his later work, Hamilton (2003) argued the Arab –Israel war within the period provoked the price shock. Ansari (2017) concluded that the oil producer nations intentionally reduced oil production to prop up the prices. Regardless of the origin of the oil price shock, the ultimate impact is the negative economic outlook and a potential loss of investor confidence in the global economy (Zhang & Li, 2019). Business leaders in oil and gas corporations and beyond would require robust strategies to remain competitive.

The 1980s and 1990s price shocks. The 1980s and the 1990s were the era of rampant boom and bust cycles in the global oil market. The high frequency in the occurrence of wars such as the Iran-Iraq war, from 1980 to 1988, Iraq invasion of Kuwait

was the catalyst to boom cycles where crude oil price increased to 38 U.S. dollars from the initial 36 United States dollars within a quarter (Baumeister & Kilian, 2016).

Hamilton (2003) and Herrera, Karaki, and Rangaraju (2019) posited that the disruptive tendencies of crude oil supply from the producer and exporter nations have resulted in huge economic challenges, especially in the consumer nations. In the United States, for example, the then Central Bank Governor, Paul Volcker, had to take drastic fiscal policies such as raising U.S. interest rates in a bit to neutralize and or equilibrate the impact of the oil price shock.

Consequently, such stringent and contractionary monetary policies culminated into recessions leading to a slowdown in global economic growth. Ansari (2017) argued that when economic activities slow down, oil supply glut ensues due to weak demand. The period also coincided with increased production from non-exporter nations such as the United Kingdom, Mexico, and Norway, which further exacerbated the supply glut. Several bullish sentiments happened within these bust periods, including Saudi Arabia's unilateral action of reducing pumping in a desperate attempt to prop up the prices (Kilian, 2016). Kilian (2016) further argued that the proactive steps producer nations took at the time fell short of curbing the weaknesses in the demand and subsequently resulted in the oil price plunging to an all-time low of 11 U.S. dollars per barrel in December 1998.

2003–2008 price shock. The period of 2003–2008 experienced one of the boom-bust and excessive surges in the oil pricing market. Unique to this period was the fact that there were not any known disruptive events as recorded in the previous volatile periods.

Kilian (2016) and Ansari (2017) argued that the bullish sentiments that culminated in the upsurge in this period were due to unexpected expansion in the global economy as a whole. The most significant period came in mid-2003 and mid-2008, where crude oil estimated in the West Texas Intermediate (WTI) benchmark increased from \$28 to \$134 per barrel (Baumeister & Kilian, 2016). A quantum leap of the commodity price of such magnitude will undoubtedly cause disruptions in the global market with the potential to impact the financial performance of corporations. Corporation's leadership may have to institute adequate strategies to absorb such shocks to remain competitive in the fast-changing business environment (Giones, Brem & Berger, 2019).

The boom cycle was, however, immediately preceded by another bust cycle where, again, the commodity price plummeted from \$134 per barrel in June 2008 to \$39 in February 2009 (Ansari, 2017). Ansari (2017) attributed such a plunge in the commodity price to the financial market collapse in late 2008. While a gradual increase or decrease in the crude oil price poses no imminent threat to corporations' financial performance, especially in those in the oil and gas industry, a sharp decline or a sharp increase within a short period, however, poses a monumental challenge to the contemporary business leader. The period beyond 2008 to early 2014, experienced only minor imbalances in the supply-demand of the commodity. A unique scenario, however, reemerged in the last quarter of 2014 to early 2015, where there was a paradigm shift from the plateau price structure and contributed to shaping the calculus of the oil and gas industry today.

The 2014-15 Market Shock

The period covering the last quarter of 2014 to 2015 and beyond is the momentous era that contributed to shaping today's oil market dynamics. The knowledge and understanding of the inherent drivers of the demand-supply of the commodity are crucial to the market analyst (Knittel & Pindyck, 2016). Zhang and Zhang (2018) as well as Caldara, Cavallo, and Iacoviello (2019) posited that the factors that trigger the demand-supply imbalances are numerous and sometimes difficult to predict with certainty. Knittel and Pindyck (2016) identified speculations as one of the factors that could influence the supply-demand shift. Knittel and Pindyck defined oil price speculation as a business leader's use of the price increase or decrease in the oil-related commodity or asset to inform the purchase (or sale) decisions with an opportunity to create a capital gain. Knittel and Pindyck, however, concluded that, while speculation had some minor effect on oil prices, they are not the primary cause for the sharp changes in prices.

Additionally, Sarwat, Kashif, Aqil, and Ahmed (2019) posited that speculative elements might create artificial market trends, which is misleading. Ansari (2017) and Baumeister and Kilian (2016) traced the 2014-15 price shock from the robust competitions for market shares, that ensued between the oil producer nations famously called the organization of petroleum exporting countries (OPEC) and the U.S. shale technology boom. OPEC, sensing the potential threat from the U.S. shale boom, ramped up production to paralyze U.S. shale from the competition due to low prices. Ansari

(2017) described this attempt by OPEC as the way of testing shale resilience in oil bust cycles. OPEC's action of intentionally creating supply glut was a double-edged sword situation since low prices had devastation impact on the economies of OPEC member states, especially Saudi Arabia.

Many researchers (See Ansari, 2017; Behar & Ritz, 2017; Brown & Huntington, 2017) argued that OPEC's quest to test the resilience of the U.S. shale boom was the key driver of 2014-15 oil market flooding, which eventually led to the price collapse. The shale technology is an unconventional extractive technique, which is far more expensive than most conventional oil production methods (Murtazashvili, 2017). The quantum of environmental and economic risks associated with the technique creates many uncertainties.

Fattouh (2016) argued the uncertainties surrounding shale technology necessitated the testing of shale elasticity in low price regimes. The offshoot of 2014-2015 OPEC and shale conundrum is what the oil market continues to face until today with OPEC grappling between maintaining the market share and sustaining their heavily oil-dependent economies (Ansari, 2017). The shale boom has since gathered momentum and threatens to neutralize the OPEC market monopoly. Amidst this struggle, the contemporary business leader who wants to remain relevant and maintain profitability may require to deploy strategies to enhance their internal capabilities to withstand the exogenous factors.

Sarwat et al. (2019) suggested that oil price fluctuations are mainly an exogenous

phenomenon whereby corporations have little control over. However, firms' leaders must deploy their internal endogenous characteristics and framework that must align with this wild exogenous phenomenon to remain competitive in such an unpredictable market place. With OPEC nations and the U.S. shale boom, each knowing their strengths and weaknesses, the oil pricing market could assume a stalemate. The prediction of oil market shocks poses a difficult task for the contemporary business leader in this uncertain business environment.

OPEC Role in Oil Market Volatility

Following a series of disruptions in the oil market after the Second World War, some leaders in the oil-producing and exporting nations saw the need to inject some stability in the oil pricing market. The oil-dependent economy nations led by Saudi Arabia in 1966 formed the Organization of Petroleum Exporting Countries (OPEC) with the sole mission of ensuring price stability in the global oil market (Pierru, Smith & Zamrik, 2018). OPEC's role in cushioning the global oil market from supply and demand shocks is crucial to the stability of the global economy. Several researchers (Baumeister and Kilian, 2016; Kilian, 2016; Khan, 2016; Demirbas, Omar Al-Sasi, and Nizami, 2017; Gadea, Gómez-Loscos and Montañés, 2016) have underscored the negative impact associated oil price volatility to the global economy.

Fantazzini (2016) argued the huge financial bubble that characterized the 2014-15 price collapse impacted the economies of most nations and disrupted the global economic order. OPEC action and or inaction in this period might have contributed to the

price collapse. For instance, Ansari (2017), in discussing the 2014-15 price shock, argued the failure to reduce production for fear of losing the market share to the shale producers such as the United States, was a clear breach of its core mission as a market stabilizer.

In this light, Eisenband and Carroll (2019) questioned OPEC's genuine intentions in carrying its role as a market stabilizer in volatile periods. Eisenband and Carroll criticized OPEC for seeking to collapse the United States shale market by facilitating the 2015 oil price collapse, where crude oil price had dropped below \$40.00 per barrel. Researchers such as (Baumeister & Hamilton, 2019; Prest, 2018; Kim, 2018; Huntington, 2018) have attributed the 2014-15 price shock to supply-demand imbalances. Fantazzini (2016), conversely, suggested the collapse stemmed from the presence of a negative financial bubble, which had decreased oil prices beyond the level justified by economic fundamentals.

In further analyzing the reasons for the 2014-15 decline, Prest (2018) posited that a weakening global demand for the commodity due to a slowdown in economic activities appear to be the key driver. Prest further argued the U.S. shale boom contributed only but little to the bearish sentiment within the period. In the supply side of the continuum, Huntington (2018) suggested the prevalence of political instabilities in the OPEC member countries and the Persian Gulf regions remains the topmost bullish element in the oil market.

Oil price volatility has been a source of concern for investors and oil production managers. The unpredictable nature of the price volatility and the associated financial

cost to corporations due to price volatility requires the contemporary business leader to employ robust strategies. The strategies might include innovative drives that would reduce policy uncertainties and enhance earnings amidst the volatile regimes (Kang & Wang, 2018). OPEC's role as a swing producer over the last few decades before the shale boom has been significant in offsetting the supply-demand imbalances (Pierru et al., 2018).

Shale Boom and Corporate Profitability

The geological formation of an area determines the economic extractive technique to deploy to access the mineral resources (Murtazashvili, 2017). In the Middle Eastern countries and other OPEC member states, the exploration and production of the hydrocarbon formations using conventional oil extractive methods remain the most profitable. However, in most parts of the developed western nations such as the United States, Canada, Australia, and Great Britain, the geological structure makes it impossible to produce oil and gas in economic levels by conventional extractive techniques but only viable with the use of unconventional techniques (Murtazashvili, 2017).

The unconventional extractive techniques such as hydraulic fracturing technically called the Shale technology (Lifset, 2019; Pratt, 2019; Schafft, McHenry-Sorber, Hall, & Burfoot-Rochford, 2018) is the technique all producers use to extract oil and gas from the tight formation. The aggressive and relentless pursuit of shale technology in the US has changed the calculus and power balance in the influence of oil prices in the market today. The United States, over the last five years, has gradually gravitated from becoming a net

importer of crude oil to a net exporter due to the shale technology boom (Lifset, 2019).

Murtazashvili (2017) suggested the following hypothesis to be central to the phenomenal growth in the U.S. shale technology:

- Innovation and the ease to private ownership of mineral resources are the critical drivers of hydraulic fracturing;
- Individual ownership structure creates flexibility between drillers and the mineral rights owners; and
- Private property rights, coupled with the active support of private ownership, exert the required pressure on politicians to adopt regulations that encourage drilling.

The deliberate relaxation of the stringent regulatory frameworks governing hydraulic fracking alongside the strong political will by the decision-makers of the day has been the game-changer in the U.S. shale boom. Murtazashvili (2017) noted a robust economic growth and lower unemployment rates in regions in the United State, such as Texas, Pennsylvania, Ohio, and West Virginia, where the shale boom prevails. The positive outcomes vis-à-vis the economic growth and high employment rates cascading into enhanced local tax base demonstrate how the United State has successfully mitigated the phenomenon of resource curse as prevailing in most developing economies (Weber, Burnett, & Xiarchos, 2016).

Shale Boom Versus OPEC Monopoly

The oil industry may be facing the most tumultuous time in the current business

environment. Conditions which hitherto were bullish and bearish seem not to have the expected impact in the pricing market. OPEC, which had the power to shape the market dynamics in stabilizing the pricing market in periods of rapid fluctuations, seems to be losing the power of influence (Klein, 2018; Hunter, 2019). Behar and Ritz (2017), in their empirical study of the power balance between OPEC and the United States shale producers, posited that the *regime switch* by OPEC in 2014 was to maintain the market share and possibly render shale producers less competitive. Behar and Ritz further rationalized that the reasons for the unique paradigm shift in OPEC behavior in the lead up to the 2014-2015 price collapse are (a) the growth of United States shale oil production, (b) the slowdown of global oil demand, (c) reduced cohesiveness of the OPEC cartel, and (d) production ramp-ups in other non-OPEC countries.

The factors listed above, that might have culminated in OPEC flooding the crude oil market is still existent, raising doubts in the minds of pundits such as Eisenband and Carroll (2019) to question if another oil market bust is imminent. Eisenband and Carroll further suggested that U.S. shale producers may be enjoying increased leverage over OPEC due to the phenomenal efficiencies achieved by U.S. producers in lowering break-even costs for shale oil to the mid-\$40 range. The shale boom and the associated improved efficiencies had catapulted the United State to the number one position as the global leader in oil production, surpassing both Russian and Saudi Arabia—the de facto OPEC leader (Behar & Ritz, 2017). Ji, Zhang, and Zhang (2019), in their empirical study on the impact of OPEC on East Asian oil import security, argued that OPEC still has

some influence in shaping the supply-demand balance in the oil pricing market.

Furthermore, the advancement in technology of unconventional extractive techniques has culminated in more innovative and cost-effective ways of shale oil production (Hassani, Silva, & Al Kaabi, 2017). Hassan et al. further noted that supercomputers and advanced algorithms, seismic imaging technology, and drilling and extraction technologies emerged as the most prominent sources of innovations and technologies for cost reduction and time-saving in the petroleum and petrochemical industry. Such technological breakthrough contributed to the shale boom and the resilience in bust cycles. Oil market researchers such as Eisenband and Carroll (2019) argued that if shale technology sustains the current momentum even in low price regimes, it may achieve some competitive advantage over conventional techniques, which the OPEC member states are championing. Cherp, Vinichenko, Jewell, Brutschin, and Sovacool (2018) as well as Geels, Schwanen, Sorrell, Jenkins, and Sovacool (2018) argued that the slow pace in the energy transition to a low carbon-based fuel meant that, fossil-based fuels would continue to drive industrialization many decades to come. Consequently, the status quo, where the current struggle for dominance in market share between shale and OPEC will have no immediate end in sight.

Brown and Huntington (2017), in their study of the global oil security vis-à-vis OPEC influence in market stability, argued that the wildcard in the industry is not merely the supplier who controls the marginal barrel but also the one with a stable political atmosphere. Brown and Huntington suggested that while OPEC member state currently

holds the marginal barrel strategic advantage, the member states are the most unstable. Consequently, the above antecedence underscores the significant roles non-OPEC member states led by Russia, play in curtailing rapid price volatility and facilitating global economic growth (Akinlo & Apanisile, 2015). The non-OPEC member states, led by Russia, who enjoys a comparatively higher political stability (Brown & Huntington, 2017) are key contributors to maintaining an optimum global oil demand-supply balance, which is crucial to corporations' profitability.

Oil Price Volatility and Corporate Liquidity

The rapid changes in crude oil prices in the world market, which characterizes the concept of oil price volatility impacts the economic fortunes of oil and gas corporations. While the regular and gradual increase and or decrease may pose no immediate threat to a corporation's smooth financial performance, the rapid boom-bust cycles, however, pose a monumental challenge to the business leader. Robust business planning, which is key to corporate profitability, gets difficult when commodity prices fluctuate.

In their empirical study of the volatility index of nine hydrocarbon-based products Jiang, Ma, Yang, and Ren (2018) posited that price volatility impact on returns is product dependent. For example, Jiang et al. noted that while crude oil and diesel price volatility has a positive time-varying effect on their returns, other products such as heating oil, jet fuel, propane, and natural gas have had their price volatility impacting negatively on the profits. Akinlo and Apanisile (2015), in their examination of the impact of oil price volatility on the economic growth of 20 sub-Saharan African countries, argued that oil

price volatility has a significant effect on the economic growth of oil-exporting countries since their economies are heavily oil dependent.

Therefore, corporate leaders in the multinational and national oil and gas corporations in both OPEC and non-OPEC member states will require sustainable strategies to remain competitive. Oil price volatility and factors that drive the rapid changes are difficult to predict with certainty (Kilian, 2016). Kilian and Vigfusson (2017) argued that most oil market specialists equipped with state of the art predictive models have often failed to predict crude oil prices and trends accurately. The understanding of the endogenous and exogenous factors will be a crucial starting point in characterizing market trends with certainty.

Chen, Yu, and Kelly (2016) in their empirical study of the drivers of world oil price surges using vector autoregressions model identified endogenous factors such as world oil prices, China's oil share of world consumption, speculation, and OPEC activities as the key drivers of oil price surges in the global market. Chen et al. further suggested the factor(s) that had the most impact on the world crude oil pricing was dependent on the prevailing condition in the marketplace. For example, Chen et al. noted in their VAR empirical analysis that OPEC activities are the main factor, and China's oil consumption share is the second most important factor which had an immediate impact on world oil prices between 1997 and 2012. Furthermore, in the turbulent period of 2003 to 2008 oil crisis, speculation became the most crucial factor, and OPEC supply had a secondary short-run and long-run influence on oil prices. The dynamics then are not

different from the dynamics now, in that the current and existing trade disagreement between China and the United States continue to threaten the global economic growth, remains a potential bearish variable in the oil market. China, the second-largest consumer of petroleum products globally, will consume less in a retarded and constrained economic growth regime tipping the balance to favor supply glut.

Michael (2016) in, his empirical study of the financial market impact of price fluctuation on the oilfield services sector of the industry, argued that oilfield service firms are more financially sensitive than the exploration & production firms in the upstream when crude oil prices fluctuate. The oil and gas industry is networked and interconnected. The interconnectivity with other critical infrastructures such as transportation systems and utility systems (Mao & Li, 2018), make the oil price a crucial entity in economic planning.

Market capitalization. Oil and gas markets are capital-intensive arenas, where prudent financial management skills are crucial to corporate profitability. Investment decisions in capital projects will require certainty to maintain cash flow and avoid bankruptcies (Agostinho & Weijermars, 2017). Rodrigues and Weijermars (2016) defined market capitalization as the total dollar market value of all of the corporation's outstanding shares, calculated by multiplying the shares outstanding by the current market price of one stock. As the access to investment, capital gets scarce, oil production and exploration managers would require cogent and robust strategies to finance their capital expenditure (CAPEX) to remain competitive.

More so, the situation gets worst in a volatile market, where the return on the huge CAPEX is not certain. Oil and gas corporations' internal configuration and financial structure may determine the ultimate resilience and survival in the volatile oil and gas pricing market (Rodrigues & Weijermars, 2016). Agostinho and Weijermars (2017), in their empirical study of profitability analysis of 30 oil companies with market capitalization ranging from USD 95 million (juniors) to USD 360 billion (majors) in volatile markets, suggested that an intense commodity price shock such as occurred during the global recession of 2008-2009 impacted more negatively on smaller companies than bigger companies. Agostinho and Weijermars, however, noted the smaller companies instituted better reactive measures to safeguard them from future potential recession impacts than the counterpart bigger companies.

Furthermore, corporate entities' business activity gets profitable when there are positive returns on investment. The strategic balancing of CAPEX and operation expenditure (OPEX) may be one of the credible avenues to maintain positive cash flow (Agostinho & Weijermars, 2017). Wang, Vredenburg, Wang, Xiong, and Feng (2017), in their study of energy returns on investments (EROI) on Canadian heavy oil sands, noted the EROI of Canadian heavy oil sands showed an upward trend over the past seven years. Wang et al. further stated that comparing EROI with other hydrocarbons, the EROI of oil sands is still quite low, although it is increasing gradually. The Canadian sands are in the category of the unconventional hydrocarbons such as shale technology, whose extraction techniques are quite cumbersome and capital intensive with returns on investment not

readily guaranteed in today's complex and uncertain marketplace (Antonakakis, Chatziantoniou, & Gabauer, 2019).

Kuvshinov and Zimmermann (2019), in their study of the evolution of stock market capitalizations, posited that asset returns and evaluations rather than the quantum of capital accumulation are critical drivers of market trends. A fundamental understanding of market trends, as suggested by Kuvshinov and Zimmermann, is crucial to the informed investment decision-making processes. Kuvshinov and Zimmermann further argued that a vibrant stock market such as what existed in the 1980s and 1990s would culminate into a structural increase in corporate profitability, which will ultimately result in higher dividend payments, lower discount rates, or lower taxes.

Financing Strategies

Corporate financing is a critical component of a firm's investment decision-making processes that contributes to the firm's strategy. The selection of an appropriate financing model such as reliance on retained earnings (Agostinho & Weijermars, 2017), external financing sources (Dierker et al., 2019), and the combination of both internal and external financing sources (Muritala, 2018), defines the capital structure strategy of the corporation. Agostinho and Weijermars argued that corporate leaders must adopt a financing strategy that is flexible, such that, the corporate leaders can deliver sustainable free cash flow under stable market conditions and remain competitive when market conditions deteriorate. In general, corporations with flexible financing strategy may either use debt, equity financing, and or combination of the debt and equity financing

depending on the model with minimal risk as proposed in the TOT (Dieker et al., 2019), which is the conceptual lens for the current study.

Moreover, corporate leaders in the oil and gas industry will usually face market externalities and an aggregate of exogenous factors they have little or no control over. For example, Chen et al. (2016) argued that the China factor continues to be a wildcard in determining global oil demand and supply balance. Degiannakis, Filis, and Arora (2018) explained that fluctuations in oil prices could have a cascading effect on the stock markets and questioned if the financialization of the oil market should be a critical consideration for stock and financial markets? Degiannakis et al. noted in their studies of oil and stock markets that oil price volatility transmits to stock market volatility and that improving measures of stock market performance improves forecasts of oil prices and oil price volatility.

Jianu and Jianu (2018), in their empirical study of a sample of 51 active oil and gas companies listed in the London Stock Exchange (LSE) using the Ohlson share price model, investigated the impact of long-term assets investments on the share price. The share price concept has been a noteworthy model corporate leaders' use as a financial strategy tool for critical investment decision making processes. The type of investment decisions a corporate leader makes will impact both the present and future oil and gas industry's financial performance. Jianu and Jianu concluded that investment in long-term assets is key to improving the economic outlook and attractiveness of the oil and gas company shares and can also influence the share price in the case of underperforming

companies.

Intuitively, the top executives such as CEO, CFO, and COO bare full responsibility for the financial performance of their corporate entity. For instance, Tullow Oil plc, a U.K. based oil and gas company with a business focus in Africa such as Ghana, had the group CEO, Paul McDade resigning this week due to the corporation's unimpressive production performance, resulting in more than 50% plunge in the share price. Corporate entities in periods of market volatility and financial distress may defer payments of dividends to shareholders as one of the cash flow sustainability strategies (Guizani, 2017). Yet, other areas of focus may include a reconfiguration of the corporate capital structure to include adjustments in CAPEX and OPEX spending (Rodrigues & Weijermars, 2016), diversifying investments, and divestiture of some assets with a clear focus to reduce cash operating costs (Agostinho & Weijermars, 2017).

Debt-to-Equity Ratio

The debt to equity ratio (D/E) is a critical element in a corporate financing strategy that characterizes the proportion of equity and debt the corporate leader deploys to finance business operations. The D/E is the single most crucial parameter the runs through the critical corporate capital structure theories such as the Modigliani and Miller (1958) capital structure theory; Kraus and Litzenberger (1973) TOT; Myers and Majluf (1984) PO theory; and Jensen (1986) FCF theory. Modigliani-Miller, in their theory of capital structure, advocated for complete reliance on external borrowing to finance capital projects. Kraus and Litzenberger; however, supported the use of a dynamic and flexible

financing scheme, here in, referred to as the TOT that will offset the potential negative impact of complete debt financing such as bankruptcy. Dierker et al. (2019) argued that the consideration of the trade-off between the tax benefits of debt and the bankruptcy cost of external financing is crucial to maintaining financial leverage and competitive advantage in the current unpredictable business environment. The attainment of an optimum financing structure by gravitating between the optimal use of debt and equity remains the key strength of Kraus and Litzenberger TOT.

Conversely, Myers and Majluf (1984), in their PO theory concept of corporate financing, suggested the use of a hierarchical approach to financing capital projects, where debt financing is the preferred option to equity regardless of the risk involved. In line with this argument, PO theory indicates that irrespective of the direction of risk changes and whether firms are financially constrained or not, corporate leaders prefer retiring debt to repurchasing equity when they have to reduce external capital (Dierker et al., 2019). Kim, Bae, and Oh (2019), in their empirical study of the relationship between debt level and firm valuation of small and medium enterprises in the US, posited that firms might purposefully determine the level of debt issuance, which can affect firm valuation and the marketing moderation. More so, a firm will have a high propensity to accommodate more debt if the firm is unconstrained financially (Muritala, 2018).

Furthermore, the choice of the capital structure elements such as the use of debt, equity, or retained earnings is the matter of leadership strategy coupled with the prevailing market conditions at the time (Muritala, 2018). Additionally, Muritala (2018),

in his empirical analysis of the capital structure of firms' performance in Nigeria, revealed that asset turnover is an important determinant of financial performance. Chipeta and Deressa (2016), in describing the drivers of the choice of the capital structure of firms in sub-Saharan Africa, suggested profitability as the lead predictor of a firm's choice of a capital structure in most sub-Saharan Africa nations. Chipeta and Deressa further singled out Ghana as the sub-Saharan Africa state where the corporate leader choice of debt as the capital structure stemmed from the robustness of the contractual legal frameworks.

Summary and Transition

In Section 1, I covered the background of the study, problem statement, purpose statement, and conceptual framework, the nature of the study where I gave a brief justification for my selected research method and design, and the review of the professional and academic literature where I expanded on my conceptual framework. I concentrated my study on the strategies national and multinational oil production leaders in a sub-Saharan African nation, such as Ghana use to maintain profitability when crude oil prices fluctuate. I focused my review of literature on corporate capital and finance management theories with the aim of gaining insight into the corporate finance management strategies the business leader employs to maintain corporation's financial performance during crisis periods.

In Section 2, I discuss the rationale for the research method and design. I also provide information on (a) the role of the researcher, (b) research participants, (c)

population and sampling, (d) ethical research, (e) data collection instruments, (f) data organization and analysis techniques, and (g) reliability and validity. In Section 3, I present the findings of the research in detail. I also discuss (a) their applications to professional practice, (b) their implications for social change, (c) the recommendations for further study, (d) reflections in the study, and (e) summary of conclusions.

Section 2: The Project

In Section 2, I covered the purpose statement of the research and provided the detail discussion of the rationale for the choice of a particular research method and design over the others. I expanded Section 2 to include areas such as (a) the role of the researcher, (b) research participants, (c) population and sampling, (d) ethical research, (e) data collection instruments, (f) data organization a, and (g) reliability and validity. I further expanded the data collection processes to include data analysis and systematic steps to the data analysis processes.

Purpose Statement

The purpose of this qualitative, descriptive, single case study was to explore the strategies that national and multinational oil production leaders in the sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate. The population included senior oil production leaders in one national oil and gas corporation in Ghana who had employed successful strategies to maintain profitability when crude oil prices fluctuated and are the focus of this study. Oil marketing leaders, oil production leaders, and energy analysts might use the findings of this study into the dynamics of managing turbulent markets to enable them to maintain a sustained, regular cash flow for their corporations. In this way, the marketing leaders and their families might enjoy a constant flow of income and sustained financial independence for benefiting local communities.

Role of the Researcher

The researcher's role is critical for research credibility. The role is especially important in a qualitative case study, where the researcher is an integral part of the data gathering process (Palaganas, Sanchez, Molintas, Visitacion, & Caricativo, 2017). The researcher is the cardinal data gathering instrument for the research (Marshall & Rossman, 2016); and an animate object with inherent preconceptions and ideologies that can impugn the quality of the research findings (Yin, 2018). Palaganas et al. (2017) argued that the reflexivity of the qualitative researcher is key to minimizing negative impact of the researcher preconceived ideologies. Additionally, Palaganas et al. described reflexivity as a researcher's active involvement in the research process. As the principal data collection instrument, I selected the participants, chose the appropriate methodology and design, explored the relevant literature, and selected the appropriate data analysis techniques to analyze the research data.

Furthermore, I used semistructured, face-to-face interviews, with open-ended questions to interact with my research participants. Kallio, Pietilä, Johnson, and Kangasniemi (2016) argued that semistructured interview techniques are crucial to gaining rich contextual and in-depth information on a topic in qualitative research. After gaining informed consent from the participants (Yin, 2018), I audiotaped the in-depth interviews and produced a verbatim transcription to minimize potential personal bias. I complemented the interview techniques with documentation and direct observation techniques to reach data saturation. The use of multiple methods of data collection is the most credible conduit to achieving methodological triangulation and by extension data

saturation (Fusch, Fusch, & Ness, 2018). To enhance the credibility of the findings and conclusions, I used an interview protocol, member checking, taking field notes, and keeping reflective and methodological journals.

Additionally, I am aware of my vulnerability to the tendency of personal bias stemming potentially from preconceived ideologies from my research focus area, which is to explore strategies oil production leaders deploy to maintain profitability when oil prices fluctuate. Yin (2018) identified existing ideologies and preconceptions as fundamental difficulties for every qualitative case study researcher. As an oil and gas practicing professional who is still active in the industry with over a decade and a half experience in the oil exploration, production and processing, I may have some inherent subjective preconceptions with a tendency to lead to a potential personal bias. I intend to maintain an open mind to listening to viewpoints from my research participants and not mentioning my perspectives even when they are different, as I want to learn from the participants' perspective, especially during the data gathering processes.

Moreover, I employed negative case analysis, methodological triangulation, and prolonged engagement with my participants to enhance research reliability and validity and mitigate potential bias. Liao and Hitchcock (2018) argued that a researcher's prolonged engagement with the participants would build rapport and trust, which would enhance the overall research credibility. I maintained my research participants' privacy, confidentiality, and beneficence at all times by ensuring full compliance with the guiding principles in the Belmont Report Protocol of protecting human subjects. I ensured in

addition to mitigating bias that all aspects of my research conform to ethical standards as specified in the Walden University Institutional Review Board (IRB). I proceeded to data collection processes only after I gained IRB approval.

Participants

The selection of appropriate participants is an essential consideration in ensuring the success of the research process. The caliber of the research participants the researcher selects viz-a-viz how successful the participants have been in their respective business areas will determine the effectiveness of the participant's response to the interview questions. The quality and depth of participants response will indicate how well the researcher will address the overarching research question and by extension, the specific business problem under study. The participants' understanding of the research question is critical to producing a good qualitative study (Agee, 2009). The criteria I employed to select my research participants were (a) the participants must be senior oil production leaders who occupy top portfolios such as the chief executive officer (CEO), chief finance officers (CFOs), chief operation officers (COO), chief marketing officers (CMO), and all other officers who subordinate to the chief officers of the national oil and gas corporation in Ghana that is the focus of this case study, and (b) the participants employed strategies to maintain profitability when crude oil prices fluctuate.

My plan of gaining access to the potential participants was to visit the web site of the corporation and LinkIn site for the email addresses and telephone numbers of the potential participants who met the selection criteria. I briefed the potential recruits

thoroughly about the study by sharing with them via email I retrieved from company's website and LinkedIn the overarching research question and a synopsis of my research purpose statement and set the stage for the interview session using the interview protocol as guide (see Appendix A). King, Horrocks and Brooks (2018) argued that the nature of the information the researcher provides to participants would enhance and quicken the participants' decision-making process.

My strategy for gaining working relation with the participants was that I arranged and took my six participants individually for a modest lunch or dinner at their convenient venue and time to create the rapport and good relationship and a conducive atmosphere for the interaction. Establishing a rapport between the researcher and the participant is a credible conduit to gaining mutual trust, respect, and consent from research participants (Prior, 2018). A quality data source leads not only to the research data validity and reliability, but also enhances the attainment of data saturation (Fusch, Fusch, & Ness, 2018; Yin, 2018). I ensured I scheduled a follow-up member checking mini-interview sessions with each of the participants to correct any potential discrepancies and ensure we were both on the same page. Member checking technique enhances research data validity (Roberts & Kovacich, 2018). More so, I conveyed to the participants of my intention to share the study findings with them.

Research Method and Design

The focus of this qualitative descriptive single case study was to explore the strategies that national oil production leaders in the sub-Saharan African nations deploy

to maintain profitability when crude oil prices fluctuate. The objective of every researcher is to make sense of the research data available (Maher, Hadfield, Hutchings, & de Eyto, 2018). Yin (2018) argued the choice of the research method and design is crucial to meeting the research objectives.

Research Method

Researchers, in their quest to answer the overarching research question and the need to achieve a set of research goals, can either employ qualitative, quantitative, or mixed methods (Borrego, Douglas, & Amelink, 2011). The nature of the research data coupled with the researcher's quest to make meanings of the research data dictates the use of either qualitative, quantitative, or mixed methods (Yilmaz, 2018). The qualitative method involves the use of open-ended questions to explore and gain an understanding of a complex phenomenon or event in its natural settings (Yin, 2018; Baxter & Jack, 2008). Qualitative researchers usually struggle to mitigate bias (Fusch, Fusch, & Ness, 2018), and often use interviews, focus groups and observation to gather data (Marshall & Rossman, 2016). Yilmaz (2018) further argued that qualitative researchers see participants' perspectives of a phenomenon as crucial to the holistic understanding of the phenomenon. Furthermore, qualitative researchers seek to explore the dynamic reality of an event through a framework, which is value-laden, flexible, descriptive, holistic, and context-sensitive (Yilmaz, 2018).

Quantitative methodology, conversely, involves other approaches such as (a) the examination of the relationships between two or more variables (Samii, 2016) and

analysis of the variables using statistical and graphical techniques (Yilmaz, 2018), (b) experimental, (c) quasi-experimental and (d) predictive approaches. The quantitative researcher employs techniques such as questionnaires and surveys as well as systematic measurements involving numerals to gather research data and analyzed parsimoniously for generalizable conclusions (Yilmaz, 2018). Quantitative researchers generally use close-ended questions and test hypotheses. Quantitative researchers take an objective view of the reality of social facts (Flick, 2018) and that the researchers' perspective of reality is single and yet fragmentable (Yilmaz, 2018). In sharp contrast to the qualitative methodology, where methods and approaches emerged and adjusted along the process, the quantitative researcher defines methods and variables in advance based on the hypothesis (Borrego et al., 2011).

As the qualitative and quantitative paradigms superiority arguments continued, some researchers based on the complexity of the research design may find the amalgamation of the qualitative and quantitative research techniques complimentary. Mixed method researchers utilize the techniques of both qualitative and quantitative methodologies in their data gathering and analysis process (Maxwell, 2016). Borrego et al. (2011) argued that the researcher's pragmatism is most crucial in selecting the research method the best answers to the overarching research question. Yin (2018) noted that pragmatism underpins mixed method researcher's worldview. My research focus is on the strategies multinational oil production leaders in sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate using open-ended

questions through semistructured interviews techniques to gather the research data. The quantitative and the quantitative portions of mixed methods were not appropriate for my study since I did not use close-ended questions to gather data, and I did not test hypotheses.

Research Design

The choice of a research design is a consideration every researcher will have to make. Research design is undoubtedly a crucial component of the doctoral research process that helps in the exploration of research problems or phenomena. The design is a set of systematic and logical processes the researcher employ to arrive at reliable conclusions (Yin, 2018). Therefore, the selection of suitable design enhances the successful execution of research questions and meeting the research objectives (Maher et al., 2018). I considered four potential qualitative designs that included ethnography; phenomenology; narrative; and case study for my study. Ethnography is applicable when the researcher requires describing and interpreting group culture and practices over some time for characterizing the group's culture (Bass & Milosevic, 2018). Studying the culture of a group is undoubtedly a daunting task that requires researcher dedication and resources. The dynamic nature of a group's culture will require an in-depth interaction to gain a clearer understanding of the group behaviors (Thomson, Petty, Ramage, & Moore, 2017). Rishbeth, Ganji, and Vodicka (2018) further argued the understanding of a group culture improves cultural literacy and supports social justice in business practice. In my research, I did not be study any group culture but only sought to explore the strategies

multinational and national oil leaders employed to maintain profitability when crude oil prices fluctuate implying that ethnography would not be appropriate for my study.

Phenomenology design involves the description of an individual or group of people lived experiences with a phenomenon (Lewis, 2015). As the name depicts, researchers use phenomenology to seek an in-depth understanding of a particular phenomenon or group of phenomena of interest (Errasti-Ibarrondo, Jordán, Díez-Del-Corral, & Arantzamendi, 2018). Webb and Welsh (2019) defined phenomenology as the research design that entails the description of the collective meaning of individuals lived experience about a particular phenomenon. My study did not involve inquiring into the meanings of lived experiences of individuals or group of people indicating that phenomenology was not suitable.

In narrative design, the researcher focuses on the participant's real-life stories or historical stories about a cultural unit (Hickson, 2016). Shanahan, Jones, and McBeth, (2018) argued that narrative techniques support the independent scholar in the areas of specific policy process applications such as operationalization of concepts. In my study, I did not explore participants' real-life stories, which rendered narrative design as not being suitable. I selected the case study design for my research after considering my research design intents. The understanding of the strategies of maintaining profitability when oil prices fluctuation amidst an uncertain business environment required an in-depth exploration of the contemporary phenomenon of oil price fluctuations within the real-world business context.

Yin (2018) identified a case study as appropriate for exploring a phenomenon or an event within its real-life context, and hence my selection of the case study design. Additionally, I sought through the in-depth interaction with my interviewees to maximize my contact time with them in order to capture all the relevant situations and circumstances in relation to the phenomenon under study to ensure the collection of a rich data set for my study. Yin (2018) argued that single case study is most appropriate when the research wishes to maximize the access to a research participant to collect a rich research evidence within a specified period, which rendered the single case study suitable for my research. The attainment of data saturation in the research data acquisition and analysis processes is the penultimate goal of every independent scholar. In my study, I deployed semistructured interview techniques alongside direct observation and documents to gather the primary research data. The researcher use of multiple data sources to achieve methodological triangulation contributes to the attainment of data saturation (Fusch, Fusch, and Ness, 2018).

Population and Sampling

The identification and selection of the right group of persons as participants for the research are critical to the overall success of the research. Even though a stringent sample size requirement is not a key factor for qualitative research, Yin (2018) suggested a sample size of one to 10 as appropriate for a qualitative case study. Gentles, Charles, Ploeg and McKibbon (2015) observed that the need for data saturation in part drives sample size. Patel, Doku and Tennakoon (2003) argued that sample size requirements in

addition to ethical principles, the type of study design, and the data collection methods are among the critical consideration in recruiting research participants. In this qualitative single case study, the population consists of 10 of the senior oil production leaders in one national oil and gas corporation in Ghana who have employed successful strategies to maintain profitability when crude oil prices fluctuate and are the focus of this study.

I used the purposeful sampling technique to select six research participants who met the selection criteria. Qualitative researchers use purposive sampling when they wish to focus on participants with particular characteristics who can assist in meeting the research objectives (Etikan, Musa, & Alkassim, 2016). Mosera and Korstjensc (2018) argued that purposive sampling techniques ensure the researcher is deliberate in recruiting potential participants who are most informative and knowledgeable on the phenomenon under study. Gentles et al. (2015) also argued that purposeful sampling is the most used sampling technique in qualitative case study research.

To qualify as a participant for this study, the participant must be a senior oil production leader who occupies leading roles such the CEO, CFO, CMO, and COO as well as all other strategic managers who reports directly to these senior leaders of one national oil and gas corporation in Ghana that is the focus of this case study, and the participants employed strategies to maintain profitability when crude oil prices fluctuate. The qualitative researcher requires an information-rich data source to make credible conclusions with a high degree of validity (Etikan et al., 2016; Gentles et al., 2015). Purposeful sampling techniques enable the qualitative researcher to identify and select

the information-rich cases and data sources that will meet the research objectives and consistent with the methodological approach deployed (Mosera & Korstjensc, 2018; Patton, 2015). The suitability of the sampling technique the researcher employs will undoubtedly impact the quality of the qualitative research findings (Mosera & Korstjensc, 2018).

Attaining data saturation is among the topmost priority of every qualitative researcher (Morse, 2015). A quality and rich data set as against a quantity and thick data set will guarantee an easy attainment of data saturation (Fusch & Ness, 2015). I ensured I continued interviewing my research participants and collecting data alongside using other techniques until I identified my data saturation point where no new information was available or when redundant themes emerged. Fusch and Ness (2015) argued that a qualitative researcher reaches data saturation when no new information emerges and where the researcher begins to hear the same comments repeatedly from the interviewing process. Furthermore, the appearance of replications in the data set after the researcher collects all data signify data saturation point (Morse, 2015).

Ethical Research

Ethical considerations are undoubtedly one of the crucial elements that indicate the degree of researcher's trustworthiness and credibility (Yilmaz, 2018). King, Horrocks, and Brooks (2018) argued that the qualitative researcher must demonstrate reasonably the ability to guarantee and safeguard the privacy and confidentiality of all human participants to gain institutional approval to conduct the research. My research

involves the use of semistructured and face-to-face interview techniques with open-ended questions to interact with my research participants who are the successful oil production leaders in one national oil corporation in Ghana to gather the research data. Additionally, I employed direct observation alongside related company documents to gather the research data. I worked to maintain my research participants' privacy and confidentiality at all times by ensuring full compliance with the guiding principles in the Belmont Report Protocol of protecting human subjects. I proceeded to contact the research participants only after I gained Walden University IRB approval (Approval Number 03-10-20-0922142).

Furthermore, I ensured that each participant signed the participant's informed consent form and returned to me via email before the data collection process. In the participants' consent form I explained the purpose of the study, how I intended to preserve data confidentiality, the types of information collected, and the description of the interview process including the interview duration. The voluntary signing of the informed consent forms by research participants is an essential ethical requirement when conducting research involving human elements (Cini, 2018; Qamar, 2018).

I reminded the participants their rights to discontinue the interview process anytime. I stored the data I gathered securely with restricted access to only the researcher and I will destroy after 5 years. In the event of a participant withdrawing from the interview process I would turn over the interview notes to the participant to destroy as well as letting the participant delete the dialog on any recording device. The continuous

assurance the researcher gives to the participants is a crucial ethical responsibility of the researcher (Qamar, 2018). I reminded the participants that there was no incentive or reward in taking part in the research process and that I will be sharing the research findings with them after completion of the study. To safeguard the privacy and confidentiality of my participants, I elected to use pseudonyms to identify the six research participants who took part in the study.

Data Collection Instruments

The purpose of this qualitative descriptive single case study was to explore the strategies that national and multinational oil production leaders in the sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate. The conduit through which a researcher acquires data contributes to producing reliable and valid research. The researcher is the key data collection instrument in qualitative research (Marshall & Rossman, 2016). Consequently, I was the primary data collection instrument for this research. Furthermore, deployed semistructured face-to-face interview techniques with seven open-ended questions to interact with my research participants to gather the primary research data.

Oplatka (2018) defined semistructured interviews as the interaction between the interviewer and a respondent in which the interviewer has a general plan of inquiry leading to an in-depth discussion through a careful questioning and an attentive listening approach. DeJonckheere and Vaughn (2019) argued that semistructured interview techniques are crucial to gaining rich contextual and in-depth information on a topic in

qualitative research. Yeong et al. (2018) and Voustina (2018) posited that the use of semistructured interview techniques offers the researcher the flexibility to paraphrase when required for the participant and probe to elicit deeper and richer research data. I complemented the interview techniques with the use of company documentation and direct observation techniques using observation protocol as a guide for the data collection to enhance the easy attainment of my research data saturation.

Additionally, I used other research data gathering tools such as field notes, methodological notes in a reflective journal. The use of field notes technique ensures the researcher maintains and documents accurate contextual research data account (Phillippi & Lauderdale, 2018). Reflective journaling involves researcher's thoughts, opinions and reflection of the research processes and participants. Hussein (2018), as well as Wallin and Adawi (2017), argued that a reflective journal enhances the independent scholar's conceptual understanding of the research topic under investigation, promotes growth mindset, and helps illuminates the students' inner thoughts. The researcher takes field notes during direct observation process. Furthermore, the use of methodological notes in journals will ensure the researcher appreciates his or her positionality with respect the research process (Orange, 2016).

The use of multiple methods of data collection contribute to achieving methodological triangulation and by extension data saturation (Fusch, Fusch, & Ness, 2018). I enhanced the reliability and validity of my envisaged research findings by employing techniques such as interview protocols (see Appendix A) and direct

observation protocols (see Appendix B), member checking, taking field notes, and keeping a reflective journal. Member checking enhances qualitative research rigor (Smith & McGannon, 2018), and qualitative research credibility (Ebadi & Rahimi, 2018).

As the data collection instrument, I am vulnerable to personal bias through my preconceived ideologies. Yin (2018) identified the existing ideologies and preconceptions as fundamental difficulties for every qualitative case study researcher. Gordon (2011) and Holloway, Brown, and Shipway (2010) posited that researchers who employ direct observation as a data collection instrument cannot separate their personal perspectives and biases. However, researchers who identify their position up front and maintain open mind can mitigate their personal biases (Holloway et al, 2010; Wolcott, 2009). I deliberately maintained an open mind to listening to viewpoints from my research participants and guard against mentioning my perspectives even when they are different, as I want to learn from the participants' perspective, especially during the data-gathering processes.

Data Collection Technique

The collection of research data is one of the essential processes that determine the quality of the research process. In my study, the overarching research question was, what strategies do national and multinational oil production leaders in sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate? The robustness of the conduits through which the qualitative case study researcher collects research data is central to the research credibility. Yin (2018) has identified six qualitative case study

data collection techniques, which are interviews, documents, archival records, direct observations, participant-observation, and physical artefacts. In this study, I used semistructured interviews alongside direct observations, and company documentation techniques to collect the research data. The use of multiple data sources ensures the qualitative researcher attains triangulation and research trustworthiness (Fusch, Fusch, & Ness, 2018).

Interviewing technique forms an essential component of the qualitative data collection process (Fritz & Vandermause, 2018). Having received the signed consent form from my informants, I arranged a conducive environment to enhance the establishment of rapport, which was critical to my successful interview processes. The creation of rapport and existence conducive environment enhances the eliciting of rich data from research participants (Heath, Williamson, Williams, & Harcourt, 2018). I used interview protocol (see Appendix A) as a guide for the successful deployment of the semistructured interviewing technique. Interview protocol shows an overview of the systematic steps in the researcher's interview plan along with the interview questions (Yeong, Ismail, Ismail, & Hamzah, 2018). A robust interview protocol guarantees the interview data quality (Yeong et al., 2018).

The steps in my interview plan were (a) a brief and clear introduction to the interview session with greetings and introduce myself to participant; (b) handing over the consent form, go over contents, and answer questions and concerns of the participant; (c) give the participant copy of consent form; (d) turn on recording device after gaining

verbal permission from the participant; (e) follow procedures to participant with coded identification and noting the date and time; (f) start the introduction to the interview process by asking the first question; (g) follow up with related probing questions; (h) end interview sequence, schedule a follow-up member checking interview to verify my interpretation of the participant's responses; and (i) thank the participant. I asked probing questions as follow up questions and noted nonverbal cues. Some advantages of using an interviewing technique to gather research data include the following: it (a) provides in-depth and rich contextual information on the particular phenomenon under investigation (Denzin, 2009), (b) creates conducive grounds for participants to express their in-depth perspectives of events, and (c) ensures the researcher discovers other potential relevant sources evidence for the research (Yin, 2018). Some disadvantages of semistructured interviewing techniques include the following: (a) it requires some skill set to gain the relevant information from the research participants, and (b) qualitative interviewing techniques are susceptible to both interviewer and interviewee bias, which may impact the accuracy of data.

Direct observation was another technique I used to collect research data. Bernard (2017) defined direct observation as the act of watching people and recording their behavior on the spot and in real-time. I used observation protocols (See Appendix B) to guide me through the observation process. I spend 2 hours a day, days a week over 2 weeks to take ample field notes of my virtual observations of interactions between the oil production leaders and their subordinates. I switched from physical observation to virtual

observation for the safety of my participants and my personal safety due to COVID-19. Some advantages of direct observation include (a) capturing the nonverbal actions of the informants in real-time and (b) allowing qualitative researchers to employ direct observation easily alongside other techniques such as interviewing to explore cases context (Yin, 2018). The disadvantages of using direct observation lies in the fact that (a) the technique is time-consuming and burdensome for a single researcher; (b) informants may fake their action, which the researcher might interpret as genuine if there are aware the research is observing them; and (c) there may be an inherent ethical dilemma in observing participants without them knowing (Bernard, 2017).

Documentation is another data gathering technique that is unobtrusive and may involve no human interface. Corporation's annual reports, financial statements and cash flow documents, email correspondences, and administrative documents, among others, are the potential sources of documentation for qualitative research data (Yin, 2018). I retrieved key documents such as the corporate sales performance records, crude oil marketing materials, and annual financial report from the corporation's website to gain insight into the corporation's financial performance. Some advantages of documentation include (a) contain specific and traceable information that enhances research data credibility (b) documents can be reviewed severally and may not require the researcher to memorize the content as it is always handy and referable repeatedly. The disadvantage of documentation as a research data gathering technique are (a) the documentation may not to be current and accurate (b) the researcher may not always get access to the required

company documentation (c) there may also be associated researcher selectivity bias in using documents (Yin, 2018).

Research data reliability and validity will contribute to producing meaningful research findings worthy of replication. I deployed member-checking techniques by arranging short follow-up interviews with each of my participant to gain their reflective feedback. I presented to the participants my interpretation of the research data report, and allowed for the validation of my interpretations of their responses to the interview questions. Thomas (2017) argued that the research participants' systematic validation of the research data with the researcher enhances research credibility and validity. The use of member checking procedures ensures the elimination of miscommunications between the researcher and the participants (Carlson, 2010), leading to reliable research data. Furthermore, I kept a reflective journal to help me keep track and appreciate the developing phenomenon of oil price fluctuations under study. Wallin and Adawi (2017) posited that keeping a reflective journal illuminates the contents of a phenomenon under investigation, and shapes the researcher thought process as the researcher progresses in the study.

Data Organization Technique

The techniques in research data organization contribute to maintaining research data privacy and confidentiality. Research participants are increasingly getting concern about security of data they voluntarily offer to the researcher (Joly, Dyke, Knoppers, & Pastinen, 2016). The safety and security of research data is a key element that dictates the

research participant's voluntary decision-making process to participate in the research (King, Horrocks & Brooks, 2018). In this study, I used an independent audio recording device together with my Samsung smart phone audio recorder as a back up to record the interview data. I saved securely all electronic research data on my hard drive and secured it with a password. Additionally, I ensure I stored all field notes and other hard copy research data such as the relevant corporation's business document, transcript notes in locked cabinet. I will ensure to keep all research documents secured for 5 years, after which I will destroy all the hardcopy documents and delete all the electronic data from my hard drive. I will destroy all forms of the evidence gathered for the research after 5 years.

As an extra precaution, I formatted the hard drive of all its content to ensure I did not inadvertently leave any research data undeleted. Furthermore, using the aggregated data from the various data collection techniques such as the company relevant documentation, semistructured interview data and direct observation fields notes (Lockett, Currie, Finn, Martin, & Waring, 2014), I sorted the key concepts and ideas into coded categories in a software program such as NVivo. The aggregated coded piles the researcher collects, pave way for methodological triangulation, which forms the initial step in making sense and meanings out of the research data (King et al., 2018; Lockett et al., 2014). I ensured I coded the source of all data to begin the methodological triangulation of all the data, which is the precursor to the data analysis process.

Data Analysis

Qualitative research data analysis is one of the crucial segments in the research design process that gives meaning to the research data gathered. The data analysis technique the researcher employs will impact the validity and reliability of the research (Orquin & Holmqvist, 2018). Having the right quality data set is essential, but the selection the most appropriate method that will make meaning out of the evidence is more critical. The research strategy, the nature of the research question, and the researcher's philosophical underpinning will most likely determine the data analysis method adapted (Castleberry & Nolen, 2018). Every novice researcher will probably adopt a technique that provides flexibility and focus to the researcher. The thematic analysis undoubtedly provides that flexibility; it is straightforward and capable of analyzing different lengths and sizes of data set (Castleberry & Nolen, 2018). The selection of an appropriate data analysis technique that will support in providing in-depth analysis to the research question will contribute to the credibility of the final research document (Castleberry & Neon, 2018; Yin, 2018).

Yin (2018) identified five data analysis techniques, which are pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. As a novice independent scholar seeking to explore the strategies that national multinational oil production leaders in the sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate, I analyzed each concept and idea of the data that I gathered from each of the semistructured interview techniques, direct observation, and relevant company documentation. A data analysis method that is systematic and flexible

(Braun & Clark, 2006; Castleberry & Nolen, 2018), will be useful in providing meaning to the research data. I used methodological triangulation techniques to make meanings out of the multiple data sources. The use methodological triangulation along member checking helps the researcher to reach the point of identification of redundant information and by extension data saturation (Fusch, Fusch, & Ness, 2015).

Additionally, I utilized qualitative data analysis software called NVivo 11 plus software to assist in the data organization and providing a graphical portrayal of the aggregated data that I gathered from all the data gathering techniques for easy identification of the patterns. I read and re-read thoroughly the aggregated data to identify concepts and ideas and formulate them into coded categories in the Nvivo software. I analyzed the data critically into graphical representations and connected the related categories of coded concepts and ideas using lines and or dots. Then, I carried out repetitive reviews of the coded categories and cross-examined the data, and asked myself what the key categories of concepts and ideas mean. Making sense of the data will inevitably culminate into themes. The in-depth literature review of the TOT posited by Kraus and Litzenberger in 1973, which is the conceptual theory for my study may likely help me in the identification of potential thematic areas such as the debt-to-equity and corporate finance management strategies the business leader can adopt to maintain optimum cash holdings that guarantees the corporation's profitability when crude oil prices fluctuate. I compared the themes with the conceptual framework theory as well as other theories and studies from the literature to achieve a robust and comprehensive data

analysis process.

Reliability and Validity

Research data quality is a noteworthy consideration that determines the robustness and trustworthiness of the research findings. Depending on the philosophical underpinnings, specific criteria may be used to characterize the quality of the research data (Yin, 2018). For instance, while some criterion may best be suitable for quantifiable data such as reliability and validity; others may be difficult to quantify with certainty and will require qualitative approaches to judge the trustworthiness of the research data (Wolcott, 1994). The qualitative criteria for judging the research reliability and validity include dependability, transferability, credibility, and confirmability (Wolcott, 1994; Marshall & Rossman, 2016). Each of these characteristics, depending on the mode of deployment, will impact the quality of the qualitative research data.

Reliability

The research data reliability has always been central to determining the quality of the research findings. In the qualitative perspective, the term dependability and auditability characterize the quality of research findings (Yilmaz, 2018) and refers to the consistency of the research study over time and across different researchers and different methods (Miles & Huberman, 1994). Furthermore, the critical threat to research reliability originates from both participants and the researchers' errors and bias. For example, the state and nature of the environment the participants find themselves in during the data collection process may influence the quality of the responses. In my

research, I enhanced the dependability of my envisaged research findings through member checking, interview protocols, direct observation protocols, and methodological triangulation. In addition to the semistructured interview, employed documentation and direct observation techniques to ensure data saturation. The use of multiple data collection techniques has been effective in attaining data saturation leading to a dependable research finding (Fusch & Ness, 2015; Yin, 2018).

Validity

Achieving valid research data is undoubtedly a crucial consideration in any scholarly research. The validity of qualitative research characterizes the research transferability, credibility, and confirmability (P. Fusch, Fusch, & Ness, 2018). More so, valid research will support in managing research bias (Yin, 2018). The philosophical leanings the researcher adapts, determines, largely, the origin of the data quality issues. Lincoln and Guba (1985) argued the process of producing a valid research data relies on the researcher's ability to overcome the potential threats relating to the research data validity. Overcoming this bottleneck will require the researcher to provide an in-depth and detail research design, rationale for the methodology, and the techniques the researcher uses to obtain the rich data for the understanding of the phenomenon (Kim, Sefcik, & Bradway, 2017). The philosophical underpinnings of the researcher may determine the approach to bias in the research.

For example, some qualitative researchers may choose to acknowledge and embrace research bias (Boblin, Ireland, Kirkpatrick, & Robertson, 2013), while others

strive to mitigate research bias by seeking to corroborate a technique such as interview with other sources of evidence (Yin, 2018). The choice of an appropriate data gathering technique such as semistructured and in-depth interview as against techniques such as a questionnaire will enhance the validity of the research process. For example, the use of semistructured interview techniques to ask follow-up and probing questions coupled with follow-up member checking interviews ensures the researcher clears all potential doubts in the interview process and consequently enhance the researcher's reflexivity during data analysis (Darawsheh, 2014; Liao & Hitchcock, 2018). In my research, I achieved credibility and confirmability through member checking, interview protocols, direct observation protocols, and methodological triangulation. In the case of transferability, Marshall and Rossman (2016) argued that readers and future researchers but not the researcher could determine the research transferability. More so, I followed strictly and meticulously the research data collection and analysis techniques for the research design to guarantee the validity of the envisaged findings from the research.

In addition, I complemented the interview technique with the use of company documentation and direct observation technique to enhance the easy attainment of data saturation. Researchers deploy multiple data gathering techniques to enhance the easy attainment of methodological triangulation (Denzin, 2009:2012). The potential ability to reach data saturation through methodological triangulation is a credible conduit to achieving research credibility, transferability, and confirmability (Denzin, 2009; Fusch, Fusch, & Ness, 2018).

Summary and Transition

In Section 2, I included a succinct description of the purpose statement and detailed the rationale for the choice of a particular research method and design over the others. I expanded section 2 to include areas such as (a) the role of the researcher, (b) research participants, (c) population and sampling, (d) ethical research, (e) data collection instruments, (f) data organization and analysis techniques, and (g) reliability and validity.

In Section 3, I present the detail findings from the research. I also discuss (a) the implication for social change, on businesses, and professional practices (b) recommendations for further study, (c) my reflections in the study, and (d) summary of my research conclusions.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative, descriptive, single case study was to explore the strategies that national and multinational oil production leaders in the sub-Saharan African nations use to maintain profitability when crude oil prices fluctuate. I used Kraus and Litzenberger's (1973) TOT as the conceptual lens to conduct my research. I obtained consent from each of my study participants after I received IRB approval to conduct the study. The population included 10 of the senior oil production leaders in one national oil and gas corporation in Ghana who had employed successful strategies to maintain profitability when crude oil prices fluctuated. The findings from the study revealed the strategies oil production leaders used to maintain profitability when crude oil prices fluctuate.

To help organize and code the data, I used NVivo 11 software. To maintain the validity and reliability of the research, I also used methodological triangulation of the interviews, company documentation, journal notes, and observations. I found that these oil production leaders of the national oil corporation in Ghana used three broad strategies to maintain profitability when crude oil prices fluctuated: (a) enhancing operational efficiency through organizational restructuring and competitive oil price hedging, (b) business portfolio diversification through effective asset management and innovative technologies, and (c) optimization of capital structure through debt restructuring.

Presentation of the Findings

The overarching research question for this study was as follows: What strategies did national oil production leaders in sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate? I used Kraus and Litzenberger's (1973) TOT as the conceptual lens to conduct my research. I conducted virtual semistructured interviews using the Google Duo application and gained in-depth perspectives on the strategies these oil production leaders used to maintain positive cash flow. I carried out virtual observations of the oil production leaders in their meetings and interactions with the workforce. I observed each leader for 2 hours a day for 2 days. I used 2 weeks to gather ample notes from the participant observations.

Initially I planned to conduct face-to-face interviews and observations. However, due to the COVID-19 pandemic and locked borders, and to the need for my safety and that of my participants, I changed to virtual interviews and observations. I focused my observations of the oil production leaders in three areas: (a) the physical settings, (b) how the oil production leader communicated, and (c) the actions of the business leader. I used an interview protocol (see Appendix A) and observation protocol (see Appendix B) to standardize the data gathering process. I retrieved all the required secondary documentation, such as annual operational reports and consolidated financial statements from the partner firm's website.

I carried out methodological triangulation of the semistructured interview transcriptions, company documentation such as the annual reports and cash flow reports, and the observation recordings to ensure I maintain the validity and reliability of the

research. The participants' interviews constituted the largest source of data for my research, and the direct observations and reflective journaling formed the least sources of data for my research. I made a follow-up member checking with each of the participants to validate and ensure the accuracy of my interpretations of the responses from the oil production leaders. I reached data saturation after my sixth interview, coupled with the follow-up repeated member checking. Fusch and Ness (2015) argued that repeated member checking facilitates the attainment of data saturation. Braun and Clarke (2019) suggested the attainment of saturation as the point of emergence of redundant themes. The relevant portions of the firm's annual report I used for the analysis were (a) the core value statements, (b) business performance overview (c) business model and strategies, and (d) project financing.

I aggregated the data that I gathered from all the data gathering techniques to identify patterns. I read and re-read the aggregated data thoroughly and with the use of methodological triangulation, identified concepts and ideas, and formulated them into coded categories. Then, I carried out repetitive reviews of the coded categories and cross-examined the data until I was confident I made meanings out of key categories of concepts and ideas. I assigned pseudonyms to my participants and partner firm to ensure privacy and confidentiality. I found that oil production leaders of the national oil corporation in Ghana, herewith referred to as Tema Oil Production Corporation-TOPC (pseudonym), used three broad themes to maintain profitability when crude oil prices fluctuate. The three themes were (a) enhancing operational efficiency through

organizational restructuring and competitive oil price hedging, (b) business portfolio diversification through effective asset management and innovative technologies, and (c) optimization of capital management structure through debt restructuring.

Emerging Theme 1: Enhancing Operational Efficiency Through Organizational Restructuring and Competitive Oil Price Hedging

The first theme that emerged after the methodological triangulation of the study data was the enhancement of operational efficiency. The operational efficiency had two areas of focus: organizational restructuring and competitive oil price hedging. All participants shared that efficiency in oil production operation was contributory to the corporation's profitability. Rashid (pseudonym) shared that "shareholders have invested in us and expecting some dividends; we, therefore, operate to ensure that our net income is greater than the shareholder's equity or investment. We do this by ensuring that our operational efficiency is at optimum level."

Bismark (pseudonym) submitted that "improved efficiency through lean while maximizing production led to enhanced cash flow of our corporation." Agostinho and Weijermars (2017) posited that the optimization of cash flow from operations via efficient balancing of capital expenditure (CAPEX) with operational expenditure (OPEX) in volatile markets has often impacted positively on the corporation's profitability. Danny (pseudonym) and Sammy (pseudonym) remarked that in responding to rapid fluctuations in the crude oil market, Danny and Sammy had delayed some capital investment that had minimal impact on their business operations and employed varied ways to eliminate or

minimize waste. The need to pursue operational efficiency was further echoed in TOPC's 2017 annual report as that the corporation had balanced key investment decisions against the need to efficiently utilize revenues in the low price oil regimes (TOPC Annual Report, 2017).

During my direct observations, I found that the participants' office areas appeared very spacious and neat with well-positioned office accessories such as printers, paper shredders, photocopiers, and fax machines. Working files orderly arranged on the managers' large deskwork. A lot more visual management systems (VMS) well displayed in the offices internal walling, as a possible indication of a robust lean culture. I noticed from my observations that the VMS showed the company's key financial performance indicators. I observed that files moved from the managers' table were placed neatly in a cabinet and labeled, the action I interpreted as well-organized business leaders. Glegg, Ryce, and Brownlee (2019) suggested in their empirical study on visual management that VMS provide robust change management models that contribute to effectiveness and efficiency in leadership performance. I noted in my reflective journal that oil production leaders kept daily task schedules, which will usually start with morning meetings. The business leaders spend most of the morning meetings on hot issues such as the crude oil market collapse, which was consistent in all my observations.

Organizational restructuring. Organizational restructuring formed the core of efficiency in business operations. Rashid, Chester (pseudonym), Bismark, and Sammy had attributed the success of their strategies in maintaining financial performance amidst

the 2014 market collapse and the era of shale boom to robust organizational restructuring. Forcadell, Sanchez-Riofrio, Guerras-Martín, and Romero-Jordán (2020) in support restructuring, argued that business portfolio restructuring is an effective strategy for corporate performance, especially in economic crisis. The participants made various submissions in support of the relevance of organizational restructuring to effective business performance. Rashid shared that

The collapse of prices in the international market, of course, takes a huge toll on oil corporations or oil marketing organizations. And I indicated that under this particular circumstance, there is a need for companies to take drastic measures that include a rigorous restructuring mechanism. Restructuring could involve so many actions. Now, it is a way to minimize pressure on the company's expenses. And by minimizing the pressure, that will mean that you would have to lay-off as much as staff as possible, especially when you can do so by trying to categorize the essentiality of staff.

Chester, in further acknowledgment of the views detailed by Rashid, posited that

Apart from hedging, we also reduce our operational expenses by laying down some of our workers. We assessed all workers based on their labor efficiency at the exploration, production, and processing units. Those workers whose marginal productivity was lower than their marginal labor cost to the company were laid off. This I mean downsizing of the company to increase optimum cash reserves. While downsizing the workforce base of a corporation could prove to be an

effective strategy in maintaining an optimum Opex and Capex for a corporation's profitability, downsizing strategy execution should not harm the corporations' asset integrity and near-term production. Fernández-Menéndez, Rodríguez-Ruiz, López-Sánchez, and Delgado-Piña (2020), in a reaffirmation of my study finding, opined that personnel downsizing coupled with other radical organizational changes such as new equipment, techniques or processes could hurt firm's productivity. Yigit (2018) argued that effective corporate financial restructuring would be the only leverage to avoiding bankruptcies and improving financial performance in a turbulent market. Kraus and Litzenberger (1973), in their TOT of capital markets, suggested that taxation and bankruptcy penalties are the contributing factors to determine leverage within a corporation's business operations. Furthermore, the TOPC 2017 annual report indicated that management focus on petroleum development projects through infrastructure upgrade alongside organizational restructuring ensured the balancing of key investment decisions and efficient utilization revenues in the face of lower oil prices.

Oil price hedging. Oil price hedging contributed to the organizations' efficient performance and corporate profitability. A corporation's operational efficiency characterizes the ability of the corporate leaders to negotiate and secure in advance long-term oil pricing agreements with clients through competitive hedging. All participants' responses addressed specifically the strategic nature of oil price hedging to the corporation's financial performance. Bismark explained that “to sustain profitability amidst the shale oil boom, oil companies have secured long term hedging contracts,

insured oil prices with insurance firms, and maintained sales in future markets.” Sammy further noted that

Hedging did the magic for our company. Most of our future contracts with our partners were hedged at a price suitable to all partners, so when the prices plunged, our company experienced less risk as well as profitability because our products have been sold in advance. As a producing company, we adopted the best optimal hedging ratio. We adopted the utility maximization methodology as our optimal hedging ratio strategy used in both financial, operational, and oil price risk management, as it took into serious account the aspect of risk aversion and relied on the utility maximization framework to estimate the optimal hedge ratio.

More so, Khalid (pseudonym) detailed that:

Oil price hedging of the corporation's portion of crude oil at a reasonable oil price guarantees short-term and long-term value for each asset. The hedged oil prices were compared to world market prices over the period and found to have contributed to the corporation's profitability in the short and midterms.

In confirmation of my study findings on hedging as a strategy to support a corporation's effective performance, Chun, Cho, and Kim (2019) suggested that oil-producing firms have often resorted to hedging of prices in periods of rapid price volatilities to stay competitive and maintain their financial performance. Wang and Liu (2016), in their empirical study on crude oil market volatility, concluded that oil price hedging enhances a corporation's business portfolio attractiveness through the de-risking

of investments. Corporate entities with competitive hedge ratios will always attract investors (Wang & Liu, 2016).

In further support of the hedging strategy, TOPC's 2017 consolidated financial statement indicated that the corporation's financial assets are its most effective hedging instruments. Moreover, the corporation's financial assets, which can serve as hedge instruments, are in four categories: (a) profit or loss financial assets, (b) loans and receivables, (c) held-to-maturity investments, and (d) available for sale financial investments. (TOPC Financial Statement, 2017, p.86)

Emerging Theme 2: Business Portfolio Diversification Through Effective Asset Management and Innovative Technologies

The strategic diversification of a corporation's business portfolio has been instrumental in enhancing the corporation's competitiveness amidst market uncertainties (Shari, Mahat, & Dahir, 2019). All my research participants, except Khalid, stated categorically the use of diversification as a strategy in de-risking the business portfolio and maintaining profitability when crude oil prices fluctuate. The corporation's business portfolio diversification (BPD) had two areas of focus: effective asset management, and the use of innovative technologies. The participants shared that strategic BPD was contributory to the corporation's robust financial performance in oil price downturns.

For example, Chester explained that secured long-term oil supply agreement, diversification of investment, and research into newer technologies were the strategies that worked for him during the 2014-15 prolong oil price collapse. Bismark, in response

to the question on specific strategy, deployed to sustain profitability, stated,

I will say the occurrence of some of these sharp price declining in the international market, of course, exposes the vulnerabilities that are inherent in the over-reliance of oil exports, but you know, countries and for most oil exporters and when these happen, for me I think that they present an opportunity for oil exporters to reinvigorate their effort toward diversification and that was what we did. So, the key point that I am making under this particular question is the need for oil exporters to diversify, and that has proven to work for us and some other oil-exporting organizations.

Rashid, Danny, and Sammy agreed that divestiture of investment into other areas similar to their business activities and or into alternative energy sources such as the renewables helped their firm absorb the shock of low oil price windows and sustained profitability.

In affirmation of my study findings on BPD, Agostinho and Weijermars (2017) argued that cash flows of oil companies with no portfolio diversification remain highly sensitive to the volatility of oil prices. Shari et al. (2019) posited that the diversification of a business entity away from its core portfolio reduces the portfolio risk on capital market investment. Other relevant portions of the documents I used for methodological triangulation supported the use of diversification as a strategy to achieve financial performance. For example, the 2017 annual report indicated that

Although upstream activities remain the core of our business, our corporation is following in the footsteps of successful National Oil Companies globally to play

the role of an Enabler of industry development. The philosophy is that as an industry enabler, we would engage in other segments of the industry as are necessary to ensure that the sector develops in an integrated manner (TOPC Annual Report, 2017, p.16).

Expanding on the diversification initiatives, the corporation's annual report revealed:

Through a change in policy direction, the corporation, in 2014, moved into the midstream gas segment with an expanded role as a national gas aggregator responsible for gas offtake and processing with the acquisition of a gas processing company. The diversification strategy involved investing systematically and prudently in building operating capacity and developing gas management capability to manage a broader portfolio of producing assets (TOPC Annual Report, 2017, p.16-17).

Asset management. The prudent management of a corporation's asset in times of economic downturns contributes to the firm's financial performance. In responding to the question on the specific strategies of coping with the phenomenon of rapid oil volatilities, Bismark and Danny shared that the lease or sales of some assets such as office space, redundant assets, and nonperforming assets supported in maintaining positive cash flow. Rashid submitted that a comprehensive review of the firm's asset base through value engineering, and sell off those assets yielding less returns to shore up the company's liquid cash hold-up. The review of TOPC's financial statements and annual report documents revealed the following on prudent asset management:

The total assets of the corporation grew by 21% from GH¢2.47 billion in 2014 to GH¢2.98 billion in 2015. Total non-current assets increased by 57% from 2014 to 2015. The significant growth in assets coming from the petroleum projects which increased by 63%, was driven mainly by the corporation's investment in the new fields. (TOPC Cash Flow Statement, 2017, p.19)

Furthermore, the annual report on asset management stated,

In response to the low oil price trends, critical measures were taken to minimize the impact on the organization. Besides managing costs, we intensified the monitoring of non-operated assets and, wherever possible, developed proactive and efficient alternative solutions to operational challenges alongside our partners. (TOPC Annual Report, 2017, p.12)

In the early morning meetings where I carried out my first cycle of virtual observations, I observed oil production leaders spend 15 – 20 minutes discussing business continuity plans since this period coincided with the current oil price crash. I noted several business leaders who made mention of asset performance reviews. I interpreted that to mean the possible divestiture of nonperforming assets. Indeed, I confirmed the interpretation of my observation after a follow-up review of my observed notes with the business leaders. Marshall and Rossman (2016) and Wolcott (2009) suggested the participants' validation of the researcher's observation notes as critical to mitigating researcher personal bias.

Innovative technologies. Oil firm's creative undertakings would play leading

roles in their profitability drive. Innovation through research and development ensured efficiency in production operations and optimal recovery. Hassani, Silva, and Al Kaabi (2017) found that innovation through technology in petroleum and a petrochemical firm reduces the cost of oil production recovery and maintains a competitive advantage in oil price volatile regimes. Rashid, responding to the strategies employed to maintain profitability amidst shale technology boom, remarked,

As you know, shale producers break-even points are comparatively higher than the conventional recovery methods such as ours, so we adopt measures that will let us sell below this minimum price of the shale producers to stay competitive. The strategy includes constant improvement in operational efficiency through innovative techniques.

Danny, agreeing with Rashid on the strategies to maintaining financial performance amidst the shale boom pointed out that

We have always been coping through research and development: we adopt the best and newest form of technology to minimize cost and improve on revenue. The innovative technologies helped us to reduce wastes in the operations of the company, and by this, we re-align the operations of the company to suit areas that give income optimization.

Furthermore, the annual report indicated the need for investing in the development of cutting-edge proprietary technology as a critical element of achieving stand-alone, and ultimately, world-class operatorship (TOPC Annual Report, 2017). The

annual report further emphasized that “in 2015, the corporation undertook preliminary works towards the development of a state of the art Research and Technology Centre to meet the corporation’s needs (TOPC Annual Report, 2015, p.12). Murtazashvili (2017), as well as Eisenband and Carroll (2019), suggested the improvement in efficiency through innovative technologies contributed to reducing the break-even points of shale patch producers and making them competitive to the conventional oil production techniques.

I observed some interesting patterns in each of the six participants while they carry out daily tasks in their private offices. I observed that oil production leaders deployed a multifaceted state of art communication systems to carry out everyday tasks. In addition to the 30-40 minute scheduled meeting, I observed managers spending the rest of the time on telephones conversation. Most of the calls ranged from 5 minutes to 15 minutes. The facial expression seems to suggest who the managers might be talking with on the other side. The potential people I deduced could include peers, superiors, and subordinates.

The participants’ office settings gave me an indication of the quantum of information the participants’ process in a day, and the participant role as the figurehead. In my reflective journal, I noted that oil production leaders posed a calm composure in all the conversations regardless of who there were talking with from the other side. I interpreted this to mean a demonstration of astute professionalism. According to the 2017 annual business report on corporation’s core values relating to *professionalism, creativity,*

and innovation, “we shall always be ethical, effective, and show objective attitude in the pursuit of our goals. We encourage creativity, which shall be at the forefront of innovation in our business” (TOPC Annual Report, 2017, p. 5).

In my observations of the business leaders, I assumed from the pattern of the conversations that leaders played the role of negotiator, resource allocator, coordinator, and disseminator of information. Amidst the social distancing phenomenon, which was in full implementation at the time of my virtual observation, the deployment of such innovations in communication ensured effectiveness in the managers’ delivery and business continuity. In aligning to the findings on innovation, Ibrahimov (2018) argued that the strength and competitiveness of the contemporary petroleum firm lay in the firm’s leadership ability to use state-of-art innovations in its operation. Ibrahimov concluded innovation would impact positively on the corporation’s financial and safety environment. Masucci, Brusoni, and Cennamo (2020) describing the role of innovation in communication suggested the use of open innovation in oil production firms to debottleneck communication barriers and enhance efficiency within the business portfolio ecosystem.

Emerging Theme 3: Optimization of Capital Structure through Debt Restructuring

The selection of the right capital structure model for financing a corporation is a noteworthy consideration that would impact corporations’ profitability. The participants’ responses during the interviews provided insight into the optimal capital structure model of the corporation in volatile market regimes. Guizani (2017) suggested that

petrochemical firms that have been successful in optimal leveraging of their capital structure have experienced superior financial performance. All participants emphasized the importance of the choice of capital structure to a firm's profitability. Bismark, in response to the proportion of debt-to-equity management strategies used to maintain profitability posited that

In other cases, we plead with investors to invest more to increase their equity in the company, but this is done when we project that prices may surge in the short term. Another measure instituted was to write to lenders or suppliers to restructure our debts, especially the maturing debts to later dates and interests. Restructuring of debts gave our company a breathing space of debt servicing in the short term.

Additionally, there were other statements from participants that showed how the choice of the optimal capital structure impacted the firm's cash flow. For example, Khalid shared that

Debt financing of the business or introducing additional investors into their businesses, which is equity financing, and am sure you already appreciate this. But of course like I said you have a lot of internal decisions to make in terms of arriving at whether you are inviting new investors into your business or whether you are just going in for a loan or a debt to finance your business and you have to consider the advantages and disadvantage.

Danny, in responding to the specific strategy that helped to cope with the phenomenon of frequent oil market fluctuations explained,

The company employs two main strategies to sustain our financial performances during these times. These measures included maximizing return on assets (ROA) and return on equity (ROE). We made sure that at each level of operation, the net income of the organization is twice the total assets of the company. We maximize our ROA by reducing our asset cost or reduce the purchase of new assets. We assessed some of the assets in our books and sold them off if they redundant in the production or processing of crude products. This turned assets into liquid cash, which improved the revenue as well as the net income of the company.

Furthermore, Sammy noted that

We decided to sell off 5% of the shares in our company to increase equity as a form of raising capital in the period of market volatility. We also acquired debt to leverage on our equity, since we had already raised some funds through equity financing, we were able to get a loan with favorable interest and flexible payment plans to reduce the strain on our operation.

Khalid, in responding to the question on the strategies used to address the proportion of debt-to-equity finance to maintain profitability opined,

In going for equity financial agreement, you are inviting new investors, you are welcoming new partners into your business, and they would also want to have a say in how the company is run. And so, it is imperative to consider all these factors. Mind you, and sometimes you are supposed to share your profit with investors, who you have gone with equity financing agreement with you.

Indeed, the decision to opt for debt or equity, or the combination of the two, forms part of the corporate leader's critical financial decision-making process. A follow-up question to participants Khalid, Danny, and Sammy on the estimated proportions of their debt to equity financing revealed that Khalid opted for 100% debt financing, Danny opted for 65% debt and 35% equity, and Sammy opted for 95% and 5% equity. Khalid, emphasizing complete debt financing, added that

If you ask me how we can arrive at the decisions of how to finance our businesses and how we can manage the proportions of it, I will say that we had gone into a hundred per cent debt financing agreement. Because taking a critical decision about the business is very important, and sometimes it is very suicidal to invite investors who would then come and would want to have a say in the business.

In aligning to Khalid's view on critical investment decision making, Nguyen and Nguyen (2018) suggested that business leader's access to the right information enhances the informed investment decision-making processes that impact corporation's profitability. The presence of other investors through equity financing might create the phenomenon of information asymmetry (Khémiria & Noubbigh, 2018), which could harm the corporation's ability to source external financing. Modigliani and Miller (1958) advocated for complete debt financing as critical to a corporation's financial independence. The consolidated financial statements and the annual report from the partner firm I used for the triangulation also showed the use of debt to equity ratio for corporate financing. For example, the 2017 annual report stated that "as part of the

corporation's accelerated growth strategy in the efficient capitalization, the corporation ensured the securing of capital at the lowest possible cost to maintain long-term competitiveness and optimum level of participation in petroleum operations." (TOPC Annual Report, 2017, p. 17)

Amidst the 2014-2015 oil price collapse, the corporation, as a national oil producer, experienced below cash flow dynamics as found in the consolidated financial statement document:

Total liabilities increased by 19% from GH¢721.64 million in 2014 to GH¢856.25 million in 2015. The increment in the total liability resulted in total non-current liabilities increasing by 86% due to an increase in medium-term loan by 102% from GH¢311.25 million in 2014 to GH¢629.75 million in 2015, while total current liabilities reduced by 77% mainly due to a significant reduction in trade and other payables from GH¢297.83 million in 2014 to GH¢67.88 million. Total equity stood at GH¢2.13 billion – an increase of 22% over 2014 figure of GH¢1.7 billion mainly due to exchange translation reserve and retained earnings (TOPC Financial Statement, 2015, p.19)

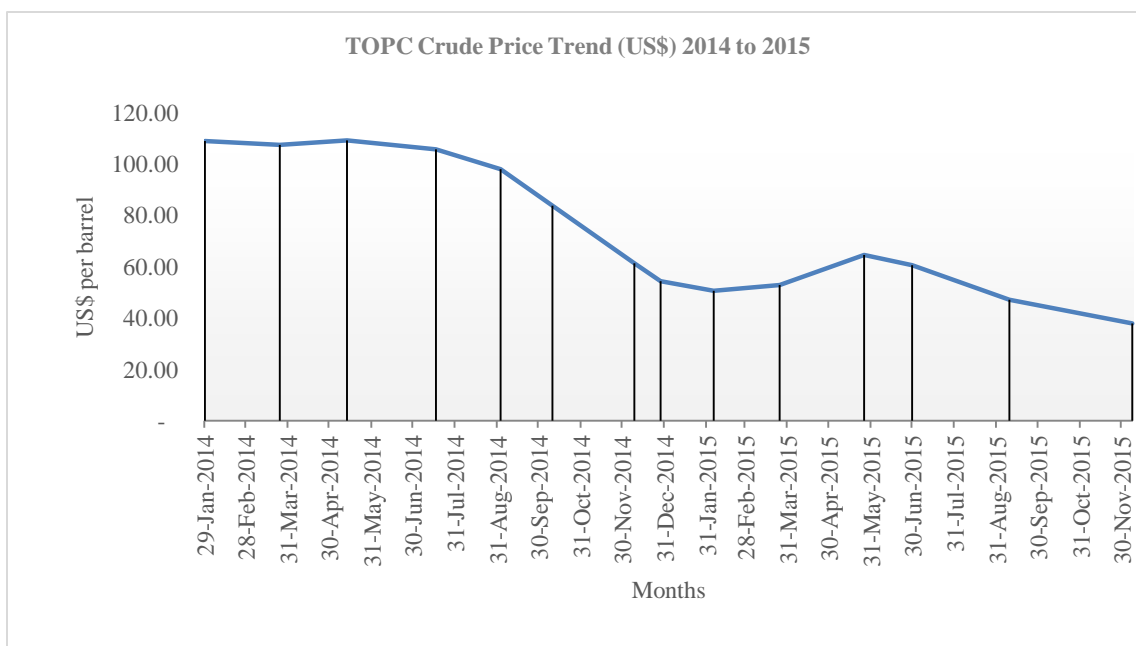


Figure 1: TOPC crude oil price trend from January 2014 to November of 2015.

Retrieved from http://www.gnpcghana.com/annual_reports.html

Figure 1 reveals that TOPC crude price initially peaked at US \$64.67 in May 2015, only to plummet to US \$37.93 by December 2015. The sharp decline resulted in reduced cash flow within the period.

Guizani's (2017) study on debt financing, in alignment with my research findings, stated that debt financing had been the most favored financial model for corporations seeking to mitigate low oil price shocks. In further aligning to my study findings, Khémiri and Noubbigh (2018), as well as Agostinho and Weijermars (2017), suggested national and multinational oil majors and minors would resort to both external funding sources such as debt and equity, and retained earning such as cash flow from operations

to finance business operations. Corporations strategically rely on debt financing to take advantage of the benefits from tax savings, which contributes to corporations' profitability (Khémiri & Noubbigh, 2018).

I noticed during my observation in the early morning meetings that managers spent much of the meeting time reassessing their past financial strategies that supported the business portfolio to survive during the last oil market collapse in 2014-2015. I also heard the mention of COVID-19 in approximate counts of 5–10 times in each of the meetings. My observations coincided with the current prevailing oil market collapse, which appears far worse than 2014-2015. I interpreted this to mean the corporation's continuous assessment of the pandemic impact on their strategies.

I kept notes in my reflective journal, especially during the data gathering process. I noted that participants felt a grave concern about the current bearish oil price regime, which all the participants attributed to US shale and COVID-19. I wrote in my journal that the advent of the shale boom in the US, coupled with current COVID-19, remained the critical constraints to the participants' business portfolio cash flow. Gundersen (2020) suggested that, with U.S. dependence on OPEC crude markets diminishing due to the shale boom, the U.S. shale oil supply shocks will remain a credible determinant of global crude oil prices.

Analysis of the Trade-Off Theory Conceptual Framework in Relation to the Study Findings

I used the TOT as the conceptual lens to research the strategies oil production

leaders in sub-Saharan African countries, such as Ghana, used to maintain profitability when crude oil prices fluctuate. A business leader's firm understanding of the dynamics of a corporation's capital structure is crucial to making critical investment decisions that will impact the corporation's profitability. Kraus and Litzenberger (1973) theorized the TOT in 1973. The TOT relates to the business leader's strategic choice of the proportion of debt finance and equity finance to put into business operations financing through the balancing of the costs and benefits of the two financing streams (Guizani, 2017). The TOT indicates to the business leader the optimum cash reserve levels to keep maintaining the corporation's profitability. Rehman and Wang (2015), Guizani (2017), as well as Dierker et al. (2019), have all agreed the business leader's knowledge of the optimum reserve cash holdings as critical to maintaining corporation's financial performance. In further support of the need for a targeted capital ratio, Mielcarz, Osiichuk, and Owczarkowski (2018) posited that the ability of the business leader to leverage on the optimal cash reserve in selecting the financing stream would impact positively on the firm's profitability. Mielcarz et al. suggested the use of financial restructuring as critical to attaining an optimum target capital that will maximize the gains in shareholder value.

Following the tenets of the TOT, I confirmed that TOT enabled me to gain an in-depth understanding of the strategies oil production leaders used to maintain profitability in volatile oil price regimes. My research findings showed that the use of strategies, such as effective capital management, business portfolio diversification, innovative technologies, and improved operational efficiencies, have all resulted in enhancing the

corporation's cash reserves when oil price collapse. The strategic building of cash reserves in periods of financial distress is the crux of the Kraus and Litzenberger (1973) TOT of capital structure. Additionally, the participants' responses supported the need for corporate leaders to choose the financing streams that would shore up the corporation's cash reserves, which is in tune with the TOT.

All participants conveyed that their reliance on both debt financing and equity financing with the debt financing component constituting the higher proportion enabled them maintained the required cash flows to stay in business during the oil price downturns. Oil price fluctuations are contemporary events, which required dynamic and robust strategies to remain relevant and avoid potential bankruptcies. The responses from the participants further confirmed the use of flexible external financing strategies such as debt and equity to remain competitive in periods of oil price fluctuations. In reaffirmation of the effective financing strategy use, Murtala (2018), Agostinho and Weijermars (2017), and Rahman (2019) emphasized the use of external financing as a contributor to maintaining firm's maximum liquidity at minimal risk.

Applications to Professional Practice

The phenomenon of oil market fluctuations is a recurrent event whose consequences are dire for the business environment. A prolonged and rapid fluctuation usually leads to a price crash, which impacts negatively on the financial performance of oil and gas corporations. Corporations with a robust fiscal regime could maintain financial performance when crude oil prices fluctuate (Micheal, 2016). Corporate leaders

with requisite strategies would sustain profitability when market collapse, such as the 2014-15 occurrence with a replication happening currently where oil prices plunged to \$20 per barrel by March 2020 from initial \$64 per barrel in January 2020. The study findings might contribute to business leaders' strategies in maintaining sound financial performance when crude oil prices fluctuate.

The findings from my study might equip business leaders in the oil and gas industry, oil market strategists, and energy policy analysts the requisite capital management skills to remain competitive when oil prices collapse. The specific strategies emerging from my study might support oil market analysts to proactively predict a potential market crash and support them institute measures to mitigate the impact of market shock. The collapses in the oil market such as the 2014-2015 and the March 2020 ones have resulted in oil producers piling colossal amount of debts, which led to bankruptcies. My study findings might provide business leaders in the national and multinational oil and gas corporations, the strategies to address debt management to avoid bankruptcy filings.

Implications for Social Change

The rapid volatility in the oil price market has continuously posed a monumental challenge to the business leader. Business leaders who manage to institute the necessary strategies can survive and maintain profitability in volatile markets. Business leaders, analysts, and industry players might use the findings from the study to ensure their business continuity, avoid bankruptcies, and maintain profitability in oil price downturns.

When corporations avoid bankruptcies and maintain financial performance, employees from the corporations would have guaranteed job security and constant flow of income. The maintenance of a sustained income would benefit the employees and their families with the potential to have a positive social influence in the local communities where the employees reside. Additionally, the emerged findings from the study, when applied by national and multinational oil and gas corporations, might improve the corporations' financial performance. Corporations with improved financial performance would not only honor the dividend payments to shareholders but would fulfill the corporate social responsibilities such as the provision of basic social amenities to the local communities.

Recommendations for Action

Oil price collapse as a result of a prolonged fluctuation has continued to hit hard on the industry. The industry is in urgent need of sustainable strategies to neutralize the resulting negative impacts of oil price shocks. While the study findings revealed some strategies to help maintain financial performance, there is the need to embrace the growth of artificial intelligence and the Internet of Things to improve the efficiency of business operations and maintain profitability. The acquisition and deployment of such state-of-art innovative technologies might improve the business leaders' understanding of this complex and unpredictable oil market environment. The application of such technologies would support the business leader in the following areas:

1. Improve efficiency and reduce the cost of oil recovery;
2. Enhance the cash flow from operations;

3. Support in continuous improvements and lean initiatives; and
4. Aid in the accurate prediction of potential market collapse.

The targeted audience for the study included oil production leaders who would require strategies to maintain profitability when crude oil prices fluctuate. Other audiences might consist of oil market analysts, commodity market stockbrokers, and policy analysts from energy think tanks who might apply the findings to enhance the understanding of the dynamics of the oil pricing market and to make oil price projections. I will disseminate my study findings to various professional organizations and energy think tanks for publication. I will share the study findings with national and multinational oil and gas corporations, the ministry of energy, governmental and non-governmental agencies in the upstream energy sector, energy conferences, and peer-reviewed journals that cover the topics related to oil market fluctuations.

Recommendations for Further Research

The purpose of this qualitative descriptive single case study was to explore the strategies that national and multinational oil production leaders in the sub-Saharan African nations such as Ghana deploy to maintain profitability when crude oil prices fluctuate. In conducting this study, I used a purposive sampling technique to select a sample size of six oil production leaders from a population of 10 oil production leaders. Other researchers in a similar setting might consider using a census technique to cover the study population of the 10 production leaders. I selected Ghana among the numerous oil-producing nations in the sub-Saharan African as the geographical location. Future

researchers might want to include other sub-Saharan African countries. I used the TOT as a conceptual lens to conduct my study. Future researchers might want to consider alternative capital structure methods such as the pecking order theory and the free cash flow theories as a conceptual lens for the study. A quantitative study examining what factors influence profitability when crude oil prices fluctuate may also be useful.

Reflections

In conducting this study, I interviewed six oil production leaders from a national oil company in Ghana to seek the leaders' in-depth perspectives on the strategies they have employed to maintain profitability when crude oil prices fluctuate. I also took virtual observation notes on the leaders as they undertake their regular daily tasks in their private offices. I had planned to carry out face-to-face interviews and observation with my participants. The advent of the COVID-19 pandemic changed the entire calculus of my data collection plan. Just when I thought everything had fallen apart, then the safety relief came from Walden IRB to replace all face-to-face data collection techniques with virtual methods such as video conferencing, phone, and email. The change was something I had not anticipated; however, I managed to carry out all my interviews and observations virtually using Google Duo videoconferencing application.

I found the new data collection techniques an exciting experience. That was my very first time using such an interface for research data collection. While the interviews went as planned with follow up member checking interviews, the observation plan had to be modified. I could only observe the oil production leaders in their private offices as

they perform their daily routine tasks due to the implementation of the social distancing at the time of the data collection. I observed the oil production leaders had virtual meetings every day and managed to take relevant observation notes during these periods. I also observed the ad hoc telephone conversations the business leaders had. The experience was, indeed, novel for me. In hindsight, two things I would have wished to happen. I wish I had attended the academic residencies early enough. If I had known my data collection was going to be virtual, I might not have considered observation as one of my data collection techniques. Overall, I felt good about the data I gathered from my data gathering techniques.

Conclusion

The fluctuations in the oil price market remain a bottleneck to the financial performance of national and multinational oil corporations. The fashioning of sustainable strategies will enhance the profitability of corporations in the volatile oil price regimes. My study findings have shown that oil production leaders who have instituted the required sustainable strategies have avoided bankruptcies and maintained profitability when crude oil prices fluctuate. Three themes emerged from my study data analysis: (a) enhancing operational efficiency using organizational restructuring and competitive oil price hedging, (b) business portfolio diversification through effective asset management and innovative technologies, and (c) optimization of capital structure through debt restructuring. With the oil market currently experiencing another phenomenal price crash from the collapsed demand due to COVID-19, the findings from my study are timely and

relevant now than when I started the research.

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Appendix A: Interview Protocol

Interview Protocol	
What you will do	What you will say—script
<ul style="list-style-type: none"> • Introduce the interview and set the stage by greetings and introducing myself —often over a meal or coffee • I will hand over the consent form, go over contents, and answer questions and concerns of the participant 	<p>a. Good morning/afternoon, my name is Yussif Sulemana. Thank you very much for your time and for agreeing to help with my study. This interview will last approximately one hour during which I will be seeking to gain your insightful perspectives about the strategies you have used as oil production leader to maintain profitability when crude oil prices fluctuate.</p> <p>b. The purpose of my study is to identify strategies that oil production leaders in a national oil corporation such as your establishment employ to maintain profitability in rapid oil fluctuation regime.</p> <p>c. I want to thank you once again for your express consent and I hear by to participate in this research study and I hear-by present to you a copy of your signed consent form for your records.</p> <p>d. I am of the firm believe that you have read, understood and in agreement with the contents of the informed consent form but should you have any questions or concerns, I would</p>

	<p>be glad to address them before we commence with the interview.</p> <p>e. I wish to add that you have the liberty to stop the interview at any time you deem fit even before the agreed time</p>
<ul style="list-style-type: none"> • I will turn on recording device after gaining verbal permission from the participant • I will introduce participant with coded identification and noting the date and time • I will begin the interview process 	<ol style="list-style-type: none"> 1. What strategies did you deploy to maintain financial performance during periods of fluctuating oil price regimes? 2. What specific interventions did you find to have been most useful in maintaining your corporation's profitability when crude oil prices collapsed in 2014? 3. How did you measure the effectiveness of the strategies you instituted in the crude oil price volatile regimes to sustain your company profitability? 4. What is your specific strategy for coping with the phenomenon of rapid price volatilities? 5. What, if any, specific strategies have you deployed to sustain profitability amidst the shale technology boom? 6. What strategies did you use to address the proportion of debt-to-equity finance to maintain profitability?

<p>by asking question # 1; and follow through to the final question.</p> <ul style="list-style-type: none"> • I will watch for non-verbal queues • Paraphrase as needed • Ask follow-up probing questions to elicit and get more in depth perspectives from participants. <p>Again, probe, probe, probe.</p> <p>Metaphorically dig deep for rich data</p>	<p>7. What additional information would you like to share regarding strategies to maintain profitability during periods of fluctuating oil price regimes?</p>
<p>Wrap up interview thanking participant</p>	<p>Thank you so much for making time out of your tight schedules to share your insightful experiences with me on my research topic area. I have no doubt your great perspectives will enhance the quality of my research findings. Many thanks.</p>

Schedule follow-up member checking interview	I will be pleased if could make time once again to review with me my analysis and interpretation of the findings of the interview for about 30 minutes to verify my interpretation of your responses.
Follow-up Member Checking Interview	
Introduce follow-up interview and set the stage	Good afternoon/morning Mr.xxxx. Thank you so much for your participation in this study. This is a follow-up to our previous interview on the strategies that national and multinational oil production leaders in the sub-Saharan African nations deploy to maintain profitability when crude oil prices fluctuate. I would like to seek your kind permission once again to record this follow-up interview, to ensure I maintain the accuracy of the information you share with me.
I will share a copy of the succinct synthesis for each individual question	1. What strategies did you deploy to maintain financial performance during periods of fluctuating oil price regimes? <i>... synthesize my interpretation of the participant's initial response</i>
I will bring in	2. What specific interventions did you find to have been

<p>probing questions related to other information that I may have found— while ensuring the information must be related so that I am probing and adhering to the IRB approval. I will Walk through each question, read the interpretation and ask: Did I miss anything? Or, What would you like to add?</p>	<p>most useful in maintaining your corporation's profitability when crude oil prices collapsed in 2014?</p> <p><i>... synthesize my interpretation of the participant's initial response</i></p> <hr/> <p>3. How did you measure the effectiveness of the strategies you instituted in the crude oil price volatile regimes to sustain your company profitability?</p> <p><i>... synthesize my interpretation of the participant's initial response</i></p> <hr/> <p>4. What is your specific strategy for coping with the phenomenon of rapid price volatilities?</p> <p><i>... synthesize my interpretation of the participant's initial response</i></p> <hr/> <p>5. What, if any, specific strategies have you deployed to sustain profitability amidst the shale technology boom?</p> <p><i>... synthesize my interpretation of the participant's initial response</i></p> <hr/> <p>6. What strategies did you use to address the proportion of debt-to-equity finance to maintain profitability?</p>
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	<p><i>... synthesize my interpretation of the participant's initial response</i></p>
	<p>7. What additional information would you like to share regarding strategies to maintain profitability during periods of fluctuating oil price regimes?</p> <p><i>... synthesize my interpretation of the participant's initial response</i></p>

Appendix B: Observation Protocol

The purpose of this observation protocol is to detail a step action table (job aide, checklist) to help me elicit rich and deep research data and stay focus throughout my observation process. The gathering of rich data from the observation setting will supplement my other data collection techniques to guarantee quality research findings.

Directions: I will spend 3 hours a day, three days a week over three weeks to collect ample field notes of my observations of interactions between the oil production leaders and their subordinates. In my observation, I will focus on three key areas to include: The

background, the people, and the action of the key informants. The table below indicates my proposed systematic guide to the observation process. After the observation process, I will review my notes to identify key points (concepts and ideas) and begin making sense of the data in preparation for the data analysis stage.

<p>Tentative Schedule</p>	<p>(Monday,Wednesday,Friday, 8:00am-10:00am & 02:00pm – 03:00pm) for 3 weeks. I carried out all observations via a virtual medium using Google Duo application due to the COVID-19 pandemic.</p>
<p>Date: 00/XX/2019</p>	
<p>Article I. The Background: Physical setting (Describe in thick rich detail what it looks like, sounds like, and any other details. Record what you know about the</p>	<p>I will carry out observations of the work environment settings and note down non-verbal clues and body language whiles I keep taking journal notes alongside the nonintrusive close observation. I will observe the furnishings and the internal decorations within the meeting rooms and the informants’ offices during the interviewing. I will participate in the early morning production forecast meetings between 08:00 to 9:00 AM daily for 3 weeks. I will pay close attention to the participants and their respective roles</p>

<p>participants and their roles, if known).</p> <p>Who is there?</p> <p>What are they doing?</p>	
<p>Article II.</p> <p>The People:</p> <p>How do they interact?</p> <p>What are they wearing?</p> <p>What are they saying?</p> <p>What does their body language tell you?</p>	<p>I intend to observe closely how the oil production leaders interact with each other and with the rest of the work force; while noting body language. I intend to pay close attention to the outfit of the participants with the hope of gaining idea about the business culture of the organization.</p>
<p>The Action:</p> <p>What happens?</p> <p>What is the sequence?</p>	<p>I will note down patterns of behaviour and within the period of the observation and seek to interpret those patterns with the hope of making sense out of the observed actions. I will pay attention to how the meeting chair conducts the meeting and the possible</p>

Is there a cause and effect? If so, provide details.	exchange of ideas and strategies within the meeting.
Article III. Ti me:	Article IV. Observation: