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# **Journal of Accounting, Auditing, Tax and Management (JAATM)**

**Vol. 1 No. 1, 2023**

## ***Editor-in-Chief's Remarks***

I am happy to present the maiden edition of the Journal of Accounting, Auditing, Tax and Management (JAATM), established by Institute of Chartered Accountants, Ghana (ICAG), as a platform to disseminate state-of-the-art knowledge and best practices in accounting, auditing, tax management and related fields. The JAATM aims to publish original research papers that will constitute a store of knowledge for academics, students and practitioners. Manuscripts published in this journal could be conceptual (theoretical), empirical, analytical or experimental.

In this maiden edition, four (4) original empirical researches and one (1) conceptual paper are published. These papers are contributed by academic scholars from leading business schools and experts from the industry. The first paper, by Seyram P. Kumah, David A. Abbam and Ransford Armah, examines Bitcoin's integration into African stock markets to provide recommendations for regulators and international investors. In the second paper, Godfred M. Y. Owusu, Theodora E. Aryee and Dorothea S. Otoo assess professional accounting student satisfaction and loyalty to a professional accountancy body, and explores the underlying initiatives and policies of the institution.

The third paper, by Richard Owusu-Afriyie and Dadson Awunyo-Vitor, examines the mediating role of quality standard compliance in monitoring and auditing quality in Ghana. Written by Mohammed Amidu, William Coffie, and Richard Amankwa Fosu, the fourth paper investigates stakeholder perceptions of the outcomes of a donor-funded intervention at Institute of Chartered Accountants, Ghana. The final paper by Henry Duah, Charlotte Odjer and Francis Aboagye-Otchere provides a conceptual understanding of the applications of digitalisation in the accounting profession and discusses the associated opportunities and challenges.

The papers in this maiden edition are of high quality, diverse in topics, grounded in theory and practice, and sound in methodological approaches. They provide valuable insights to promote knowledge and practice, and position the JAATM as a go-to source. I am confident that you will enjoy reading them. Therefore, I invite you to take a read.

As I conclude, I would like to thank the previous Council of ICAG, led by Prof. Williams A. Atuilik, for initiating this journal and appointing me as the Editor-in-Chief. My special thanks also go to the current Council, led by Ms. Sena Dake, the Chief Executive Officer, Mr. Paul Kwasi Agyemang and staff of the Technical and Research Directorate, headed by Mr. Osei Adjaye-Gyamfi. I also thank the Technical and Research Committee members, the Editorial Members, Board and Advisers and the reviewers for constructive feedback.

I look forward to receiving your manuscript as you enjoy reading this edition.

# JOURNAL OF ACCOUNTING, AUDITING, TAX AND MANAGEMENT

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## IS BITCOIN INTEGRATED WITH AFRICAN STOCK MARKETS?

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### Abstract

*The paper investigates the degree of integration between Bitcoin and African stocks returns using the Continuous Morlet Wavelet Transform. Data spans from 10th August 2015 to 2nd February 2019 at a daily frequency. Findings suggest a low level of integration between Bitcoin and African stock indices in the short-term, which may have implications for investors' choice of horizon and asset class due to price independence. Furthermore, the findings revealed high connectedness in the medium-, and long-term, providing insights to regulators and potential international investors on what can be done to extend the diversification benefits from the short-term to the medium- and long-term. Policymakers and regulators are called upon to enact measures that will reduce the level of integration between the asset markets to ensure investor benefit with the diversification returns.*

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### Article Info

#### **Keywords:**

*Bitcoin*

*African stock*

*Integration*

*Wavelet coherency*

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## 1. Introduction

Ever since the seminal works of Engle and Granger (1987) and Grubel (1968) on integration and international portfolio diversification benefits, a substantial body of literature has emerged on the integration of Africa's stock markets with global stock markets and other markets, such as commodity and foreign exchange market as a result of the critical implications in asset pricing, policy formulation, risk-sharing across integrated markets, and portfolio diversification (Mensah & Alagidede, 2017; Boako & Alagidede, 2016; Omane-Adjepong & Dramani, 2017; Boako, Omane-Adjepong, & Frimpong, 2016). Such studies' evidence highlights weak and strong connections among the markets. Studies have also examined the connection between Bitcoin and advanced stock markets and found a low degree of integration between the asset markets, suggesting diversification benefits. Notable studies include Baur, Hong and Lee (2018) who investigated whether Bitcoin is correlated with traditional asset classes such as stocks (proxied with the S&P 500).

Using the spillover index, Trabelsi (2018) studied the connectedness between cryptocurrency markets and traditional assets, including global stock indices, currencies, and commodities. Corbet, Meegan, Larkin, Lucey and Yarovaya (2018) employ Diebold and Yilmaz's generalized variance decomposition method to scrutinize the association between advanced stock markets and three cryptocurrencies. More recently, Ünvana (2019) explores the effects of Bitcoin on Nikkei 225, BIST 100 index, S&P 500, and SSE 380 stock markets using value-at-risk and causality analysis. Kurka (2019) uses the volatility spillovers framework to examine the nature of shock transmissions among stocks, commodities, financials, foreign exchange and Bitcoin. Bouri, Shahzad and Roubaud (2019) study the safe-haven and hedging characteristics of eight virtual currencies against 10 developed equity sectors and the S&P 500, employing the cross-quantilogram technique. Symitsi and Chalvatzis (2019) test the value of Bitcoin within portfolios of various asset classes including stocks. Most recently, Gil-Alana, Abakah and Rojo (2020) investigate the stochastic properties of six major cryptocurrencies and their bilateral linkages with six stock market indices using fractional integration

techniques. Shahzad, Bouri, Roubaud and Kristoufek (2020) uncover the hedging and safe-haven properties of eight cryptocurrencies against down movements in the S&P 500 and its 10 equity sectors. Bouri, Lucey and Roubaud (2020) study the time-varying diversification ability of leading cryptocurrencies against equities and the portfolio implications. Conlon, Corbet and McGee (2020) explore the safe haven properties of cryptocurrencies for the advanced equity market. Demiralay and Bayracı (2020) investigate the time-varying investment benefits of cryptocurrencies for stock portfolios. Platanakis and Urquhart (2020) analyse the benefit of Bitcoin in a portfolio of stocks. Mariana, Ekaputra, and Husodo (2021) investigate the safe havens of Bitcoin and Ethereum for S&P 500. Findings from these studies suggest significant diversification benefits from including cryptocurrencies in a portfolio of stocks.

Following the literature above, recent studies on the valuable role of Bitcoin in portfolio diversification and risk management for global stock indices highlight no or weak connection between the markets, which provides diversification benefits for global equity investors. What is lacking in the literature is whether a similar relationship holds for African markets. Notably, different stock markets exhibit different characteristics in terms of liquidity, efficiency, and integration with other markets, and African stock markets have been evidenced to have a weak connection with global stock markets (Boako & Alagidede, 2016; Mensa & Alagidede, 2017). Bouri et al. (2018) also note that the state of an economy's stock market determines its relationship with Bitcoin. Therefore, we cannot assume that the relationship between Bitcoin and global stock indices applies to emerging markets in Africa.

Furthermore, the work of Sousa (2019) contends that Africa has already embraced cryptocurrencies with a 130% rise in the volume of cryptocurrency transactions in 2018, and as of 2019, an average trade per day of 17351 was carried out by crypto users in the region. Although Africa is a diverse region, its nations share some key similarities and trends. Economic problems, from volatile currencies and high inflation rates to financial issues such as capital controls and a lack of banking infrastructure, as well as demographic and societal trends make Africa well-suited to the rapid adoption of cryptocurrencies. While much of the focus elsewhere has been on speculation, trading, and investment, Africa, more than any other continent, has a need for the utility of cryptocurrencies. From an economic development perspective, overexposure to cryptocurrencies can reduce the "depth" and "width" of national stock markets, as the excessive volatility of cryptocurrency prices translates into riskier and more expensive equity financing for local firms. This motivates a study into the relationship between Bitcoin and African stock markets as shocks emanating from the cryptocurrency markets may, as well, have rippling effects on African stock markets, which may affect the global market.

From the foregoing discussions, there is motivation to model the returns of Bitcoin and eight African stock indices and explore their level of integration. We adopt a multiscale approach of analysis, the continuous morlet wavelet transform by Morlet, Arens, Fourgeau and Glad (1982). The method permits bivariate connections of the asset markets at different time scales, which is more indicative of financial markets behaviour. Our findings suggest low degrees of integration between the asset markets in the short-term, but stronger integration in the medium-, and long-terms indicating diversification opportunities in the short-term. This finding provides evidence in support of Mariana, Ekaputra and Husodo (2021) who report that cryptocurrencies are short-term safe havens for stock markets.

The remainder of the study is structured as follows. Section 2 covers a description of the methodology. Section 3 includes a description of data and statistical properties. Section 4 captures the results and discussion on the level of integration of the markets, and the last section is the conclusion and policy implications.

---

<sup>1</sup>The continuous morlet wavelet transform is used to examine the bivariate co-movement of assets across time and frequency (Morlet, Arens, Fourgeau, and Glad, 1982).

## 2. Methodology

The Continuous Morlet Wavelet Transform (CMWT) by Morlet, Arens, Fourgeau and Glad (1982) is used to study the integration of asset markets by determining the wavelet power spectrum and wavelet coherence of two signals. According to Grinsted, Moore, and Jevrejeva (2004), the CMWT allows isolation and identification of periodic signals between localization of time and frequency. The estimates of wavelet coherence, wavelet cross-correlation, and wavelet variance, which allow co-movement in the state of space, are principal to the study.

In and Kim (2013) define CWMT as the integral over time of the product of signal and scaled, shifted versions of the wavelet function  $\varphi$ :

$$C(\text{scale}, \text{position}) = \int_{-\infty}^{\infty} x_t(\text{scale}, \text{position}, t) dt \quad (1)$$

The CMWT results are several wavelet coefficients  $C$ , which are scale and position functions and can contain different values time series  $x_t$ . Grossman and Morlet (1984) define the CMWT for two continuous variables as:

$$F(a, b) = \int x_t \varphi\left(\frac{t-a}{b}\right) dt \quad (2)$$

The Morlet wavelet can be simplified as

$$\varphi(\omega) = \pi^{-1/4} e^{i\omega\psi} e^{-\frac{\omega^2}{2}} \quad (3)$$

where,  $\omega$  is a non-dimensional “time” parameter.

According to Boako and Alagidede (2016), to study co-movement between two variables, a finer version of wavelet coherence is obtained from cross-wavelet, wavelet power spectrum, and phase difference. The bivariate cross-wavelet transform (XWT) of  $x_t$  and  $y_t$  defined by Torrence and Compo (1998) can be written as:

$$W^{xy} = W^x W^{y*} \quad (4)$$

Where  $W^x$  and  $W^y$  are the respective wavelet transforms that translate the Fourier co- and quadrature-spectra into frequency-time domain (Roesch & Schmidbauer, 2014). In line with Veleda, Montagne, and Araujo (2012), the wavelet power spectrum describes the local covariance between two time series, which is specified as:

$$P^{xy}(s, \tau) = |W^{xy}(s, \tau)| \quad (5)$$

where  $s$  is the frequency and  $\tau$  is the time. The wavelet power spectrum is challenged with regards to assessing the degree of integration of the two series, which is solved by wavelet coherency (Roesch & Schmidbauer, 2014). As noted by Torrence and Webster (1999), the wavelet coherence is the local correlation coefficient in the time-frequency space similar to the traditional correlation coefficient. We specify the wavelet coherence of two time series  $x_t$  and  $y_t$  as:

$$R_t^2 = \frac{|S(W_t^{xy})(s)|^2}{S(s^{-1}|W_t^x(s)|^2) \cdot S(s^{-1}|W_t^y(s)|^2)} \quad (6)$$

where  $S$  is a smoothing operator. Wavelet coherence between two time series close to one indicates a high level

of integration between the series whereas coherence close to zero depicts no integration between the series.

Madaleno and Pinho (2012) define the wavelet phase, which shows lead (lag) associations between two time series at different frequencies, as:

$$|\theta_{xy} = \tan^{-1} \frac{I\{W_t^{xy}\}}{\Re\{W_t^{xy}\}}, \theta_{xy} \in [-\pi, \pi] \quad (7)$$

Two series are in-phase (out of phase) when an absolute value of less (greater) than  $\pi/2$  and refers to the instantaneous time as time origin and at the frequency under consideration, whereas the arrows of the phase exhibit which series is the leading one in the relationship.

### 3. Data description and statistical properties

The study focused on Bitcoin, and eight African stocks indices: Egypt, South Africa, Nigeria, Mauritius, Kenya, Ghana, Tunisia, and Morocco, to achieve the set objectives. The cryptocurrency and stock markets sampled are based on market capitalization and trading volume and can proxy for cryptocurrencies and stock markets in Africa, respectively. Daily closing market indices for the period 10th August 2015 to 2nd February 2019 are gleaned from Thomson Reuters Datastream and CoinMarketCap and expressed in a common currency (USD) to ease comparison and remove exchange rate noise. This practice has been justified in international financial market research (Pukthuanthong & Roll, 2009).

We computed the continuously compounded daily returns considering the difference in logarithms of two consecutive prices of a series. We calculate Monday-to-Friday returns for Bitcoin due to stocks not traded on weekends. We remove non-synchronous data points to prevent the problem of underestimating true correlations as did Martens and Poon (2001) and Das and Kannadhasan (2018). After matching the daily observations of the Bitcoin with the eight African stock markets, there were 822 observations. The period of analysis and the number of observations in this study is constrained by the availability of cryptocurrency price data. All indices were then transformed into daily returns by taking the log difference.

The summary statistics of the asset returns are presented in Table 1. Bitcoin shows higher average returns and standard deviation relative to stocks. The average returns of Bitcoin, JSE, SEM, NAI.SE, and CSE are positive, whilst those of EGX30, NSE, TUN, and GSE are negative. The largest standard deviation of BTC implies that it is the most volatile market of the panel, while SEM is the least volatile market with the lowest standard deviation. BTC, EGX30 GSE, JSE, NSE, and SEM have negative skewness, indicating that large negative returns are more common than large positive returns in the markets. Kurtosis statistics show that all the return series are leptokurtic, with significantly fatter tails and higher peaks indicating asymmetry. The Shapiro-Wilk test of normality for all the indices strongly rejects the null hypothesis that their distributions are normal. Further, the pictorial representation of Bitcoin and African stocks' returns in Figure 1 in the Appendices exhibit fat tails, volatility clustering, and asymmetry, suggesting nonlinearity. These features of the assets justify the use of wavelet and spillover techniques, which are more robust to the stylized facts to model their returns and examine their level of integration across time.

**Table 1. Summary statistics of Bitcoin and African stock returns**

Statistics	BTC	EGX30	NSE	JSE	NAI.SE	TUN	CSE	GSE	SEM
Observ.	822	822	822	822	822	822	822	822	822
Mean	0.003	-0.002	-0.001	0.001	0.001	-0.001	0.001	-0.001	0.001
Minimum	-0.208	-0.333	-0.232	-0.073	-8.471	-0.056	-0.021	-0.050	-0.043
Maximum	0.225	0.112	0.077	0.062	7.993	0.059	0.038	0.038	0.024
Std. Dev.	0.768	0.020	0.017	0.017	0.042	0.010	0.007	0.010	0.006
Skewness	-0.088	-6.487	-3.905	-0.277	0.213	0.240	0.390	-0.375	-0.389
Kurtosis	4.979	108.850	52.435	1.125	97.860	4.997	2.344	2.538	6.222
Normtest.W	0.907	0.661	0.757	0.988	0.094	0.927	0.971	0.957	0.934
Normtest.p	0	0	0	0	0	0	0	0	0

**Note:** BTC-Bitcoin, EGX30-Egypt, NSE-Nigeria, JSE-South Africa, NAI.SE-Kenya, TUN-Tunisia, CSE-Morocco, GSE-Ghana, and SEM-Mauritius.

#### 4. Results and discussion

To investigate the level of integration between Bitcoin and African stock markets, we paired Bitcoin with each African stock market and examined their bivariate co-movement using cross-wavelet coherency and phase difference. The cross-wavelet coherency results for the eight pairs of Bitcoin and African stock returns are reported in Figure 2. The plots explain the pairwise integration of the asset markets in the time-frequency space. We used wavelet coherency to measure the local correlation between the asset pairs, and phase difference to show the lead (lag) causal association between the pairs of assets markets. For the pairwise integration, we construct the cross-wavelet coherency from frequencies 2 days to 2048 days and choose three cycles to represent short-, medium-, and long-time investment horizons. Specifically, the first cycle on the lower scales (2 – 16 days) is the higher frequencies and denotes short-term horizon. The second cycle on the middle scales (16 – 64 days) is the medium frequencies and indicates medium-term horizon. The third cycle on the long scale (> 64 days) is the lower frequencies and shows the long-term horizon as used by Das and Kannadhasan (2018) and Owusu-Junior, Tweneboah and Adam (2019).

The frequencies are depicted on the vertical axis of the plots, and the horizontal axis exhibits the time period from 2015 to 2019 sampled for the study. In each plot, the white contour lines inside the cone of influence show the 5% significance level estimated from Monte Carlo simulations. The lighter shade around the cone of influence depicts the boundary effects such that the region outside the boundary is statistically insignificant. This region shows the faint red colour and should be interpreted cautiously due to the edge effect suffered from continuous wavelet transform analysis. The colour codes from red (high coherency, close to one), to blue (low coherency, close to zero) indicate a high degree of integration to a weak level of integration of the assets pairs, respectively. A white contour with red colour at the top (bottom) of a plot shows strong integration at high (low) frequencies.

A white contour with red colour at the left (right) hand of a plot exhibits a strong level of integration at the

<sup>2</sup>The African stock indices selected are the major African stock markets, and are opened to both domestic and international investors and fairly represent the regions.

<sup>3</sup><https://coinmarketcap.com/> (as used by Caporale & Zekokh, 2019).

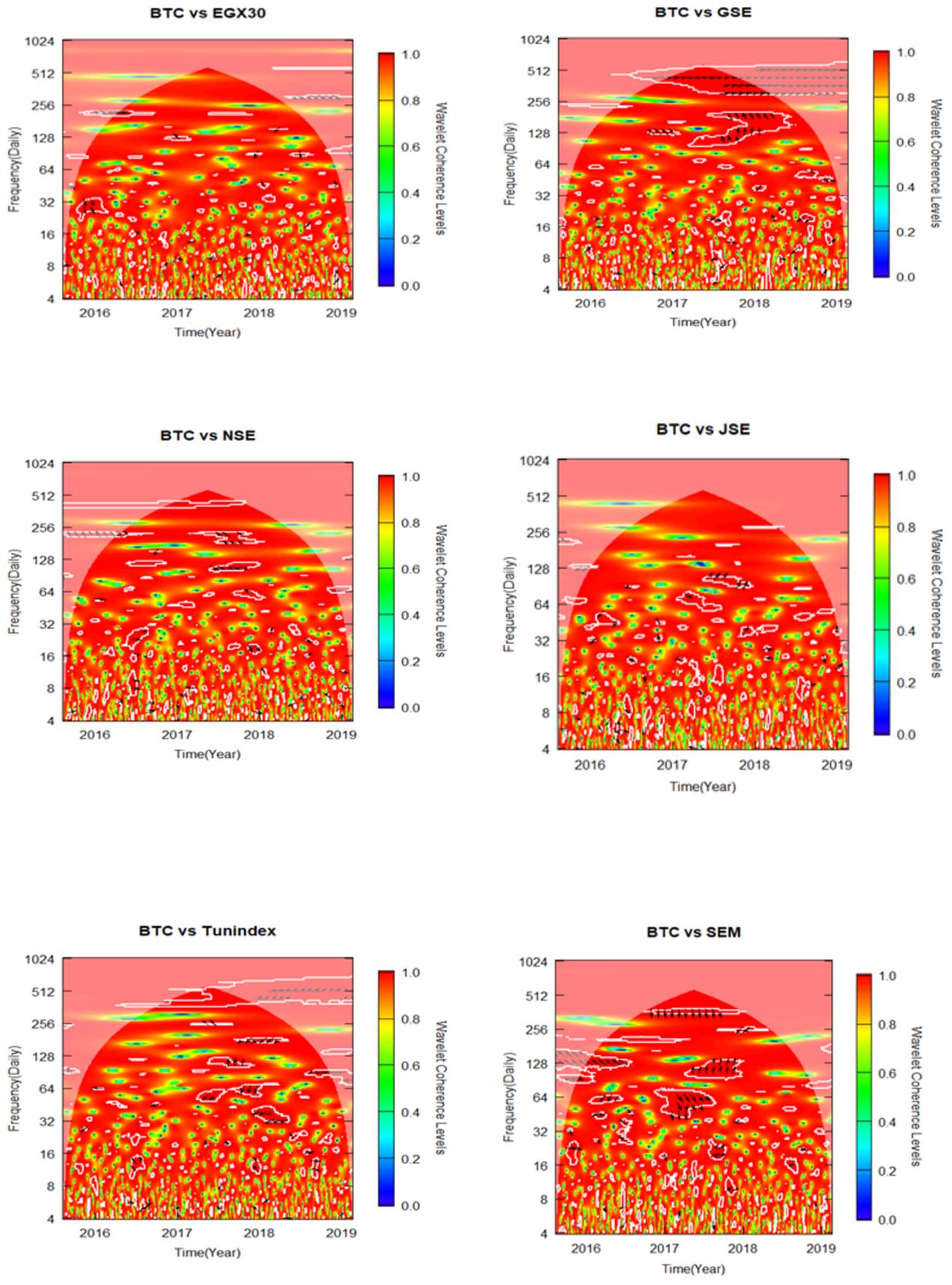
start (end) of the sample period. The arrows in the plots indicate the phase difference by showing the lead (lag) relationship and the direction of relationship between the series. The series are in-phase indicating positive correlation when the arrows point to the right ( $\rightarrow$ ). The first series leads the market when the arrows point to the right and up but when the arrows point to the right and down the first series lags the market. The series are out of phase indicating negative correlation when the arrows point to the left ( $\leftarrow$ ). Arrows that point to the left and up depicts that the first series is lagging the market while arrows that point to left and down means the first series is leading the market (see Das & Kannadhasan, 2018; Owusu-Junior, Tweneboah & Adam, 2019). The names of the series on top of the plots in Figures 2 (a, b, c) show the order of the series.

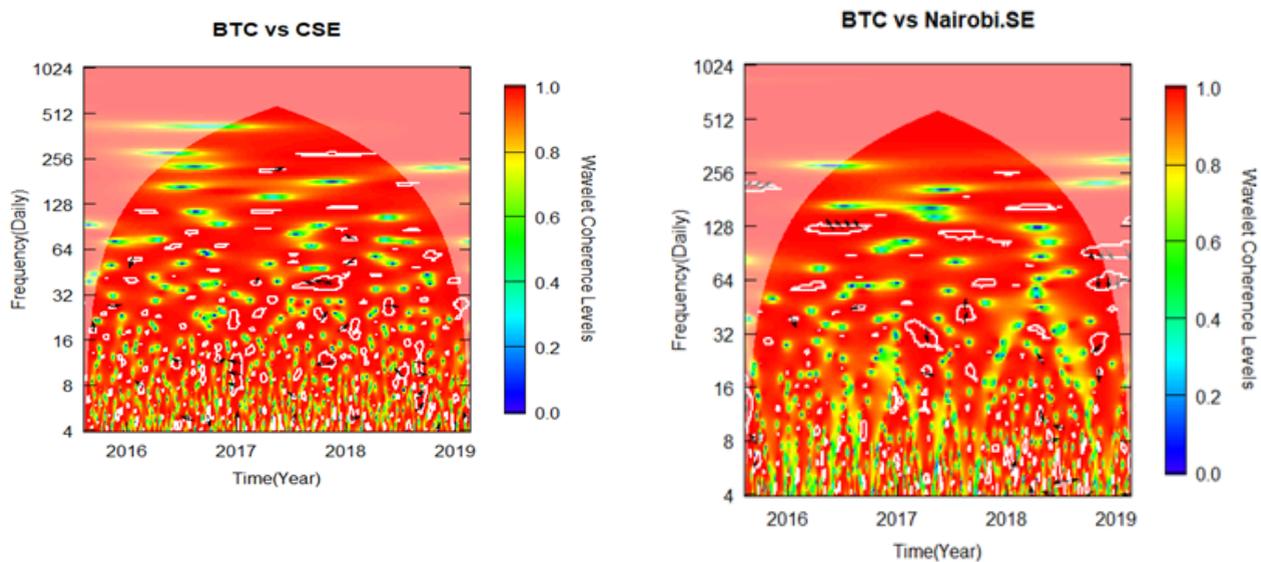
The Bitcoin-African stocks co-movement in Figure 2 shows that the BTC-EGX30 pair is in-phase with EGX30 leading BTC at medium scales 16 to 40 days from 2015 to early 2016. The BTC-GSE duo exhibits a convincing GSE lead out of phase at long scales of 64 to 256 bands from the middle of 2016 to early 2018. In the BTC-NSE pair, NSE leads out of phase in the high 128 to 256 band and in-phase at scales 64 to 128 bands from the middle of 2017 to 2018. There is a conclusive in-phase BTC lead in the high 64 to 128 bands from 2017 to 2018 for the BTC-JSE pairs. In the case of the BTC-Tunindex pair, BTC leads out of phase in the medium 20 to 64 bands and high 128 to 256 bands from early 2017 to the middle of 2018. Amidst the populated region of the BTC-SEM duo, SEM leads in-phase in the medium 32 to 64 bands in 2017 and out of phase in the high 100 to 195 bands from 2015 to the middle of 2016. The pair BTC-CSE shows CSE lead in-phase in the low 8 to 16 bands in 2017 and middle 32 to 64 bands from late 2017 to early 2018. Lastly, the high 120 to 150 band in 2016 depicts a Nairobi.SE lead out of phase in the BTC-Nairobi.SE duo.

The coherency results for the integration of Bitcoin with African stock markets indicate that Bitcoin (BTC) is highly integrated with Ghanaian, Nigerian, South African, and Kenyan markets in the long-term. Bitcoin is highly integrated with the market in Tunisia and Mauritius from the medium to long-term. Bitcoin has high integration with the Moroccan stock market in both short and long-term and with Egypt in the medium-term. This strong time-varying integration between Bitcoin and African stock markets may be explained by the aggressive pursuit of African economies to ensure stronger ties between African financial markets and global financial markets (see AfDB, 2015).

The phase difference arrow vectors suggest positive effects of Bitcoin on Egypt in the medium-term, South Africa in the long-term, and Morocco in both short and long-terms. Negative effects are visible for Tunisia from medium to long-term and in the long-term for Kenya and Ghana stock markets. We find both positive and negative effects in the long-term of Nigeria, but the medium (positive) and long (negative) terms for Mauritius stock market. These findings suggest that Bitcoin can hedge against extreme stock price movements in Ghana (long-term), Nigeria (long-term), Tunisia (from medium to long-term), Mauritius (long-term), and Kenya (long-term).

We find the stock markets leading Bitcoin across the pairs except for South Africa and Tunisia stock markets where Bitcoin was in the lead and thus volatilities of these stock markets affect the price of Bitcoin. Nonetheless, we observe that the assets return adjusts towards long-run equilibrium. As noted by Madaleno and Pinho (2012), we emphasize that this lead (lag) associations in the inter-market volatility correlations between Bitcoin and African stocks may enhance opportunities for arbitrage and diversification for international investors. The findings for Bitcoin-Stock pairs are in line with Mariana, Ekaputra, and Husodo (2021) and Demiralay and Bayracı (2020) who find that the time-varying correlations between cryptocurrencies and stock markets are low in the short-term and that adding cryptocurrencies to equity market portfolios enhances portfolio diversification.





*Figure 2.* Bitcoin-African stocks cross-wavelet coherency

## 5. Conclusion and policy implication

The study examined the level of integration between Bitcoin and African stock markets in a time-frequency space implementing a wavelet-based method. The outcome of this study depicts the heterogenic nature of association between Bitcoin and African stock markets, which extends the literature on cryptocurrencies and stock market integration. The low level of integration between Bitcoin and stock indices in the short-term may have implications on an investor's choice of horizon and asset class to invest in due to price independence. Our findings of high connectedness in the medium-, and long-terms provide insights for regulators and potential international investors. What investors can do to extend the diversification benefits from the short-term to the medium- and long-terms is to call for policy makers and regulators to enact measures that will reduce the level of integration between the asset markets to ensure investor benefit with the diversification returns. Policymakers can also benefit from this study as events in one market can significantly impact other markets, as each market is an integral part of a single global market. Importantly, high levels of integration can have monetary policy and macroeconomic implications, since an economy's monetary policy can be affected by the connections between the domestic capital market and other markets within the sub-region and globally.

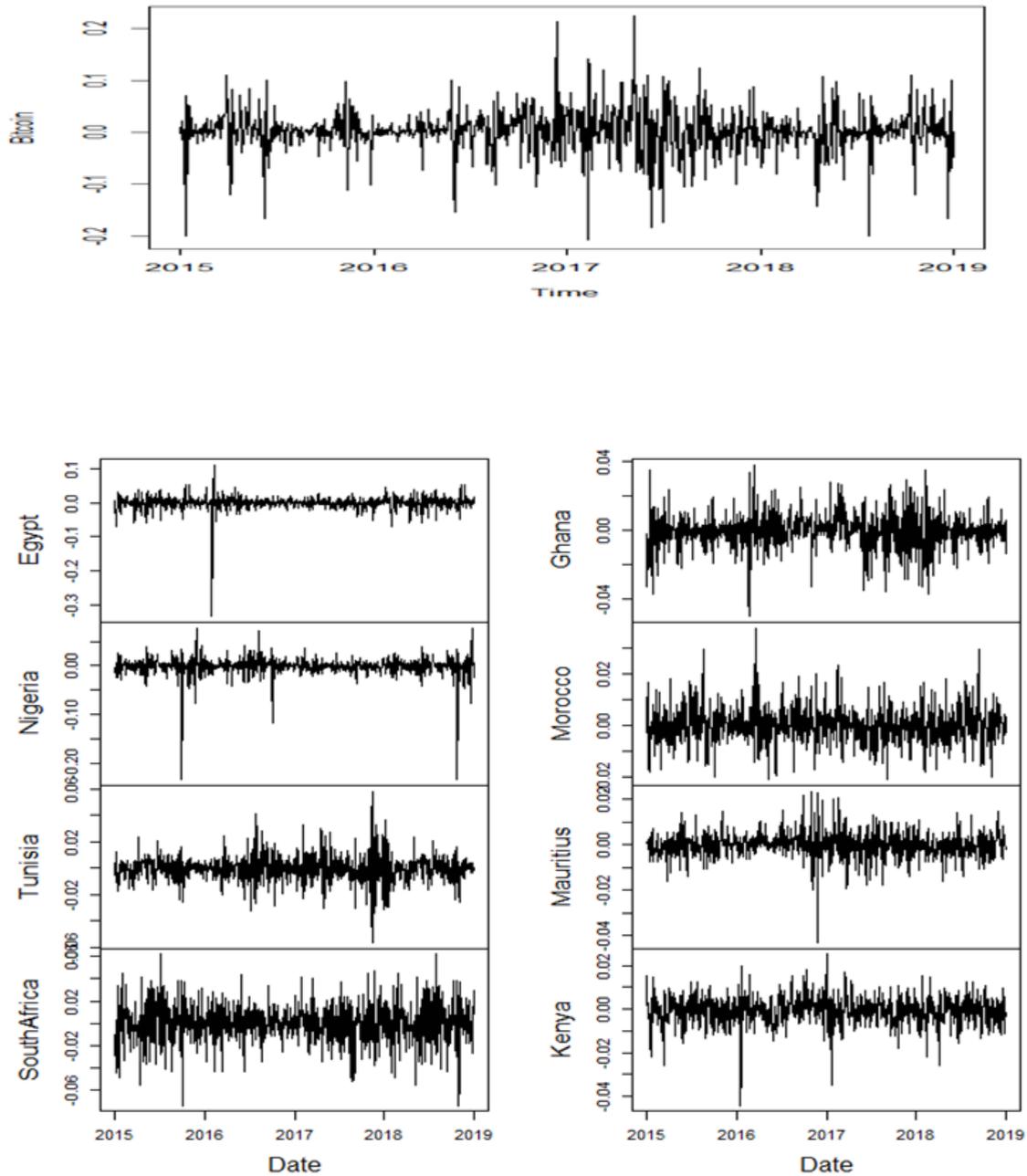
The empirical results of this study both support and contradict related literature. The results support the inter-market linkages between cryptocurrencies and global stock returns evidenced by Qureshi et al. (2020), Shahzad et al. (2020), Bouri, Lucey and Roubaud (2020) and Bouri, Shahzad and Roubaud (2019), and contradict Corbet, Meegan, Larkin, Lucey and Yarovaya (2018) and Gil-Alana, Abakah, and Rojo (2020) who found no connection between the markets. The current study examined the level of integration between Bitcoin and eight African stock markets. Future studies could examine the integration of other cryptocurrencies and other African stock markets not covered in this study to enhance our understanding of the inter-market linkages.

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## Appendices



*Figure 1.* Time series plot of Bitcoin and selected African stock indices returns

## STUDENT SATISFACTION AND LOYALTY: THE PERSPECTIVE OF PROFESSIONAL ACCOUNTING STUDENTS

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### Abstract

This study examines the concept of satisfaction from the perspective of students pursuing a professional accountancy qualification with the Institute of Chartered Accountants Ghana (ICAG). The study initially explores the views of the management of the Institute on the concept of student satisfaction, the dominant predictors of satisfaction and further ascertains the key initiatives to improve students' learning experience. Further, the study assesses student satisfaction with the services offered by ICAG and ascertains its effect on student loyalty. Using an online questionnaire and interviews, we observed from our interactions with management that significant effort has been made to position the Institute as a student-centred organization backed by policy reforms to enhance students' learning experience. Analysis of students' views indicates a high level of satisfaction with the services offered, and its implication on student loyalty is highlighted in this study.

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### Article Info

#### **Keywords:**

*Satisfaction*

*Learning experience*

*Loyalty*

*Accountancy body*

*Service quality*

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## 1. Introduction

Today's business environment has been described by many industry players as complex, dynamic and one characterized by very intense competition across all sectors. The intensity of the competitive pressure faced by businesses, especially those in the service industry, has compelled most businesses to continuously explore ways of gaining competitive advantage over others to survive. Potluri and Zeleke (2009) argue that an organization's survival in a highly competitive environment depends substantially on its ability to attract and retain customers. While the ability to attract and retain customers remain key to the growth and survival of organizations, several studies (Khan, Ahmed & Nawaz, 2011; Potluri & Zeleke, 2009) have shown that customers would only remain loyal to an entity when satisfied with the product or service it offers.

Consequently, many organizations continue to invest substantial resources into customer satisfaction as a means of maintaining a long lasting repeated business relationship (Jaiswal, 2008). Satisfaction has been conceptualized to mean a state where the outcome of a service fulfils a person's expectation (Arif & Ilyas, 2013). Satisfaction is, therefore, obtained when services rendered fits the expectations held by clients. While the relevance of customer satisfaction to service organizations is well acknowledged in the literature, it has become a very topical issue in educational institutions in recent times. Educational institutions, like other service organizations, have become an international market for educational services because of globalization resulting in intense competition in the sector (Hanssen & Solvoll, 2015; Hemsley-Brown & Oplatka, 2006).

The increase in competition, coupled with the quest to remain relevant in business, has necessitated the adoption of various strategies by educational institutions, particularly Higher Institutions of Learning (HIL), in their bid to attract and maintain students (Butt & Rehman, 2010; Hanssen & Solvoll, 2015). For most HIL, education

is now recognized as a service business; hence, meeting the expectations of their clients, the students, has become one of the topmost priorities (DeShields et al., 2005). Accordingly, most HIL, especially universities, have continuously been exploring, developing, and implementing policies to satisfy students (DeShields et al., 2005; Gruber et al., 2010; Hanssen & Solvoll, 2015). Significant research attention has, therefore, been devoted to the concept of student satisfaction and service quality in HIL in recent decades.

Notwithstanding the fact studies into student satisfaction and service quality at HIL have been on the ascendency, most existing studies (El Alfy & Abukari, 2019; Gruber et al., 2010; Khan, Ahmed, & Nawaz, 2011; Osman & Saputra, 2019; Potluri & Zeleke, 2009; Sutherland, Warwick & Anderson, 2019), have focused primarily on university students, with less attention on students pursuing professional qualifications such as professional accountancy training, law, engineering and the health care profession. Moreover, extant studies on student satisfaction and service quality have been restrictive and skewed towards developed economies, with less attention on developing countries, particularly in Sub-Saharan Africa. While not discounting the relevance of existing empirical works from the developed world, the evidence provided by some studies (Mattah, Kwarteng & Mensah, 2018; Nicholson, 2011) demonstrates that the concept of satisfaction is context-dependent; hence, the need for studies in other contexts cannot be overemphasized.

The current study attempts to provide some perspective on the aforementioned gaps by examining the concept of satisfaction from the perspective of students pursuing a professional accountancy qualification with the Institute of Chartered Accountants Ghana (ICAG). We focus on the accountancy profession because, unlike the other professions, different professional accountancy bodies exist in most jurisdictions, making it one of the few professions in the world where individuals have alternatives in terms of which professional accountancy body to be affiliated with. Customer satisfaction is, therefore, an important issue to the growth and survival of professional accountancy bodies due to the competitive nature of their operating environment. We argue that to remain competitive, professional accountancy bodies ought to view their students as customers and strive to provide services that meet and even exceed their expectations to boost their membership.

Our objectives are two-fold. First, we explore, from the perspective of personnel of the ICAG, their understanding of student satisfaction as a concept, the factors that drive it, management's philosophy with regards to how student satisfaction should be perceived, and assess key initiatives undertaken over the years to meet the expectations of students. Second, we explore, via a self-administered survey, the view of students on the quality of service offered by the ICAG, their level of satisfaction with the services and the drivers of satisfaction, and ascertain, by means of a structural model analysis, the relationship between student satisfaction and loyalty to the Institute.

The evidence provided in this study is relevant in several ways. First, unlike most satisfaction studies of HIL that focused on university students, this study examines the concept from the perspective of students of a major professional accountancy body. Second, our findings provide some perspectives on the customer satisfaction discourse from the African context where empirical evidence on the subject matter is lacking the most.

The rest of the paper is structured as follows. The next section begins with a brief background description of ICAG followed by a review of existing literature on customer satisfaction, service quality and other variables of interest for the study. The paper continues to spell out how the objectives of the study are to be achieved, and the methods employed. The subsequent section presents and discusses the findings of the research. The paper ends with some conclusions drawn from the study findings and the implications thereof, and makes some recommendations.

## **2. Literature Review**

### ***2.1. Customer satisfaction and the concept of student satisfaction***

Customer satisfaction has been described to be the heart of all marketing activities and its relevance to business success is well acknowledged in the literature (Dilham, Sofiyah & Muda, 2018; Jaiswal, 2008). Most businesses continue to invest hugely to ensure the attainment of some level of satisfaction for its customers. Striving to deliver top-notch services to satisfy customers is considered a strategic tool for survival in today's competitive business environment (Reichheld & Sasser, 1990; Jaiswal, 2008).

Customer satisfaction refers to the 'fulfilment response' (pleasant or unpleasant) by the customer (Oliver, 1997). To Zeithaml and Bitner (2000), satisfaction describes a customer's assessment of a product or service focussing on how their expectations and needs are met. McDougall and Levesque (2000) define satisfaction as the measure of a customer's reaction to an isolated or prolonged set of service experiences. While satisfaction has been conceptualized in diverse ways, a common theme that runs through most existing definitions is the fact that it has to do with customers' reactions to the consumption of a product or service, usually by reference to a predefined expectation of the customer.

Student satisfaction, on the other hand, describes a student's assessment of the educational service experience (Elliot & Healy, 2001). As a concept, it has been described as complex and multi-dimensional and its relevance to educational institutions is well documented in the literature (Marzo-Navarro et al., 2005; Richardson, 2005; Hanssen & Solvoll, 2015; Rowley, 2003; Tapp, Hicks & Stone, 2004; Khosravi et al., 2013). Generally, these studies conclude that institutions have a greater chance of securing long-term relationships once students are satisfied. Developing such relationships, according to Alves and Raposo (2007), can earn institutions perks such as positive word-of-mouth (WOM) to potential, present and future students, and possible collaborations with organizations and support by alumni. Students' dissatisfaction, however, could present some ominous outcomes to both the institution and students, including student transfers and quitting, negative WOM and complaints, which could affect future applications (Deshields et al., 2005; Alves & Raposo, 2007; Gruber, Fuß, Voss & Glaeser-Zikuda, 2010).

### ***2.2. Drivers of student satisfaction***

Several factors, including institution's reputation (Chandra et al., 2019; Hanssen & Solvoll, 2015), institutional effectiveness (Elliott & Healy, 2001) and campus facilities (Nguyen & LeBlanc, 2001) have all been associated with student satisfaction. However, most studies generally concur that service quality plays an important role in student satisfaction (Wilkins, Balakrishnan & Huisman, 2012; Wilkins & Balakrishnan, 2013). Gruber et al. (2010) argue that student satisfaction reflects the perceived service quality disparities between educational institutions. Service quality is a concentrated assessment that represents the customer's appreciation of specific aspects of a service (Zeithaml & Bitner, 2003). The appreciation of 'aspects' of the service is informed by factors such as price, quality of the service and other personal and situational factors. Parasuraman, Zeithaml and Berry (1985), however, provide a more comprehensive list to include: competence, reliability, knowledge, courtesy, responsiveness, credibility, communication, tangibles, access and security as the determinants of service quality. With time, these drivers were reduced to reliability, tangibles, assurance, responsiveness and empathy to represent the seminal model: SERVQUAL (Parasuraman, Berry & Zeithaml, 1991). The SERVQUAL has been the foundation for several models for measuring service quality including SERVPERF (Cronin & Taylor, 1994), HedPERF for HEIs (Abdullah, 2005) and EduQUAL for technical schools (Senthilkumar & Arulraj, 2011).

### ***2.3. Service quality***

Service quality is an evaluation process involving the comparison of actual service experiences against a customer's prior expectations (Parasuraman, Zeithaml & Berry, 1988; 1991). Assessing the quality of a service, according to Rust and Oliver (1994), revolves around three important dimensions of the service encounter:

service environment (physical environment), process quality and technical quality. From the perspective of customers however, service quality perceptions involve the evaluation of multiple factors of relevance that may differ from one customer group to the other (Zeithaml et al., 2009). O'Neill and Palmer (2004) define service quality in the educational sector as the disparities between students' expectations of the service and how they perceive the service they experience. An essential feature of the conceptualization of service quality within the educational sector is the fact that it is marked by what Yeo (2008) considers to be the supremacy in providing unique learning experiences.

These unique experiences can be created through the adoption of a customer-centric approach to service delivery (Latif et al., 2019). Extant studies (Kuo & Ye, 2009; Kant & Jaiswal, 2017) suggest that students consider the reliability, assurance, tangibility, empathy and responsiveness in their assessment of service quality. Lagrosen, Seyyed-Hashemi and Leitner (2004) suggest forward courses offered, teaching practices, facilities, corporate collaboration, library resources, external evaluations, post-study factors and internal evaluations as considerations of service quality in HEIs. While the provision of quality service is expected to result in a student's favourable assessment of their educational experiences and outcomes, it has been argued that the creation of a favourable image of an institution in the mind of the student will also affect the extent of attachment to the institution (Alves & Raposo, 2010). Thus, student satisfaction may have important implications on their loyalty to an educational institution.

#### **2.4. Student satisfaction and loyalty**

Extant studies have explored the link between service quality, student satisfaction and loyalty (Helgesen & Nettet, 2007; Duarte, Raposo & Alves, 2012). Kim, Lee and Yoo (2006e) conclude that regardless of how satisfaction is perceived, it results in loyalty and positive word of mouth (WOM). Xu and Du (2018) consider satisfaction to be one of the most critical determinants of customer loyalty. Loyalty to Dick and Basu (1994) consists of two dimensions: attitude and behaviour. While the attitude gives the motivation, the behaviour manifests either positively as retention and/or inclination to recommend (positive WOM) or negatively as a tendency to complain and/or defect. Thus, in the educational setting, student loyalty may evince as spreading positive WOM, enhancing participation in the educational process, continuance of a study program with the institution and returning to pursue further studies (Helgesen & Nettet, 2007; Brown & Mazzarol, 2009; Finney & Finney, 2010).

### **3. Methodology**

#### **3.1. Research method, data and data collection**

We adopted a mixed method of research in achieving the objectives of this study. The mixed method, according to Leech and Onwuegbuzie (2009), is the most appropriate if the research involves the collection, analysis and interpretation of both quantitative and qualitative data in a single study. The first part of the study, which explores the understanding of key personnel of ICAG on the concept of student satisfaction and the factors that drive it, employed the qualitative strategy. The qualitative method was deemed appropriate as it affords the researchers the opportunity to understand the events, actions and processes, and attempt to make sense of, or interpret, issues on service quality and student satisfaction from the perspective of the human actors within the context of ICAG.

Data for the qualitative analysis was gathered using face-to-face semi structured interviews. This medium does not only help in having an in-depth knowledge of how and why, and the various implications behind the behaviour of individuals in a social setting, but also afford the researcher the opportunity to ask follow-up questions to clarify responses that were obtained from interviewees (Myers, 2013). The interviews were audio recorded with the permission of respondents, and transcribed. The interviewees were the management team of the Students Service Directorate (SSD) of ICAG, consisting of the Director and Manager, with interviewing

time being 1 hour, 7 minutes and 33 minutes, respectively. The two officials were key to understanding the issues relating to student affairs, as they were in charge of the day-to-day handling of students' affairs for the institute. The Director was first interviewed to give that institutional understanding. Then the Manager was also interviewed to corroborate or otherwise the institutional perspective as well.

Data for the second part of this study, which explores the views of students on the quality of services offered by ICAG, their level of satisfaction and loyalty, was gathered by means of a self-administered questionnaire. The questionnaire was developed by adapting the student satisfaction scale by Yusoff et al. (2015) and the loyalty scale by Sapri, Kaka and Finch (2009). The specific questions used to measure the various dimensions of satisfaction and that of loyalty are shown in Table 2. For each of these questions, respondents were made to rate their level of agreement (for satisfaction construct) and how probable they will engage in specific acts (for the loyalty construct) on a scale of one to seven. The completed questionnaire was administered to registered students of the ICAG and other approved tuition providers for the ICAG professional examinations electronically using google forms.

### **3.2. Data analysis technique**

Data from the interviews was analysed by developing themes, bearing in mind repetitive patterns, subjects/issues, perspectives, emotions and concepts as suggested by Veal (2011). These themes were drawn using both the bottom-up and top-bottom approaches (Myers, 2013). Thus, while some of the themes emerged from our detailed analysis of the data collected, other themes emerged from interacting with the literature. Data from the survey, on the other hand, was analysed using the Partial Least Squares-Structural Equation Modelling (PLS-SEM) technique.

## **4. Results**

### **4.1. Qualitative results**

This section discusses the findings emerging from the qualitative analysis of the study. The findings are discussed under themes as influenced by engagement with literature and interviews with respondents. In summary, the themes that emerged from the qualitative analysis include:

- The institutional mindset change
- The drivers of the change
- The effect of the institutional mindset change
- Stakeholders and stakeholder engagements since institutional mindset change
- Underlying dimensions that drive student satisfaction
- Tensions faced by the student services directorate that may hinder ensuring student services quality and satisfaction.

#### **4.1.1. A student-centric mind-set change**

Our interactions with management revealed that as an institution, the ICAG has re-oriented itself over years to respond to the changing business environment, which is driven largely by meeting customers expectation. As alluded to by the interviewees, there has been a 'mind-set change' from just providing professional education to students to a more student-centred orientation at the Institute. It is in the light of this change that the Student Services Directorate (SSD) was established to spearhead the "student as a client agenda". A respondent reiterates this as follows:

“as a realization that we were a service rendering institution instead of merely providing education,

the Institute thought it wise that we narrow down the focus of this directorate to the service we render to our students and to help them get some quality education”.

Thus, just like most universities that have adopted a customer centric approach to remain relevant (Petruzzellis et al., 2006), the ICAG, in line with this changing trend, has positioned itself with time as a student focused institute that aims to deliver quality service to its students. Given the level of competition that the Institute faces from other professional accountancy training bodies, the change in mind-set can be described as strategic and relevant to the progress of ICAG. However, the change in the organizational mind-set is driven by a number of factors and the next section discusses some of these drivers of change that emerged from our interactions with the personnel of the Institute.

#### **4.1.2. Drivers of change**

The word ‘change’ has been widely acknowledged to be the only permanent thing in life. However, it is also without doubt that real changes do not occur in a vacuum and that several factors may account for the change in mind-set of the Institute. The drivers of change in mind-set based on the responses received from the interviews are from both internal and external sources. The internal drivers of change include leadership of ICAG, commitment of ICAG members and the constant re-training of staff, while competition from other professional accountancy bodies, according to our respondents, constituted the external driving force behind the mind-set change.

##### *Leadership*

Leadership is key to effecting any change in an organization or enforcing a mind-set of change. Without the support of key management members, it will be extremely difficult to even initiate the change process in an organizational setting and, most importantly, to sustain the change. As alluded to by the interviewees, the change to a student centred mindset at ICAG, in part can be attributed to the leadership style of successive management with the support of the Council. Below, an interviewee gives evidence of leadership as a source of this change:

*“we have realised without the students the Institute is nothing and so CEOs that have come, are always committing resources to meet students’ needs and getting their support”.*

From the responses, successive CEO’s support for the student-centred orientation and the commitment of resources to achieve same has been very instrumental in driving this mind-set change at ICAG. As pointed out by Kennedy (2000), effective leadership is an important factor that drives changes in institutions. Empirically, the evidence provided by existing studies (Kennedy, 2000; Shvindina, 2017) suggests that leadership is key to effecting any meaningful change in an organization.

##### *Commitment of members*

We also observe from the interactions that the members of the profession themselves have contributed to this change in mind-set by being agents of change. According to the interviewees, over the years some members have aided in demystifying the old mentality and promoting a mentality that reflects the ‘new’ ICAG that strives to meet the expectations of its students. This has contributed to the Institute striving to make the changes members want. This is evidenced from the response below:

*“We also see commitment by some of the members. In the past, some members in an attempt to...sell themselves make it look like no one can get it except them... Now you have younger people who have qualified and encouraging those behind them” with their experiences.*

## Competition

Different professional accountancy bodies exist in Ghana although the ICAG remains the sole regulator of the accounting profession. The existence of multiple professional accountancy bodies has generated intense competition over the years in order to attract students. The re-orientation of the Institute in part may be attributed to the competitive pressure from other professional accountancy bodies in Ghana. The response below gives evidence to this:

*“Competition is a major factor”.*

As argued by Petruzzellis et al. (2006), competitive threat remains one of the dominant factors that push educational institutions to reform its approach to a customer-centric approach.

### 4.1.3. Effects of mind-set change

Respondents alluded to the enormous benefits that the change in mind-set has brought to both students and the Institute. The mind-set change has resulted in students’ improved experiences with ICAG through the provision of better services such as easing the registration process for prospective students through provision of online services, better learning environment and facilitating better policies to favour students. These positive developments have resulted in improved pass rates for the students and inculcate the “can do” spirit in them.

From the perspective of the Institute, the mind-set change has impacted positively on student numbers. A few responses illustrate the effect of this change on the Institute:

*“In fact, in 2006 we were getting about 500 students a year. Then it moved to 1600 students around 2010... now we are making on the average 3000 plus a year in the last five years. So, it has improved and the reason is that we are showing commitment to getting students to come and write the exams because we have realized that without students, there is nothing. Everything is stuck with the students”.*

*“Younger people are passing the exam and so they are encouraged. I see a lot of encouragement. With the older ones, it wasn’t about risk averse but the prevailing situation at the time, the environment, the learning environment made it difficult for them”.*

From the responses, the mind-set change has impacted positively on student enrolment with the Institute.

### 4.1.4. Stakeholders and stakeholder engagements since re-orientation of institutional mindset

Stakeholders are vital to the success of institutional change. According to the respondents, their key stakeholders as a directorate include current and prospective students, employers, council members and members of the Institute. Respondents from the Directorate responsible for engaging these stakeholders assert that they engage them through forums, visits to learning centres to interact with student, walk-ins and phone calls by stakeholders to the directorate offices, sponsorship of student events, especially in universities, use of suggestion boxes, emails and social network sites (WhatsApp & Telegram). Employees and tuition providers whose behaviour leads to a complaint by stakeholders are investigated and sanctioned appropriately. In addition, there are regular staff reshuffles to minimize complacency of staff in service delivery.

### 4.1.5. Drivers of student satisfaction: the perspective of staff of ICAG

Having understood the mind-set of management and the pursuit to become a student-centred driven Institute, we followed up with an assessment of management’s view on what drives student satisfaction. Relying on the framework of Yusoff et al. (2015), we explored their perspective on some of the identified factors that influence student satisfaction and examined the key initiatives undertaken over the years to meet students’ expectations. This framework was preferred to the many existing ones as it captures most of the dimensions of

student satisfaction within the context of HIL. The next section discusses responses from the interviewees on the drivers of student satisfaction.

#### *Professional comfortable environment*

This factor measures the professionalism and competency exhibited by employees in an organizational setting. From an educational perspective, an institution with a professional comfortable environment is one that respects the feelings, concerns and opinions of their students and handles complaints in a professional way. In such an environment, students feel that grades are consistent with the efforts made in the form of assessment employed. Responses from our interviewees suggest that the Institute treats students' concerns seriously and strive to always address them when brought to their attention. The responses below illustrate this:

*“The SSD at ICAG plays a liaison role between the students and the Institute. The Directorate analyse students’ petitions and present to the Board for redress”.*

*“Our role as a directorate include: improving student experience with ICAG through provision better services. Better services include: a better learning environment, facilitate better policies to favour students”.*

Thus, in terms of structure, the Institute has in place a well-functioning Directorate that students can direct their concerns to and expect to have them addressed.

#### *Student assessments and learning experiences*

Assessment of students, conceptualized to mean the appropriate level of difficulty of course content and the quantity and quality of assessment of examination and coursework, has important implications on student satisfaction. For most prospective students, one key issue that usually arises at the point of entry into the professional accountancy programme had to do with the appropriate level to start the journey. An individual's prior academic qualification is considered during the registration process and exemptions granted to deserving students to determine entry level. While this exercise has in the past been done on a case-by-case basis, the Institute, in an attempt to make studentship easier, has been granting institutional exemptions through its MOUs with some universities in the country. This, according to the respondents, is a demonstration of the effort made by the Institute to enhance the learning experience for students through partnerships. This is illustrated by a respondent's response in this regard:

*“Student services...we do the registration, review their certificate to grant them their exemptions that they qualify for, if there are issues, we discuss all those issues. Relating to exemptions we also do MOUs with the universities. So, we want to see what they do and match with the program we have to determine what exemptions we can give to them so that also comes under the student services”.*

#### *Textbooks, lecture and tutorial facilities*

The availability and accessibility of relevant textbooks and other study materials is key to achieving a student's goal of becoming a qualified accountant. Given that access to good study materials help improve the learning process and may eventually affect performance in their professional exams, the development of quality textbooks by the Institute could positively impact student satisfaction. Indeed, this is a shared belief among management and staff of the Institute. An account of how the lack of study manuals affected students in the past and the improvements made over the years has been shared on the ICAG website:

*“Since the mid-sixties, the Institute of Chartered Accountants (Ghana) has been providing accountancy training at both technician and professional levels. However, in those early days, pass rates at various levels were impeded by the non-availability of reading materials for students. This trend experienced a turnaround, in the 80s and has seen a major boost since accounting manuals for the four (levels) were introduced in November 2008. The establishment of the ICAG College in June 2009*

*augmented the Institute's effort to provide readily available tuition to prospective and regular students on part-time and regular streams" (<https://icagh.com/newsite/about-us/overview>)*

Our interactions with the staff revealed that the intervention has positively impacted on the satisfaction of successive students based on feedback received over the years.

#### *Student support facilities*

This factor denotes a dimension of student satisfaction that hinges on the availability of support facilities such as IT facilities and learning resource centres, among others, that enhance student comfort within the learning environment. From our interactions, respondents pointed out that the Institute recognizes the relevance of these facilities and largely agrees with the assertion that their availability matters for student satisfaction. In terms of support systems, the respondents argue that apart from the SSD office at the head office, the Institute has established a students' affairs office in every city with a university to support its students. Again, as indicated by respondents, the Institute has a functional library that is accessible to students:

"We also have a library that we are operating under the student services and it is functioning well".

In terms of IT infrastructure, although not advanced, some interventions have been made to enhance students' experience. For example, we gathered from the interview that an online registration procedure is in place to assist students to register with ease.

#### *Knowledgeable and responsive faculty*

This dimension considers the teaching ability of staff, the consistency of teaching quality, the responsiveness of teaching staff to requests, and the subject expertise of the staff. While the Institute is not directly responsible for providing tuition to students who sit for the exams, significant attention has been given to the activities of tuition providers to ensure that students get value for their investment. The ICAG introduced the Partners in Learning Program (under the PILATE Program) to assist in getting the best of tuition for its registered students. Under the PILATE Program, the Institute, through the SSD, registers tuition providers as approved institutions, offers training to the tutors, monitors their background, assesses places of tuition and makes periodic visits to tuition centres to interact with students. Moreover, tuition providers are called to order if students make any complaints against them as is illustrated below:

"So, all those providing tuition we consider them to be partners in learning...So, what we do is that we ensure that they complete forms. We look at who and who would be lecturing at that institution. We have situations where people took monies from students and could not give them the best lecturers to write the exams. They failed and they never came back to us. So, we thought that we could have a certain interest to look at the backgrounds of those who are lecturing".

#### *Staff helpfulness*

The satisfaction of students may also be driven by the kind of support they receive from the staff (administrative and technical staff) of an educational institution. We observed from the interview that respondents indeed considered this factor to be relevant for student satisfaction and enumerated the different ways in which the staff of the Institute has been assisting students. As the respondents pointed out, commitment of staff to assist students has been high and the staff have been helpful to both current and prospective students in several respects including:

- Liaising with relevant departments to analyse student petitions and presenting them to the Board
- Assessing new policies to ensure there are no contradictions
- Disseminating new policies to students through bulk emails
- Playing an advisory role for both current and prospective students

- Publicizing syllabus changes before they take effect and sensitizing students in this regard
- Visiting PILs for student interactions and dealing with issues that arise
- Calling staff members to order if there is a complaint on behaviour
- Operating an open-door policy by the SSD Director
- Calling tuition providers to order after a complaint
- Assessing students' issues concerning syllabus changes and presenting them to council for resolution
- Helping students with any registration difficulties

A situation in which staff helpfulness was portrayed was given:

“For example, a student paid his tuition fee, but the tuition didn't come on because they were unable to reach an appropriate number. However, they were not willing to refund his money to him, so he spoke to us and we told him sorry. We also told them that we gave them the certificate to operate and required of them to refund the money to the person as quickly as possible. Quickly they gave the money back to the gentleman. So, we act on information we get from outside.”

#### *Class sizes/ relationship with teaching staff/ classroom environment*

While the literature recognises this factor to be an important driver of student satisfaction, it is not applicable within the context of ICAG as an institution. The reason is that ICAG as a professional body does not directly provide tuition for its students but only provides some supervisory role over its accredited tuition providers. Thus, the Institute cannot be assessed on this metric as it does not play any direct role in the teaching of its students.

In the next section we summarize some of the pressures (tensions) that the Institute is confronted with in its dealings with the student body as gathered from the respondents during the interview.

#### **4.1.6. Tensions faced by the Institute**

When asked about common tensions between the institute and students, respondents identified issues with exams, changes in syllabus and exemption policies to be the most frequently encountered issues. A few illustrations are below:

“the first one is about passing the exams. It is always a challenge for students so somebody who writes four papers he doesn't get any one of them, in resolving them, ...we let them know that this is a professional program, so the first time you might not make it, so we do a lot of talking to students”.

On the syllabus change, “some people had some issues and I think like I said they overlooked some issues which students petitioned and as we were working on it we realized that they have a case and we also petitioned council and the whole thing was resolved so as we speak now the whole issue is resolved and everyone is fine”

This finding is in line with Lavin (1965) as well as Centra and Rock (1983) who find a significant relationship between grades and student satisfaction. Aitken (1982) concludes that academic performance is one of the factors that can determine student satisfaction. Thus, it is not unusual that most issues students have that cause tensions have a likely impact on academic performance. Therefore, these students' academic issues ought to be handled well so as not to compromise service quality and, invariably, student satisfaction.

## **4.2 Quantitative analysis**

Having understood the perspective of key personnel of the Institute on the issue of student satisfaction and the key policy initiatives to enhance the educational service experiences of students through the interview section, we subsequently examined the views of the students on the quality of service offered by the Institute in light

of the change agenda. The next section discusses results based on the survey data beginning with descriptive characteristics of the respondents, their views on the satisfaction scale and finally, the perceived relationship between satisfaction and loyalty.

#### 4.2.1. Demographic characteristics of the respondents

Table 1 presents details on the descriptive statistics of the respondents. The results show an uneven distribution in gender with the majority of the respondents (approximately 72%) being males. The study sample was largely youthful as about 77.5% of the respondents were 35 years or below. A good number of the respondents (approximately 57%) have been with the Institute for more than two years, an indication that a significant number of the respondents have considerable years of experience with the Institute. With regards to the entry qualification into the ICAG program, more than half of the respondents started their professional qualification journey with a first degree with about 10% of them holding a master's certificate upon entry. Interestingly, most of the respondents (close to 40%) prefer to physically visit the office of ICAG in their dealings with various Directorates. While this appears surprising given that the majority of the respondents are youthful and classified to be dominant demographic users of social media platforms (Owusu et al., 2019), it shows that the traditional means of engagement has not lost its relevance to technological advancement in our context.

**Table 1: Descriptive of Respondents**

Variables	Frequency (257)	Percent (100)	
	Male	184	71.6
	Female	73	28.4
Level	1	14	5.4
	2	136	52.9
	3	107	41.6
Age	25 and below	76	29.6
	26 – 30	78	30.4
	31 - 35	45	17.5
	36 – 40	33	12.8
	Above 40	25	9.7
How long have you registered with ICAG	Less than 1 year	25	9.7
	1 - 2 years	85	33.1
	3 - 4 years	65	25.3
	Above 4 years	82	31.9
Entry qualification into the ICAG program	Secondary school	64	24.9
	Diploma	23	8.9
	First Degree	145	56.4
	Masters	25	9.7

Source: Authors' Computation from Software

#### 4.2.2. Construct reliability and validity

The reliability and validity of the constructs were tested using internal consistency, convergent validity and discriminant validity measures. Internal consistency was assessed using the Cronbach Alpha and Composite Reliability. Results as shown in Table 2 demonstrate adequate reliability for all the constructs as values for both the CA and CR exceeded the 0.7 recommended minimum threshold (Hair, Black, Babin & Anderson, 2009).

The test for convergent validity, which measures the degree to which the various indicators of a construct correlate with each other, was assessed using the Average Variance Extracted (AVE). The AVE test yielded satisfactory results as values for all the constructs were above the 0.5 minimum benchmark. Lastly, a discriminant validity test was performed to assess the uniqueness of the indicators of each construct using the Fornell Larcker criterion. As shown in Table 3, discriminant validity is assured as all the AVE values for each construct is greater than the squared cross-correlation between the constructs (Hair, Sarstedt, Ringle, & Gugeran, 2017).

**Table 2: Cronbach's Alpha, Composite Reliability and Average Variance Extracted (AVE)**

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Knowledge of Staff	0.865	0.908	0.711
Learning Material	0.70	0.834	0.639
Student Loyalty	0.940	0.951	0.710
Overall Satisfaction	0.871	0.910	0.676
Relationship with Staff	0.908	0.942	0.845
Responsiveness of Staff	1.000	1.000	1.000
Staff Helpfulness	0.936	0.949	0.757
Student Support facilities and Systems	0.761	0.839	0.513

Source: Authors' Computation from Software

**Table 3: Discriminant validity**

Variables	1	2	3	4	5	6	7	8
1 Knowledge of Staff	0.843							
2 Learning Material	0.483	0.799						
3 Student Loyalty	0.600	0.518	0.842					
4 Overall Satisfaction	0.653	0.675	0.807	0.822				
5 Relationship with Staff	0.704	0.463	0.557	0.616	0.919			
6 Responsiveness of Staff	0.725	0.450	0.509	0.580	0.693	1.000		
7 Staff Helpfulness	0.792	0.536	0.605	0.682	0.857	0.788	0.870	

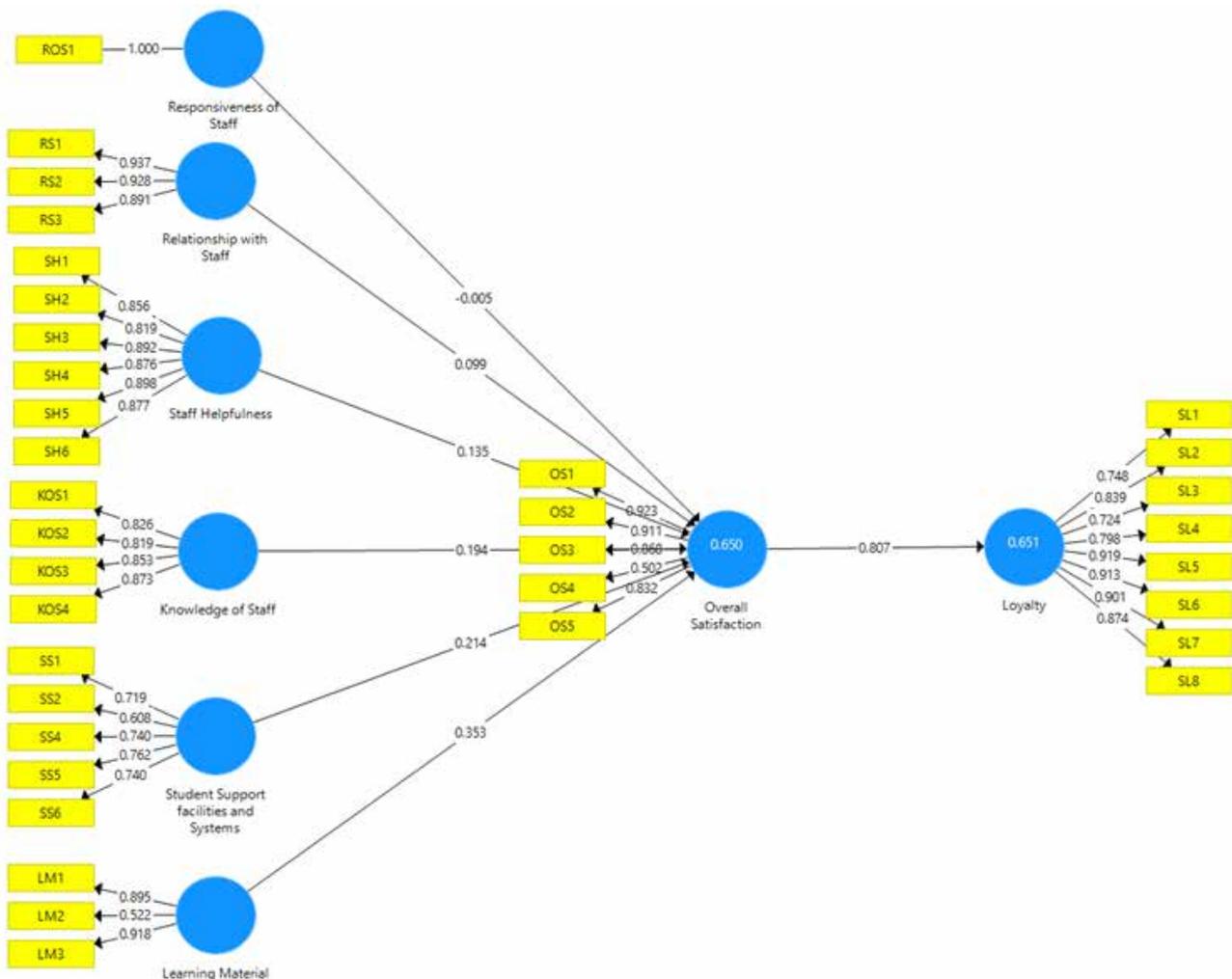
8	Student Support facilities and Systems	0.539	0.526	0.512	0.628	0.491	0.517	0.577	0.716
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Source: Authors' Computation from Software

#### 4.2.3. Structural model analysis

Having satisfied the reliability and validity tests, we proceeded to analyse the predicted relationship among the study constructs structurally, using the bootstrapping procedure. The model for analysis is as shown in figure 1. The model predicts that overall satisfaction of students is influenced by the relationship, responsiveness, knowledgeability and helpfulness of staff of the Institute, availability of learning materials and other student support systems. The model finally predicts that the overall satisfaction directly impacts on student loyalty.

Figure 1: Model for Data Analysis



#### 4.2.4. Tests for model quality

The quality of the model was first evaluated by ascertaining whether our estimated results could be affected negatively by multicollinearity issues. Results of the multicollinearity test using the Variance Inflation Factor (VIF) shown in Table 5 suggest our model is free from multicollinearity related problems as the VIF values for all the constructs were within the tolerable threshold of not more than 10 (Hair, Ringle, & Sarstedt, 2011).

**Table 4: VIF**

Construct	VIF
Knowledge of Staff	2.976
Learning Material	1.563
Relationship with Staff	3.801
Responsiveness of Staff	2.865
Staff Helpfulness	6.303
Student Support Facilities and Systems	1.706
Overall Satisfaction	1.000

**Source:** Authors' Computation from Software

Second, the extent to which the variation in the endogenous variables is explained by the exogenous variables are also evaluated using the using the Coefficient of determination, (R<sup>2</sup>). The R<sup>2</sup> values as shown in Table 5 suggest that taken together, the exogenous variables explain approximately 65% of the variations in overall satisfaction while level of satisfaction accounts for 65% of the variation in loyalty. Finally, the predictive relevance of the model was assessed using the blindfolding procedure proposed by Hair, Hult, Ringle and Sarstedt (2017), which suggests the predictive relevance of a model is deemed appropriate when the Q<sup>2</sup> value is greater than zero. As shown in Table 5, the Q<sup>2</sup> values of 0.427 and 0.407 for the endogenous constructs are greater than zero: an indication our model has high predictive relevance.

**Table 5: Bootstrapping Results**

Direct Path	Coefficient	P Values
Knowledge of Staff -> Overall Satisfaction	0.194	0.001
Learning Material -> Overall Satisfaction	0.353	0.000
Relationship with Staff -> Overall Satisfaction	0.099	0.177
Responsiveness of Staff -> Overall Satisfaction	0.005	0.937
Staff Helpfulness -> Overall Satisfaction	0.135	0.138
Student Support facilities and Systems -> Overall Satisfaction	0.214	0.000
Overall Satisfaction -> Student Loyalty	0.807	0.000
R <sup>2</sup> Satisfaction	0.651	
Student Loyalty	0.650	
Q <sup>2</sup> Satisfaction	0.427	
Student Loyalty	0.407	

**Source:** Authors' Computation from Software

### 4.3. Discussion

Table 5 presents results from the structural model analysis of the relationships amongst the study constructs. The results indicate a positive and highly significant relationship (at 1% significance level) between knowledge of staff and overall satisfaction of students. This is an indication that the extent of fulfilment derived by students in their dealings with the Institute in part rests on the calibre of staff they engage with at the Institute. This finding emphasizes the important role that personnel of the Institute play in shaping the experiences of students. Staff who demonstrate knowledge and skills in their dealings with students play a critical role in enhancing the educational service experience of students (Farrell, Souchon & Durden, 2001; Wilkins, Balakrishnan & Huisman, 2012; Wilkins & Balakrishnan, 2013).

Our results also show that the nature of relationship between staff of the Institute and the student body has a direct impact on student satisfaction. We find the staff relationship with students to be positively associated with overall satisfaction of students. Even though this relationship was statistically insignificant, the positive coefficient suggests that overall satisfaction is high among students when there is a good working relationship between them and staff of the Institute. Student satisfaction is likely to be high where the staff of the Institute are perceived to be approachable, friendly in their engagement with students and demonstrate the willingness to assist students in dealing with their peculiar challenges in the pursuit of their professional qualification. This finding is consistent with several empirical works (Karami & Olfati, 2012; Saif, 2014) that conclude that a healthy relationship between staff and students is relevant in achieving a sense of satisfaction among students. In line with the expectation of this study, we find staff responsiveness measured by the willingness and the speed with which staff of the Institute attend to students' requests and staff helpfulness to be positively associated with student satisfaction. Thus, the extent of fulfilment among the student body is likely to be high when the staff of the Institute attach a greater level of importance to their requests, and are prompt in assisting students with their requests. While a good working relationship between staff and students matters for their satisfaction, this result also suggests student satisfaction levels can be influenced by the seriousness that is attached to their requests by staff of the Institute. As pointed out by Yussof et al. (2015), students do not only want educators to be approachable and accessible but they also want them to be sensitive and show concern by addressing their needs promptly. The commitment of staff to assist students with their applications and registration and generally guiding them from the enrolment process until they graduate are important activities that enhance the image of an Institution in the minds of the students.

Our results also demonstrate that availability and accessibility of relevant learning materials impacts positively on satisfaction. The provision of good learning materials such as textbooks and ensuring that they can be accessed by students with minimal difficulties has important implications on student satisfaction. Ultimately, the goal of every registered student with the Institute is to pass the exams of all the requisite courses to become a qualified accountant one day. Given that access to relevant study materials facilitates the learning processes and is critical to the attainment of students' desire to become qualified accountant, the development of appropriate textbooks/manuals by the Institute and making them easily accessible to students will undoubtedly influence their satisfaction level. Empirically, existing studies (Douglas et al., 2006; Yusoff et al., 2015) have shown that within the context of educational institutions, learning materials play an important role in shaping students experiences with their institution positively. Related to the above, the results also indicate that the provision of support facilities in a form of a well-resourced library, computer laboratories, hostel facilities and student cafeterias affect student satisfaction.

Lastly, consistent with our expectations, we find that satisfaction has a positive and highly significant association with loyalty. This finding suggests that higher levels of satisfaction among students tend to promote a stronger sense of attachment with the Institute. From the results, students who are satisfied with the services of the Institute are more likely to maintain close contact with the Institute even after qualification, share positive experiences with others and, most importantly, recommend the programme to others. Given the level of competition among professional accountancy bodies in Ghana, such word-of-mouth recommendation by existing students could impact positively on the fortunes of ICAG. Thus, an important way for ICAG to maintain its position as a market leader in training professional accountants in Ghana is to strive to satisfy

its students to be good ambassadors of the Institute in future. Our results support the argument of existing empirical studies (Ali et al., 2016; Deshields et al., 2005; Helgesen & Nasset, 2007; Brown & Mazzarol, 2009; Finney & Finney, 2010) that posit that student satisfaction has a strong positive correlation with student loyalty.

## 5. Conclusion

Customer satisfaction has become a topical issue for Higher Institutions of Learning (HIL) due to the recognition of education as a service and the increasing attempt to meet the expectations of students. The concept has become even more germane for professional accountancy bodies due to the competitive nature of their operating environment. The goal of this study was to explore the concept of satisfaction among professional accountancy students, the predictors of student satisfaction and the effect of student satisfaction on loyalty.

Results from our analysis suggest a high level of satisfaction among the sampled students, which that is driven largely by the knowledge of staff, the provision of useful learning materials and the existence of support systems and facilities that enhance students' learning experience. Findings indicate that a higher level of satisfaction among students promotes a strong sense of attachment to an educational institution; and we observed from our interviews that the Institute has gone through structural changes to position itself as a student-centred organization driven by the earnest desire to meet the expectation of its students. This change in mind-set has been driven by leadership, members' commitment and competition.

The findings of this study have important implications for the management of the ICAG. While the results of the satisfaction survey are encouraging given that the sampled students have a positive perception of the quality of the services provided by the Institute, there is a need to maintain the quality of service and improve upon the service delivery to remain competitive. Accordingly, a formal periodic independent student satisfaction survey as part of operational strategy of the Institute will be helpful in obtaining regular feedback from students in a bid to consolidate the gains and improve where necessary to meet the varied and changing expectations of students. Again, the results demonstrate that improving the quality of service has positive implications on student loyalty, which is key to becoming relevant in a highly competitive business environment.

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## MEDIATION ROLE OF QUALITY STANDARD COMPLIANCE ON MONITORING AND AUDITING QUALITY IN GHANA

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### Abstract

*The study seeks to investigate the mediation role of quality standard compliance on the relationship between the monitoring activities of the Quality Assurance and Monitoring (QAM) Unit of the Institute of Chartered Accountants, Ghana and audit quality of Small and Medium Practice (SMP) firms in Ghana. A total number of 209 sampled Small and Medium Practice firms participated in the study. A survey questionnaire was used to collect data for the study. Descriptives statistics and Structural Equation Modelling (SEM) technique of Partial Least Squares (PLS) were used to analyse the data and test the nature of relationships in the research hypotheses. The study found a significant positive relationship between monitoring and audit quality of SMPs; and there is a significant positive relationship between monitoring and compliance. Also, a significant positive relationship was observed between compliance and audit quality. Compliance with quality standards positively mediates the relationship between monitoring and audit quality. Generally, the improvement in the audit quality of the SMPs in Ghana can be attributed to the monitoring activities of the Quality Assurance and Monitoring (QAM) Unit of the Institute of Chartered Accountants, Ghana. The study therefore recommends that the Institute of Chartered Accountant, Ghana should continue to strengthen the QAM Unit with well trained professionals and logistics so the unit can monitor SMPs to ensure continuous improvement in audit quality.*

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### Article Info

**Keywords:**  
*Audit quality  
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Audit firms  
Compliance*

## 1. Introduction

The significance of audit quality has engaged the attention of researchers, academicians, and professionals over the last few years, particularly following the various worldwide scandals (Jia & Hsiao, 2021). Following the global scandals and audit failures, regulators and the accounting profession have taken several policy measures and introduced regulatory changes to improve audit quality (Knechel, 2016). Contemporary scholars in accounting are attempting to identify the factors that led to the scandals aside from strengthening the auditing profession (Bazrafshan et al., 2021). Doan et al. (2020) note that contemporary studies in improving the auditing profession focus on audit quality. However, most studies in developed countries focus on independence (Xiao

et al., 2020), judgment (Cho et al., 2021), ethics (Lamba et al., 2020), and disclosure (Lee & Levine, 2020) of auditors. Similarly, other scholars have examined the concept of audit quality and the causes of why audit quality differs amongst audit firms and auditors (Harris & Williams, 2020; Saidu & Aifuwa, 2020).

Moreover, most studies in developed economies have mixed outcomes. For instance, Johl et al. (2021) posit that self-regulatory peer review opinions increase audit quality. Other studies, however, find that the self-regulatory peer review mechanism fails to determine audit quality (Khurana et al., 2021; Guo et al., 2021). The extant literature on the effect of statutory regulation on audit quality is limited in developing countries (Yuan, 2021); and only limited studies have examined factors influencing the level and extent of compliance with audit quality standards, specifically International Standard on Auditing 220 (ISA 220) and International Standard on Quality Controls (ISQCs) developed by International Auditing and Assurance Standards Board (IAASB).

There has been quite a number of studies on the adoption and compliance of International Financial Reporting Standard (IFRS) in both developed and developing countries (Opoku-Appiah et al. 2016), however, there has been little research on the adoption and compliance of International Standards on Auditing (ISA) (Johl et al., 2021). Thus, monitoring the auditors through external inspections and evaluations is becoming a driving force of continuous improvement for the profession (Harris & Williams, 2020). Based on the above, the Institute of Chartered Accountants Ghana has established the Quality Assurance and Monitoring Unit to monitor audit firms to ensure quality auditing. However, limited studies have explored how monitoring drives audit quality and the boundary conditions that may explain such a relationship in a developing country context (Albersmann & Quick, 2020). This study seeks to investigate the mediation role of quality standard compliance on the relationship between monitoring and audit quality in Ghana using Small and Medium Practice accounting firms.

## 1. Theory and hypotheses development

Dowling and Leech (2011) note that despite audit quality research having been undertaken since the early 1980s, there is no agreed theoretical base for audit quality. Accordingly, this study draws on the Theory of Economic Regulation where Stigler (1971) considers the theory to explain the beneficiaries and responsibilities of regulations with respect to the allocation of resources. In this study, it is considered that quality standards (clarified ISA 220 and ISQC 1) are types of regulations with which SMPs must comply to achieve audit quality. Therefore, compliance with these quality standards comes with some benefits and responsibilities. Compliance will lead to high audit quality with its attendant benefits, and non-compliance will lead to audit failure that may attract sanctions. This aligns with the views of Posner (1974) that the Theory of Economic Regulation is based on Public Interest and Capture Theories. The Public Interest Theory considers that the public demands regulations to correct market inefficiencies and failures. At the same time, the Capture Theory believes that regulations are influenced by the regulated (interest groups) to protect their private interests and maximize their members' benefits.

This study uses the two theories of the Theory of Economic Regulation to explain the relationship between the monitoring of SMP firms and audit quality. With the use of quality standards as a mediating variable between monitoring of SMPs and audit quality, the view of Posner (1974) is adopted. The Theory of Economic Regulation is, thus, used in the study to explain the mediating role of the quality standards compliance. The Public Interest Theory explains that arising from the global scandals resulting in market and audit failures, there is the need to introduce and enhance regulations in the form of quality standards to ensure audit quality to restore public confidence in auditing and prevent future failures. Furthermore, the Capture Theory is used to explain the relationship between the mediating variable of quality standards and audit quality. It is argued that arising from these market and audit failures, the Accounting and Auditing profession requires these regulations to restore the public's confidence and redeem the profession's sinking image. The following subsections discuss the hypotheses for the study.

## **2.1. Monitoring of SMPs**

Most studies undertaken in the developed markets indicate that self-regulatory monitored audit opinions generally revealed good audit quality, but some audit outcomes were manipulated by chosen favourite reviewers (Guo et al., 2021). Extant literature is limited on whether statutory regulation signals improve audit quality. Using PCAOB's specific audit deficiencies against extant literature's common audit quality measures, Lennox and Li (2020) conclude that several of these measures are predictive of audit deficiencies. Fung et al. (2017), Gunny and Zhang (2013), Guo et al. (2021) and Lamoreaux (2016) argue that monitoring and inspection reports signal audit quality and reduce audit deficiencies. In Ghana, the ICAG has fully adopted IAASB auditing standards that serve as a regulator in monitoring SMPs' audit quality. The study, thus, hypothesized that:

*H1: Monitoring of SMPs positively influences audit quality.*

## **2.2. Monitoring and audit quality standards compliance**

The Public Interest Theory is used in this study to explain the relationship between monitoring and quality standards. Under public interest theory, it is explained that regulation develops in response to a market failure crisis that is seen to be capable of resolution in the public interest (Harris & Williams, 2020). Some governments across the globe perceive that some entities' management within their jurisdictions knowingly prepare false financial reports, but those entities' external auditors issued unmodified reports on these financial statements. Therefore, government intervention in the financial accounting standard-setting process has been regarded as necessary because of failures in the market of accounting information. Pardo-Guerra (2020) documents that the Sarbanes-Oxley reform bill on accounting and corporate governance was passed in 2002 following corporate scandals or failures using earnings manipulation. Thus, the regulator's effective monitoring of the appropriate compliance with accounting and auditing standards will ensure that SMPs conduct their audits per the International Standards on Auditing (ISAs) and International Standards on quality control (ISQC 1). The following hypothesis is therefore formulated.

*H2: Monitoring of SMPs positively influences quality standards (ISA 220 and ISQC1) compliance.*

## **2.3. Audit quality standards compliance and audit quality**

The most effective method to enhance self-interest is by serving the public interest. In the promotion of audit quality and in an attempt to restore public confidence in the audit process, the concerns of and initiatives taken by regulatory agencies are likely to reflect efforts intended to maintain, defend or manage their domains (Johl et al., 2021; Saliha & Flayyihb, 2020). Accounting regulatory bodies and accounting firms are image-sensitive organizations that rely on creating and maintaining an impression of their activities to correspond with public expectations (Westermann et al., 2019). Therefore, SMPs must strive to appropriately comply with quality standards to achieve high quality to protect their reputation and avoid sanctions from the regulators. Based on the preceding arguments, the hypothesis below is developed:

*H3: Quality standards compliance positively influences audit quality.*

## **2.4. Mediating effect of audit quality standards compliance**

Brusca et al. (2018) consider that legal frameworks may positively impact the strength of auditing standards. Linking the legal framework and quality standards will help to ensure that the adoption is achieved and complied with appropriately. Extant literature agrees that the ISA, such as ISQC 1 and ISA 220, cannot alone drive audit quality (Riana & Mihai, 2017). Thus, more stringent enforcement by the regulator of these quality standards should compel the SMPs to comply with these standards, eventually leading to high audit quality. Cognizance of the fact that the regulator's effective monitoring of SMPs is responsible for appropriate compliance with quality standards and positively influences audit quality, it is submitted in this study that quality standards compliance will mediate the relationship between monitoring of SMPs and audit quality. This is hypothesized as follows:

*H4: Quality standards compliance will mediate the relationship between monitoring of SMPs.*

## 2.5. Control variables

Experienced auditors can provide better audit quality than inexperienced auditors (Marwa, 2021). Here, experienced auditors represent the number of years an SMP has been in existence or the working experience of an auditor (Darwanis & Putri, 2020; Aveh et al., 2016a). For instance, Narayana and Ariyanto (2020) report a positive nexus between experienced auditors regarding the number of years of practicing and audit quality. Narayana and Ariyanto (2020) posit that more experienced auditors possess complete knowledge of financial statement errors and error occurrence rates; therefore, are more likely to detect errors. Darwanis and Putri (2020) likewise state that high-experience auditors are less likely to influence management's optimistically biased assessment and irrelevant information. Behavioural auditing research similarly suggests that audit experience affects the accuracy of auditors' judgments. This study uses firm age to represent experienced auditors as a control variable to ascertain its effect on the relationship between monitoring and audit quality. Empirical research suggests that firm size could impact audit quality (Zuhroh & Erlina, 2020). Gandía and Huguet (2021) argue that large audit firms produce higher audit quality than small firms due to having more wealth at risk of litigation and loss of clients. Cho et al. (2021) assert that the larger audit firms are more competent because of standardized audit methodologies. The enhanced audit quality delivered by big audit firms is considered a product of their brand-name quality (Khurana et al., 2021; Harris & Williams, 2020; Donelson et al., 2020).

On the contrary, studies such as Xiao et al. (2020) and Ali and Aulia (2015) reveal that audit firm size has no significant influence on audit quality. The big four audit firms are linked with lower audit quality than non-big four firms in a governmental setting (Abdullah & Ani, 2021). Zuhroh and Erlina (2020) argue that an SMP may be prevented, by its size, from providing a more diversified range of services from within the firm due to its limited resources. Generally, most prior studies support a positive relationship between audit firm size and audit quality, while others do not find such a relationship. Based on the above, firm size controls the relationship between monitoring and audit quality. Consistent with prior research (Otete, 2018; Aveh et al., 2016b), full-time staff numbers, as indicated by the SMP firms' respondents, were used as indicators to determine firm size.

## 3. Methodology

A quantitative survey was used to test the research model. The questionnaire was designed to provide answers to the four research hypotheses adopted in the study. The questionnaire consisted of two sections: A and B. Section A captured the background information of respondents. Section B comprised four sections, each section comprised a set of questions that measure a construct. These constructs are monitoring, compliance, audit quality and small and medium practice firm resources. Respondents were asked to rate the extent to which they agreed (or disagreed) with the statements on a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

A total of 209 SMPs were sampled for the study. The target population for the research was the SMPs in Ghana, all registered audit firms in Ghana, excluding the big four audit firms and PKF. The list of licensed firms by the ICAG formed the basis of the study population, and as of that date, the total number of registered firms was 359. The sample size was estimated using estimation method given by Yamane (1967) as:

$$n = \frac{N}{1+N(e)^2} \quad [1]$$

Where n is the sample size; e = error level; e = 1 – confidence level and N is the sample frame. Assuming 95% confidence level, e = 0.05 given a minimum sample size of 189 was calculated based on a sample frame of 359 SMPs. The sample size was increased by 20 to 209 to ensure adequate number allocation to the district societies. The sample was proportionally distributed among the district societies.

### 3.1. Analytical framework

This study uses the Structural Equation Method (SEM) to explore the mediating effect on SMPs monitoring and audit quality. The structural model was designed and estimated using the variance-based structural equation modelling (SEM) software SmartPLS Release: 2.0 (beta) (Ringle et al., 2005). PLS method is suited to predictive models using much smaller or much larger samples (Chin, 1998; Hair et al., 2011) and is the preferred approach when assumptions of normality are not satisfied (Wold, 1982; Chin & Newsted, 1999). The study examined the measurement theory, which included the model's reliability and the structural theory that involves testing the proposed hypotheses to address the relationships among the latent variables. With the reflectively specified constructs, the measurement model was assessed with indicator reliability (satisfactory degree of reliability), internal consistency reliability (assessed by composite reliability  $\rho_c$  and Cronbach's alpha), convergent validity (evaluated by the average variance extracted (AVE)), and discriminant validity (evaluated by the heterotrait-monotrait ratio (HTMT) of correlations, Fornell and Larcker criterion and Cross loading). The structural theory uses five different structural equation model (SEM) assessment metrics, which include collinearity assessment, path coefficients, coefficients of determination (r-squared), effect size (f-squared), blindfolding, and predictive relevance (Q-squared).

### 3.2. Measurements

#### *Dependent Variable – Audit Quality (AQ)*

Combining insights from extant literature and IAASB's Audit Quality Framework (2014), the study developed a six-item scale to measure audit quality. Audit quality was thus operationalized by adapting two of the six items relating to regulators' inspection reports to audit firms describing weaknesses in their audit work indicating audit failure; and its subsequent publication of the inspection reports from IAASB in 2014 (Johl et al., 2021). The other four measures were adapted from prior studies as follows: less financial restatements by the preparers of the financial statements and hence seldom re-issue audit opinions (Francis et al., 2013; David, 2017); fewer litigation cases due to audit malpractice towards the audit firm (Peursem, 2020); appropriate management reports on the internal control weaknesses (Lisic et al., 2019); and issue of appropriate independent audit reports on the financial statements that are reliable, useful and timely (Fransen & LeBaron, 2019). All items were measured using a 7-point scale that ranged from "not at all (=1)" to "to the largest extent (=7)".

#### *Independent Variables – Monitoring of SMPs*

Monitoring of SMPs is operationalized by adopting three items from Nabulsi and Haidoura (2018) and KPMG (2013). These items relate to technical support to SMPs and SMPs' compliance with the applicable reporting framework and regulations. The other two items relating to compliance with quality standards and obtaining sufficient appropriate audit evidence were adapted from Glover et al. (2019). All items were measured using a 7-point scale that ranged from "strongly disagree (=1)" to "strongly agree (=7)".

#### *Mediating Variables – Quality Standards Compliance*

Consistent with Gao and Zhang (2019), quality standards refer to both clarified international standards on auditing (Clarified ISA 220) and International Standards on Quality Control 1 (ISQC 1). All the measures were adapted from Knechel et al. (2013). All items were measured using a 7-point scale that ranged from "not at all (=1)" to "to the largest extent (=7)".

#### *Control Variables*

SMP age and SMP size are the control variables that could affect the dependent variable and the relationship among the independent variables. Consistent with prior research (Otete, 2018), full-time staff numbers, as indicated by the SMP firms' respondents, were used as indicators to determine firm size. Like prior studies (Tran et al., 2019), firm age is operationalized using the number of years of existence of an SMP.

Based on the hypotheses developed above, figure 1 presents the conceptual model for the study. Audit quality, monitoring of SMP, and quality standards compliance are the dependent, independent, and mediating variables, respectively, whilst firm age and firm size are the control variables.

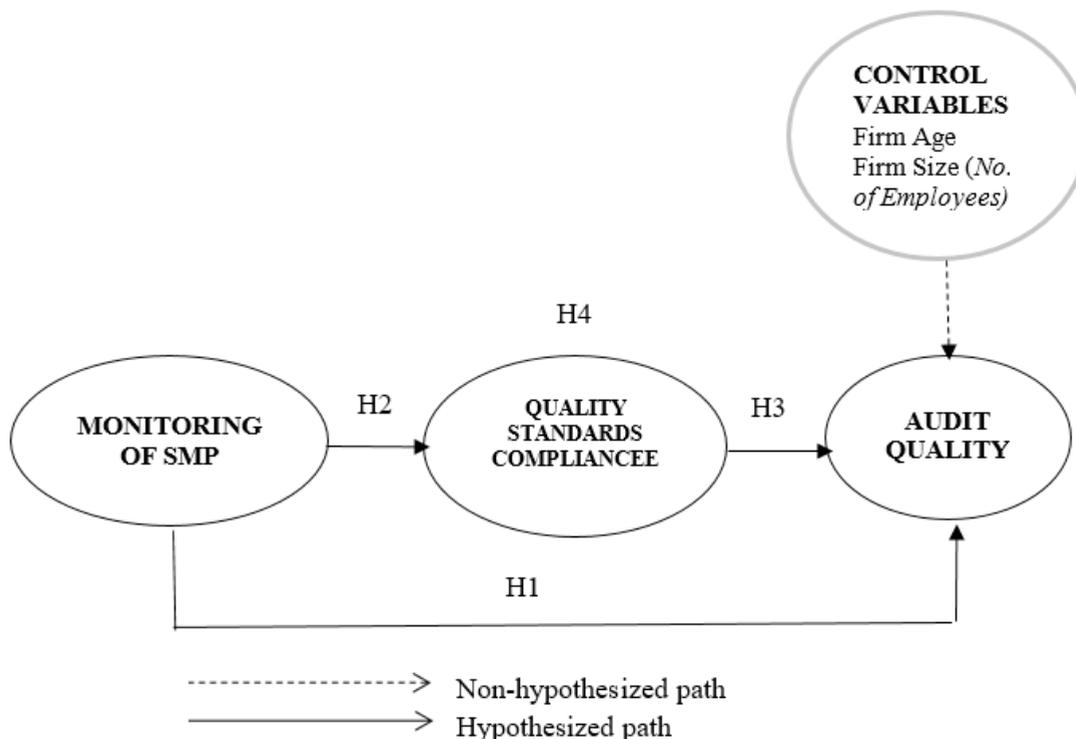


Figure 1. Conceptual Research Model

## 4. Results and discussions

### 4.1. Internal consistency reliability and validity

Reliability of the measures was accessed by the use of Cronbach’s Alpha coefficient (Table 1). Cronbach’s coefficient alpha allows us to measure the reliability of different variables. As a general rule, a coefficient greater than or equal to 0.7 is considered acceptable and a good indication of construct reliability (Nunnally, 1978). The lower limit of acceptability is 0.6 (Sekaran, 2003). The minimum Cronbach’s alpha for the constructs is 0.730 (Table 1). This demonstrates a relatively high degree of internal consistency.

Table 1: Internal Consistency Reliability and Validity

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Audit Quality	0.891	0.917	0.648
Controls	0.730	0.044	0.226
Mon-Audit Moderator	1.000	1.000	1.000
Monitoring	0.903	0.928	0.720

Quality Standard Compliance	0.833	0.875	0.500
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## 4.2 Descriptive statistics

### 4.2.1. Demographic characteristics

Tables 2 and 3 present a report on the summary statistics of the demographic data collected from the respondents. Firm age averages about six years and the number of clients for the firms is about 52. With respect to the number of employees, the average number of employees is about six.

**Table 2: Summary Statistics of Demographic Information**

Variable	Mean	Standard Deviation	Variance
Firm's Age	6.3589	3.47801	12.097
Firm's Clients	51.7416	23.09429	533.346
Firm's Employees	6.3589	3.47801	12.097

Table 3 shows that the greatest number of respondents (50) falls between the age bracket of 6–10.9 years, representing 23.92%. The 3-5.9 years age group was the next dominant age grouping of the respondents (48), representing 22.97%. The other groupings of SMP firms (respondents) in order of age brackets are as follows: 11-15.9 - 34 (6.27%); 16-20.9 – 22 (10.53%); 21-25.9 – 21 (10.05%); 26-30.9 – 19 (9.09%) and above 31 – 15 (7.18%), respectively. The analysis of the firm's age data collected indicated that, on average, the firms have been in operational existence for six years with a standard deviation of 3.5 and variance of 12.1.

**Table 3: Detail Descriptive Statistics of Respondents**

Characteristics	Sublevel	Frequency	%
Firm Age (Years of Experience)	Below 3	0	0
	3 - 5.9	48	22.97
	6 – 10.9	50	23.92
	11 – 15.9	34	16.27
	16 – 20.9	22	10.53
	21 – 25.9	21	10.05
	26 – 30.9	19	9.09
	31 and Over	15	7.18
Number of Clients	Below 10	0	0
	11 – 20	14	6.70
	21 – 30	29	13.88
	31 – 40	31	14.83
	41 – 50	35	16.75
	51 – 60	29	13.88
	61 – 70	30	14.35
	71 – 80	17	8.13
	81 and Over	24	11.48
Number of Full-Time Employees	1 – 3	39	18.66
	4– 6	93	44.50
	7– 9	40	19.14
	10- 12	25	11.96
	13 and Over	12	5.74

This indicates that all the SMPs have been in operation for more than three years, hence are capable of providing information on their compliance with standards and audit quality. The client data analysis indicated that each firm serves 52 clients with a standard deviation of 23.1 and a variance of 533.2. This indicates that the firms under consideration have enough clients, experience, and information on this subject matter. On average, each firm has employed six full-time audit staff with a standard deviation of 3 and a variance of 12.097. This indicates that the firms under consideration have enough employees to assist in this research study. Table 3 shows that 93 firms have employees between 4 and 6 representing 44.5%. Forty firms follow this, with 7-9 audit staff representing 19.14%. The rest are: 1-3 employees - 39 firms (18.66%); 10-12 employees - 25 (11.96%); and over 13 years - 12 firms representing 5.74% in descending order, respectively.

#### 4.2.2. Research constructs

Table 4 presents the descriptive statistics of the perceived statements of research constructs used for the study. The study uses a 7-point scale ranging from strongly disagree (a minimum scale point of 1) to strongly agree (a maximum scale point of 7) on the perceived statements - monitoring of SMPs, quality standards compliance, and audit quality.

**Table 4: Research Constructs**

Constructs	Constructs' Codes	Measurement Code	Min	Max	Mean	Standard Deviation	Variance
Monitoring of SMPs	MON	MON1	1	7	5.64	1.245	1.550
		MON2	1	7	5.74	1.136	1.291
		MON3	1	7	5.53	1.233	1.519
		MON4	1	7	5.46	1.348	1.817
		MON5	1	7	5.24	1.352	1.827
Quality Standards Compliance	COMP	COMP1	1	7	5.54	1.148	1.317
		COMP2	1	7	5.61	1.073	1.152
		COMP3	1	7	5.45	1.311	1.720
		COMP4	1	7	4.97	1.381	1.908
		COMP5	1	7	5.25	1.224	1.498
		COMP6	1	7	5.37	1.367	1.868
		COMP7	1	7	5.46	1.330	1.769
Audit Quality	QUAL	QUAL1	1	7	5.84	1.147	1.316
		QUAL2	1	7	6.02	0.985	0.971
		QUAL3	1	7	5.97	0.937	0.879
		QUAL4	1	7	6.05	1.119	1.252
		QUAL5	1	7	6.03	0.942	0.888
		QUAL6	1	7	6.20	0.848	0.719
SMP Resources	SMP	SMP1	1	7	5.36	1.330	1.770
		SMP2	1	7	5.50	1.233	1.520
		SMP3	1	7	5.27	1.489	2.219
		SMP4	1	7	5.35	1.512	2.286
		SMP5	1	7	5.26	1.249	1.560

From Table 4, in terms of the Monitoring of SMPs (MON), MON2 records the highest mean score of 5.74 with a standard deviation (SD) of 1.136 and variance of 1.291. MON2 result indicates that the Institute of Chartered Accountant Ghana (ICAG) can monitor to ensure that the quality of financial statements signed by small and medium practice firms (SMPs) is enhanced by compliance with the applicable financial reporting framework, laws, and regulations. The result also indicates that ICAG provides technical and professional support to SMPs to enhance compliance with audit quality standards (MON1: mean = 5.64, SD = 1.245, and variance = 1.550). The results for MON3, also with the mean of 5.53, SD of 1.233, and variance of 1.519, implies that respondents

agree that the perceived statement that ICAG can ensure that audits conducted by SMPs comply with the provisions of ISAs, Companies Act, 2019 (Act 992) and other local laws and regulations in Ghana. In terms of MON4, the study records a mean of 5.46, SD of 1.348, and variance of 1.348. Here, the respondents somewhat or slightly agree that ICAG ensures that SMPs comply with the provisions stipulated in the ISQC 1 and ISA 220 to achieve audit quality. Similarly, MON5 reported the least average score and that the respondents somewhat agree that ICAG pressures on processing sufficient and appropriate audit evidence of SMPs (MON5: mean = 5.24, SD = 1.352, and variance = 1.827).

For the mediating variable, Quality Standards Compliance (COMP), COMP2 records the highest mean score of 5.61 with a standard deviation (SD) of 1.073 and variance of 1.152, indicating that the SMPs have established policies to provide reasonable assurance on compliance with ICAG / IFAC code of ethics. Again, respondents agree that the SMPs have policies that promote an internal culture recognizing audit quality (COMP2: mean = 5.54, SD = 1.148, and variance = 1.317). Likewise, COMP7 records a mean of 5.46, SD of 1.330, and variance of 1.769, indicating that the SMPs have established policies and procedures requiring appropriate documentation in providing evidence on the operation of the six elements of the quality control system.

Similarly, the respondents agree that SMPs consider staff to be real assets essential for ISA adoption and implementation to achieve audit quality. However, the result shows that respondents somewhat agree that the SMPs have established a monitoring process relating to quality control that is relevant and adequate per the applicable standards (Mean = 5.37, SD = 1.367, variance = 1.868). The result shows that SMPs have slightly established policies and procedures for accepting and continuing audit engagements (COMP5: mean = 5.25, SD = 1.224, and variance = 1.498). COMP4 records that the lowest average scores of 4.97 (with SD of 1.381 and variance of 1.908) in terms of quality standards compliance implies that SMPs somehow have established and maintained a quality control system according to all quality control standards.

The descriptive statistics of the research constructs (Audit Quality) show that the respondents agree with all the perceived statements because the reported values have approximate scores of 6 or more. The highest average score is QUAL6 of 6.20, SD of 0.848, and variance of 0.719, indicating the respondents agree that the Regulators' inspection reports to the SMPs in Ghana can describe the weaknesses in their audit work and audit failure. QUAL4 records a high mean of 6.05 (SD and variance of 1.199 and 1.252, respectively), which implies that the SMPs issue appropriate management reports on the internal control weaknesses to their clients. Additionally, the SMPs issue appropriate independent audit reports on the financial statements that are reliable, useful and timely (QUAL5: mean = 6.03, SD = 0.942, variance = 0.888). Furthermore, QUAL2's mean of 6.02, SD of 0.985, and variance of 0.971 indicate that there are fewer financial restatements by the preparers of the financial statements of the SMPs clients and that the SMPs seldom re-issue audit opinions.

Moreover, QUAL3 records a mean of 5.97, SD of 0.937, and variance of 0.879, indicating that respondents agree there are fewer litigation cases due to audit malpractice towards audit firms. The last construct of QUAL1 of the Audit Quality perceived statements record the least mean score of 5.84 (SD and variance of 1.147 and 1.316, respectively). These scores also show that the publication of the SMPs inspection reports (favourable or adverse) play a significant role in the perception of audit quality by key stakeholders (especially investors and users of audit reports).

### **4.3. Model measure tests**

The results show the internal consistency, convergent, and discriminant validity tests. The indicator loadings should be more than 0.708 to ensure indicator reliability. Literature indicates that a researcher can use outer loadings of 0.4 to 0.7 when the construct's Average Variance Extracted (AVE) is more than or equal to 0.5. The analysis for indicator loadings showed that all the 18 indicators reported outer loadings greater than 0.708 except quality standards compliance items - COMP1 (0.694), COMP3 (0.691), COMP4 (0.633), COMP6 (0.686), and COMP7 (0.693) that reported loadings less than 0.708 but were between 0.4 and 0.7. Following the associated AVE of the constructs, COMP records 0.5 provides enough information and justification for including COMP1, COMP3, COMP4, COMP6, and COMP7 in the subsequent analysis of this study. The AVE of the five items is, however, 0.6.

It is vital to measure the reliability (compatibility and stability) of a construct and its indicators and their consistency (facilitating the repeatability of the study) to ensure the accuracy of the measurement model. This study evaluates internal consistency reliability using Cronbach's alpha and composite reliability. The Cronbach's alpha and Joreskog's (1971) composite reliability measure the reliability of the indicators employed to measure a construct. Cronbach's alpha and composite reliability (CR) should be higher than the threshold of 0.7. Higher values generally indicate higher levels of reliability. However, Hair et al. (2014b, p.112) posit that in case of composite reliability, figures within the range of 60 to 70 are considered as "acceptable in exploratory research", whereas those in the 0.70 to 0.95 range are "satisfactory to good". However, figures more than 0.95 are problematic because it indicates that the constructs are almost redundant or identical. The data analysis revealed that all the constructs resulted in Cronbach's alpha greater than 0.7; and composite reliability above 0.7 but not more than 0.95. This indicates that the indicators employed in measuring the individual constructs are reliable.

The study uses average variance extracted (AVE) to test the convergent validity. AVE more than 0.50 is acceptable for adequate convergent variance (Jaradat & Faqih, 2014; Abdul & Wang'ombe, 2018). This level or higher indicates that, on average, the construct explains (more than) 50% of the variance of its items. All the constructs passed the AVE test as follows: Audit Quality (0.648), Monitoring of SMPs (0.720), and Quality Standards Compliance (0.500).

The study adopted the Fornell-Larcker criterion, cross-loadings, and Heterotrait-Monotrait Ratio (HTMT) to check for the discriminant validity of the constructs and indicators. The Fornell-Larcker criterion says that a factor's AVE should be higher than its squared correlations with all other factors in the model (Henseler, 2017). In this study, the Fornell-Larcker criterion of validity was satisfied as each factor's AVE was higher than its squared correlations with all other factors in the model.

The cross-loadings of all indicators should be assessed to make sure that no indicator is incorrectly assigned to a wrong factor. Accordingly, to meet the cross-loadings criterion, the loadings of each construct's indicators should be higher than its loadings on all other constructs. The results show that all the loadings on the constructs were greater than each of the loadings on the other constructs.

An estimation of the correlations between the constructs in the model based on the average of heterotrait-monotrait correlation suggested by Roemer et al. (2021) was adopted. The question of when a correlation is close to one is quite debatable. And this has led to many scholars selecting different thresholds as HTMT validity criteria. For instance, a threshold of 0.85 is considered good (Purwanto, 2021); however, other scholars suggested 0.90 as a good threshold for HTMT validity (van der Vaart, 2021). For this study, a threshold of 0.90 is considered, and therefore HTMT values greater than 0.90 lack discriminant validity. The results of the analysis of the HTMT validity indicated that all the constructs were smaller than 0.9, indicating that the discriminant validity criterion had been met.

#### 4.4. Structural equation modelling results

The direct relationship between quality standards compliance (COMP) and audit quality (QUAL) has a path coefficient of 0.499, reporting a p-value of 0.000, indicating a statistically significant test at a 5% level of significance (H3). Table 5 summarizes both the direct and indirect paths in the mediation analysis.

**Table 5: Mediating Paths**

	Coefficient	T Statistic	P Values	Significant
Monitoring -> Audit Quality	0.199	2.642	0.000	Yes
Monitoring -> Quality Standard Compliance	0.395	5.196	0.008	Yes
Quality Standard Compliance -> Audit Quality	0.499	7.250	0.000	Yes

A summary of the mediation analysis from the bootstrapping is found in Table 5. The data analysis reveals that the direct effect has a path coefficient of 0.396, t-value of 5.710, and reporting a p-value of 0.000, indicating a statistically significant test at a 5% level of significance. The indirect effect has a path coefficient of 0.197, an associated t-value of 4.229, and reporting a p-value of 0.000, indicating a statistically significant test at a 5% level of significance.

Figure 2 shows the results of dependent, independent, mediation, and control variables. The analysis of the data revealed that there was a direct relationship between monitoring of SMPs (MON) and audit quality (QUAL), with a path coefficient of 0.199 reporting a p-value of 0.000, indicating a statistically significant test at a 5% level of significance (H1). There was also a direct relationship between monitoring of SMPs (MON) and quality standard compliance (COMP) with a path coefficient of 0.395 reporting a p-value of 0.000, indicating a statistically significant test at a 5% level of significance (H2).

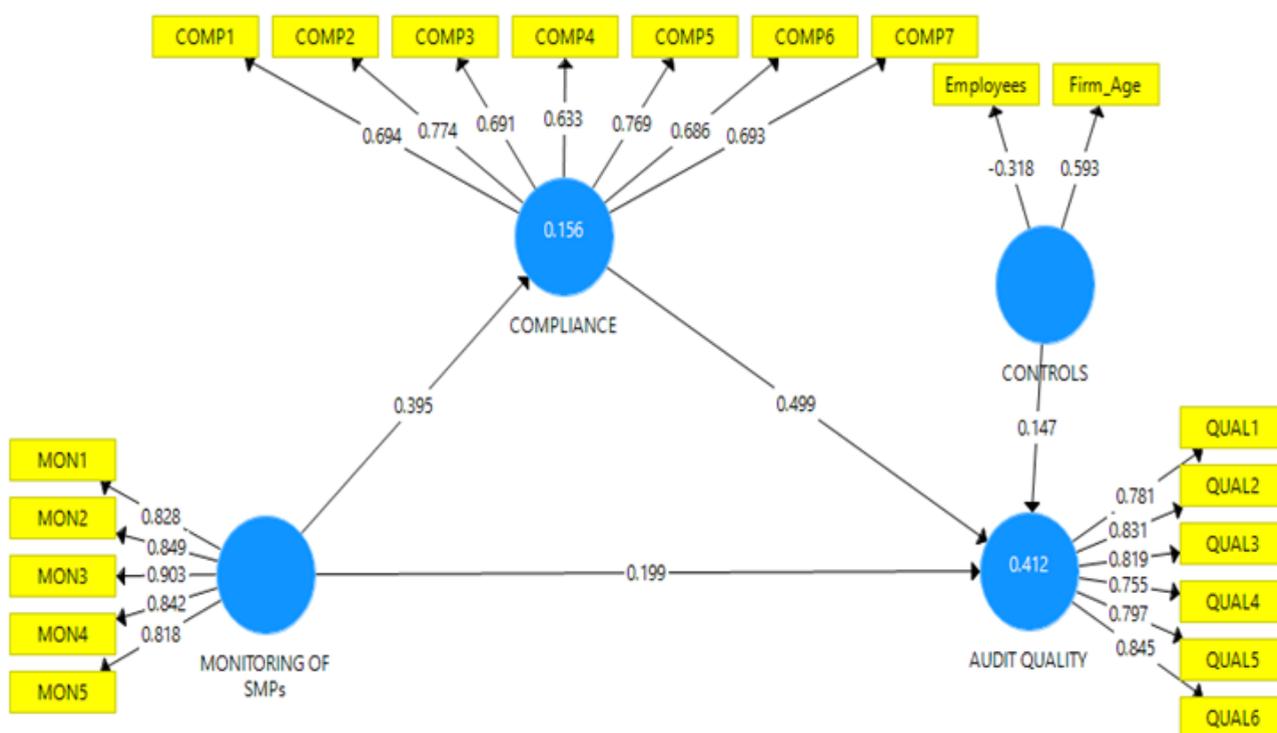


Figure 2: Model Estimate

**Magnitude of mediation**

Once the significance of the indirect effect is established, the strength of the mediator can be examined through the use of total effect and variance account for VAF.  $VAF = \text{indirect effect} / \text{total effect}$ . In Table 6  $VAF = 0.197 / 0.396 = 0.498$ . According to Hair et al. (2014), partial mediation is when VAF exceeds the 0.2 threshold level, and that full mediation is when it exceeds 0.8. Since the VAF is larger than the 20% threshold level, COMP partially mediates the Monitoring of SMPs (MON) and Audit Quality (QUAL) linkage.

**Table 6: Mediation Analysis in PLS-SEM**

Path	Path Coeff.	Mean	STDEV	VAF	T values	Sig level	P values	Hypothesis
<i>Total Effect</i>								
Monitoring -> Audit Quality	0.396	0.408	0.069	0.498	5.710	**	0.000	Accepted
<i>Indirect Effect</i>								
Monitoring -> Audit Quality	0.197	0.205	0.047		4.229	**	0.000	Accepted

It can be said that 49.8% of MON’s effect on QUAL can be explained via the COMP mediator, and the magnitude is partial. With these findings, the null hypothesis is rejected, and the hypothesis H4 is supported by COMP’s mediator role. This study has confirmed Knechel et al.’s (2013) position that subject to some important caveats and limitations, standards are important for keeping the profession relevant, responsive to stakeholder needs, and moving the overall quality of the audit process forward. However, this can be meaningfully achieved with a strong legal framework and strict enforcement, as noted by some studies such as Drozd et al. (2020). Therefore, linking the legal framework and appropriate quality standards compliance will help to achieve a high-quality audit (Drira, 2013; Drogalas et al., 2021).

Table 7 presents the summary results for all four hypotheses. The hypothesis relating to the direct relationship between monitoring of SMP firms and audit quality constructs was tested (H1). The empirical results support the hypothesis that monitoring of SMP firms significantly and positively influences audit quality. This implies that the more regulators carry out effective audit monitoring of SMPs, the better the audit quality produced. This is consistent with the theory of Economic Regulation (both public interest theory, which considers that the public demands regulations to correct inefficiency in the market; and Regulatory Capture Theory, which considers that regulations are supplied for the demand of interest groups to maximize benefits of their members). These findings are consistent with previous studies in extant empirical literature regarding regulatory enforcement (Bradbury & Scott, 2021). The section concludes that monitoring of SMP firms correlates with the actual quality of an audit firm and provides credible information about the quality of audit firms, consistent with the findings of Chan et al. (2021).

**Table 7: Hypothesis Testing**

Hypothesis	Relationship	Path Coefficient	P-Value	Conclusion
H1	MON -> QUAL	0.199	0.008	Supported
H2	MON -> COMP	0.395	0.000	Supported
H3	COMP ->QUAL	0.499	0.000	Supported
H4	COMP mediate MON->QUAL	0.396	0.000	Supported

**4.6. Discussion**

The effect of mediating variables on the relationship between monitoring of SMPs and audit quality has been discussed. The empirical results show that quality standards compliance has a partial mediation effect on the relationship between monitoring of SMPs and audit quality (H4). H2 and H3 explain this. The measurements were generated from ISAs and ISQC 1 elements regarding compliance with quality standards. According to the results of the PLS-SEM, all the measurements of the compliance of the quality standards (ISQC 1 and ISA 220) were relevant for compliance and significant to achieving audit quality. The empirical results support the hypotheses that monitoring of SMP firms positively and significantly influences quality standards compliance (H2) and that quality standards compliance also significantly and positively influences audit quality (H3). The

results are consistent with the Theory of Economic Regulation as stated in the preceding section and in terms of extant literature. They are generally consistent with several studies in the literature (Lee & Levine, 2020; Drira, 2013).

The two control variables employed in the study are firm size and firm age. The total control variables showed a direct and positive relationship with audit quality with a path coefficient of 0.134, reporting a p-value of 0.334, indicating a statistically insignificant test at a 5% significance level. This implies that the control variables, although positively related, did not affect audit quality. For the firm size, the results are consistent with prior studies such as Johl et al. (2021) and Zuhroh and Erlina (2020), which reveal that firm size has no significant influence on audit quality. On the contrary, some prior studies reported a positive relationship between audit firm size and audit quality (Svanström, 2016; Aveh et al., 2016). In the case of firm age, the results are consistent with the study by Tran et al. (2019).

## **5. Conclusion and recommendations**

It can generally be concluded that the quality of audit produced by SMPs in Ghana is quite good; however, there is the need for considerable improvement. Effective monitoring of SMP firms drives compliance with quality standards, influencing high-quality audits; thus, monitoring of SMPs influences audit quality directly and indirectly through quality standards compliance. This implies that the more the QAM unit of the ICA-G and other regulators undertake effective monitoring of SMPs, the better the quality of audit activities and consequently the results of audits by the SMPs in Ghana.

The SMPs need to consider compliance with quality standards when trying to achieve audit quality. Audit partners of the SMPs must re-examine their firm policies and procedures, audit methodologies, and processes that are required for compliance with quality standards and code of ethics. Through this process they will be able to achieve a high-quality audit. As a requirement for ethical compliance as stipulated in ISQC 1, which is reinforced in ISA 220, the SMPS must ensure they recruit and maintain human resources that are both technically and ethically competent to improve audit performance and audit quality. It is well known that poor audit quality damages the audit firm's reputation and may lead to loss of clients (and consequently fees) as well as an increased risk of litigation and concomitant professional insurance costs. Therefore, continuous improvement in audit quality should be the priority of the SMPs and their regulators such as Institute of Chartered Accountant Ghana.

It is important that the Institute of Chartered Accountant Ghana strengthens and provides resources to its Quality Assurance and Monitoring Unit to enable it to continue to provide useful advisory services to the SMP firms. This includes having competent professionals to offer training on best practices for running audit firms as well as Continuous Professional Development (CPD) programmes organized by the Institute. This would ensure that SMP firms, particularly those with limited resources and who lack international networks, have access to the latest technical updates to ensure they keep abreast with current accounting and audit profession developments. The professional accounting bodies should ensure that their members comply with professional codes of ethics and practices that promote audit quality.

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## STAKEHOLDER PERCEPTIONS OF THE OUTCOMES OF A DONOR FUNDED INTERVENTION ON THE INSTITUTE OF CHARTERED ACCOUNTANTS, GHANA

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### Abstract

*This paper examines stakeholder perceptions of institutional intervention outcomes and how the outcomes influence the credibility of the accountancy professional qualification. The study employs principal component analysis (PCA) and regression to establish the relationship between continuous professional development (CPD) quality, examinations quality, tuition quality and credible professional qualification. Our results show that the majority of members, examiners and students believed that the institutional intervention by International Federation of Accountants (IFAC) to Institute of Chartered Accountants Ghana (ICAG) had improved the quality of CPDs, quality of examinations and quality of tuition provided by accredited Tuition Centres. Further, there is evidence to suggest a positive and significant relationship between CPD quality, examinations quality, tuition quality and credible professional qualification. By extension, these results have important policy implications for regulators in assessing the effectiveness and credibility of professional qualifications.*

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### Article Info

**Keywords:**

Stakeholders

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Professional bodies

ICAG

Ghana

## 1. Introduction

A well-resourced professional accountancy body is important for the effective regulation of the profession as well as providing relevant training, examinations and experience for students (Samsonova-Taddei & Humphrey, 2014). In addition, promoting and enhancing the global accountancy profession, professional accounting bodies have the important mandate of serving as the voice for the country's professional accountants, including those in business and in practice. Because they perform different roles in society, the overall standing of the accountancy profession is dependent on how well society perceives professional accountants in business and in practice. This means that the professional accountants are more likely to rely on their professional accountancy body for support in undertaking their work; and will look to the professional accountancy body to offer them with the necessary assistance and resources to enable them to undertake their jobs more efficiently, offer advice in handling ethical dilemmas and, depending on the body, will offer training programmes in order to keep their knowledge and skills up to date. Generally, professional accountancy bodies in the developed world are seen to be in a better position to meet the expectations of the professional accountant. Adequate resources and effective governance are some of the factors that could account for the effectiveness of professional accountancy organisations (PAO) in developed economies.

The World Bank Report (2004; 2014) on the Observance of Standards and Codes (ROSC) shows a weak regulatory environment for regulators in developing countries, especially those in Africa. For example, the report suggests that lack of financial resources, operational inefficiencies, and unavailability of reliable databases are some of the key challenges confronting PAOs in Africa. The report shows that a number of PAOs in Africa have failed to ensure compliance with accounting, auditing and professional standards. In addition, PAOs have not been able to ensure that members are adequately abreast with the accounting standards as well

as failing in their oversight role. This has resulted in low audit quality and high competition in the audit and accounting industry, which in turn leads to lowballing and price cuts.

The inability of the PAOs to effectively regulate the accountancy profession in developing countries has largely been attributed to inadequate financial resources and lack of capacity. In order to fix the aforementioned challenges of PAOs, International Federation of Accountants (IFAC), through the Department for International Development (DFID) and other donors, provided ten countries including Ghana, Nigeria, Zimbabwe, Uganda and Rwanda with a US\$8m funding (DFID, 2009). It is expected that the provision of the funding to the PAOs in these ten countries will position the PAOs to carry out their mandate with efficiency; thus, improve the training, examinations and their oversight role.

The second review in 2014 on the Observance of Standards and Codes in Accounting and Auditing (ROSC A&A) reveals that Ghana has made progress in strengthening the pillars of financial reporting since the last review in 2004. The report further finds that the accountancy profession has been improved following the twinning arrangements with the Institute of Chartered Accountants, England and Wales (ICAEW), and that the Institute of Chartered Accountants, Ghana (ICAG) is up to the task of setting, moderating and marking its own examinations. The report further indicates a significant improvement in ICAG's Continual Professional Development (CPD) to its members.

The evaluation of such donor-funded intervention has been a subject of controversy. Even though donor-funded intervention is assumed to be useful in building the capacity of local institutions, donor intervention can have adverse effects, and many of such interventions are not adequately evaluated (Lee, 2008). According to Pérouse de Montclos (2012), aid organisations have an interest in positive appraisals as such positive evaluations can help in sourcing for funds subsequently for other projects and accordingly portray the implementing partners (i.e. non-governmental organisations) as effective. Another problem with the evaluation of intervention programmes is the limited access to evaluation reports that are not even published as they are classified. Very few countries (i.e. Norway and Holland) make the publication of an assessment of aid programmes compulsory. Many other countries restrict access to such archives (Stokke, 1991). For example, in Great Britain, researchers need the approval of DFID; in Denmark permission has to be given by the government receiving the aid; and in France, the foreign office only publishes general summaries and not the full report.

The contribution of this paper to the accounting literature is twofold. Firstly, the evaluation of donor-funded interventions is conducted in ways that, most times, have donor bias where the attainment of targets and objectives take precedence (Roberts & Hofmann, 2004). For these reasons, the evaluations carried out by aid implementing agencies (operators) are presented in ways that tend to stampede the actual issues and pretend that the intended objectives of programmes have been achieved (see, Telford et al., 2006). This paper seeks to examine the effect of donor intervention on a recipient institution in Ghana without the interference of the donor (i.e. IFAC) or implementing agency (i.e. ICAEW). It is believed that an evaluation by a third party is more credible and independent, usually accompanied by a substantial analysis, which is lacking by that of the funder or operator (Pérouse de Montclos, 2012).

Secondly, such evaluations often do not take into account wider stakeholder feedback (Lee, 2008). Such evaluations rely on interviews with the funding agencies and operators of the programmes and exclude important stakeholder groups such as those who are directly affected by the interventions (Nancy & Yontcheva, 2006). This study addresses this problem by examining the wider stakeholders from the beneficiary group. Using the stakeholder theory, this paper investigates the wider stakeholder perception of the outcomes of intervention in ICAG by IFAC. This intends to bring to bear the effects of IFAC interventions on ICAG performance from multi-dimensional perspectives. The outcome of this study will serve as an appraisal for IFAC in particular and other donor agencies, in general, to support and strengthen PAOs. Besides, the study will help PAOs and other operators to source for funds for subsequent and other projects.

The remainder of the paper is structured as follows. The next section discusses the relevant theoretical and empirical literature. Section three provides the research methodology. Section four presents the results, and section five concludes.

## 2. Literature review

### 2.1 Theoretical review

#### 2.1.1 Stakeholder theory

Stakeholder theory was proffered by Freeman (1984). Over the years, Stakeholder theory has become increasingly popular, thus attracting attention from several authors. Key scholarly works by Clarkson (1995), Donaldson and Preston (1995), Mitchell et al. (1997), Rowley (1997) and Freeman (1999) have helped in gaining greater theoretical insight and development (Mainardes, Alves & Raposo, 2011). Stakeholder theory focuses on the idea that organisations should concentrate on meeting a broader set of interests rather than focusing on shareholder value maximization (Miles, 2012). Put differently, organisations should not only pay attention to the organisation's financial performance but also social performance. Organisations should continuously make an effort to understand, respect, and meet the needs of all those who have interest in their actions and outcomes. Stakeholder involvement in organisational decisions is seen as an ethical requirement and a strategic resource that gives the organisations competitive advantages (Cennamo, Berrone, & Gomez-Mejia, 2009; Plaza-Ubeda, de Burgos-Jimenez, & Carmona-Moreno, 2010).

Freeman (1984, p.46) defined stakeholder as “any group or individual who is affected by or can affect the achievement of an organisation's objectives”. According to Sirgy (2002), stakeholders can be classified into three categories: internal, external, and distal. Employees, executive staff, firm departments, and the board of directors are examples of internal stakeholders. Shareholders, suppliers, creditors, the local community, and the environment are included in external stakeholders. The third category, distal stakeholders, includes consumers, rival firms, advocacy groups, government agencies, voters, and labour unions. Clarkson (1995) provides another classification of stakeholders: primary and secondary stakeholders. Primary stakeholders are those with formal or official contractual relationships and have a direct and necessary economic impact upon the organisation. Secondary stakeholders, on the other hand, are those who influence or affect or are influenced or affected by, the organisation, but they are not engaged in transactions with the organisation and are not essential for its survival. Donaldson and Preston (1995) viewed the stakeholder theory from three perspectives: descriptive, instrumental, and normative. The descriptive view basically says that organisations have stakeholders, and they have the role of meeting the needs of all stakeholders. The instrumental perspective states that organisations that consider their stakeholders' interests will perform better than those that do not. In other words, organisations that practice stakeholder management will be more profitable, stable and experience better growth. The normative perspective, the most popular perspective (Donaldson & Preston, 1995), looks at the reasons why organisations give attention to their stakeholders.

The importance of stakeholder theory in soliciting the perceptions about donor-funded intervention outcome has mainly been to the pressures from various stakeholders who are considered to be the main actors that motivate organisations to search for resources to improve on their capacities. The stakeholder's theory is used to examine the outcomes associated with IFAC's interventions aimed at building ICA Ghana's capacity as a professional accountancy organisation. The ICAG, as a social institution, affect the Ghanaian society in several ways and vice-versa. The theory assists us to broaden our knowledge of how different interested parties can contribute to the success of ICA Ghana. This is because the perspective enables us to appreciate the value created by different stakeholders who willingly come together to assist ICA Ghana's activities. With enhanced capacity, certain aspects of its operations may result in better outcomes and impact, such as better tuition and a better pass rate for its students, quality continuous professional development for its members, and quality examination by examiners. Following the stakeholder perspective (Freeman, 1984), a wider conception of ICA Ghana's performance after the IFAC's interventions is needed because we cannot maximize the long term relevance, credibility and sustainability of ICA Ghana as a PAO without maintaining good relations with its wider stakeholders.

### 2.1.2 The Sociology of Professions

Sociology of professions, which Abbot (1988) refers to as the system of professions, can be used to further understand the role that training/education, examination and CPDs play in the accounting profession. The accounting profession has a unique role in preparing and examining financial statements submitted to various stakeholders, including investors, creditors, government agencies, analysts etc. These stakeholders then base their investment and other financial decisions on the information provided by the audited financial statements produced by the accountant. Thus, accountants are able to exert influence in both private and government organisations as the information they provide influences decision making at all levels of the organisation (Sikka, Wilmott & Lowe, 1989).

In the sociology of professions conceptual schema, members of a particular profession are accorded certain rights and privileges. For instance, members of a chosen profession are assumed to have a monopoly over specialised knowledge and techniques, have a high social standing and, in most cases, are self-regulated. Even though accountants have achieved professional status and are held in high esteem in society, there exists some scepticism over the professional legitimacy of the accountancy profession. This, according to West (2003), is as a result of the sometimes vague and inconsistent accounting practices employed by accountants in the preparation and examination of financial statements. These inappropriate accounting practices have resulted in the collapse of some major firms and loss of huge investment, especially in the early part of the 21st Century. These unfortunate happenings in the accountancy profession, according to West (2003), have diminished public trust and confidence in accountants; hence, hindering efforts aimed at retaining the accountants' professional status and legitimacy.

Elliott and Jacobson (2002) argue that education and training are the catalysts that will help advance the accounting profession's evolution. This explains why IFAC has over the years been providing funding for professional accountancy organisations across the world aimed at improving their capacities to offer more appropriate training and education to both students and members. The appropriate training, examination of students as well as the practical training of members ensures the delivery of quality services to clients both in private and government organisations.

Understanding the necessity for training, examination and CPD through the lenses of the sociology of professions can be used to argue that the ongoing effort of IFAC to build the capacity of PAOs in order that they offer quality education/training to students and members, is part of an agenda to claim societal acceptance and occupational dominance of the accountancy profession. According to Abbot (1988), both societal legitimacy and occupational dominance is revealed in the form of skilled accounting professionals able to secure occupational dominance through the possession of skilled technical knowledge. This knowledge of the accountant is then sold to decision-makers to help them meet the objectives of their businesses. Abbot further argues that a profession's dominance in the society is dynamic and therefore keeps on changing with time. The accountant's jurisdictional claim of specialized knowledge must, therefore, be secured and renewed by continuous training and development of the knowledge base. Failure of the accountancy profession to train and develop the knowledge base of its students and members is to invite ultimate loss of status, legitimacy and dominance. Hence, the training, examination and continuous professional development are essential aspects in ensuring a credible professional qualification.

### 2.2 Empirical review

Over the past several years, there has been an increase in interest from donors who sponsor international projects or interventions in evaluating the long-term changes that such interventions bring to society. Similarly, there has been increasing expectation on implementers of donor-funded interventions to demonstrate and report the impact of the intervention (DFID, 2009; International Alert, 2009). This expectation of the public has resulted in increased evaluation and reporting of project outcomes by donors. However, studies have shown that such evaluations and reports by donors fail to give a complete picture of the impact of interventions.

For instance, using the social constructivist approach, Makomba (2022) conducted a study on the sustainability

of funded development projects in Limpopo Province, South Africa. The study finds that a major problem faced by donor-funded projects is that after the withdrawal of donor funding, the projects are not sustainable. This, according to the author, is due to factors such as low stakeholder ownership and commitment, lack of understanding of community context, lack of community empowerment, leadership, technology choice, and over ambitious objectives. Makomba concludes that the study does not only demonstrate the ability of the government to take over projects from donors and run them successfully/sustainably, but it also provides a model of how this can be done.

In a related study, Fosu, Amidu and Coffie (2020) assess the impact of donor-funded interventions on a professional accountancy organisation (PAO) in Ghana. Specifically, the authors describe how the intervention has influenced the PAO's operations and activities. Using a semi-structured interview with the key principal officers of the PAO, the study results show a general acknowledgement among the interviewees of the positive impact of the intervention on the activities of the PAO; and identifies counterpart funding by the PAO as the biggest challenge encountered in the implementation of the funded intervention. The authors conclude that the level of participation by the PAO in the determination of program deliverables was not as expected.

Uddin and Belal (2019) examine the views of various stakeholders of a large international development NGO as to how donor influenced strategies facilitate beneficiary accountability and what the impacts of such strategies are on beneficiary accountability. The study findings show that donors' accountability requirements embed some provisions of beneficiary accountability mechanisms, such as participation, monitoring, evaluation and lessons learning. The authors concluded that "donors have applied 'direct usage' and 'indirect usage' strategies in holding the case NGO to account".

Venter, Gordon and Street (2018) undertook a review of literature on accounting, and the accountancy profession and economic development. The study finds limited empirical evidence addressing the relation between professional accountancy organisations and economic development. The authors therefore call for stimulation of accounting research in the field. They argued that such research could assist donors in evaluating the outcomes of interventions aimed at building the capacity of PAOs in emerging and developing economies and inform future interventions.

Ahiambo (2012) examines the factors affecting the effectiveness of donor funded projects in promoting development in Kibera, Kenya. Using data collected and triangulated by means of structured interviews, key informant interview and document reviews, the study concludes that there is need for more involvement of the donor recipients in project planning and implementation in order for the projects to meet their objective of promoting development.

Crawford and Bryce (2003) argue that there exists ample guidance on donor intervention management and evaluation; however, practitioners are of the view that there remains a wide gap between actual results achieved by projects and the results that get reported (Julian, 2012). Furthermore, Ika (2012) found a small success rate for international development projects. The author attributed the poor reported success rate of the development projects to the exclusion of local results from reports.

Julian (2016) analysed the causes of the mismatch between actual and demonstrated outcome failures of development interventions involving nine projects. Specifically, the study investigated the causes of the conflicting interests of stakeholders through individual mental models, organisational, political and cultural systems. The author found that many development interventions have not been able to achieve the intended results due to the failure of donors to present outcomes that are essential to the intended recipients. The study further finds that the failure to report unexpected consequences of development interventions leads to an extremely negative perception from outside evaluation by donors and agencies. The author attributed the failure to completely report on the intervention outcomes to the varying role of conflicting stakeholder interests, stakeholders conflicting views, differences in power that gives donors the upper hand in misappropriating the role of clients, and an over-simplified complex environment.

Gallhofer et al. (2011) explore how accountants in Syria perceive globalisation's actual and potential impact on the accountancy profession. In-depth, face-to-face interviews with the accountants suggest that they perceive globalization as Anglo-American and imperialistic in character. The study further highlighted challenges facing the Syrian profession as a result of globalization, and they found competition in accountancy from the Big 4 auditing firms negatively affect local employment, the need to adopt and enforce international accounting standards in Syria and related changes required in training to attain integration in the global order as the main challenges facing the Syrian accountancy profession.

Sugahara (2013) conducted a study on the perception of the globalisation of accounting education among scholars teaching in Japanese tertiary institutions. The sample size consisted of 300 randomly selected persons who are members of the Japanese Accounting Association who have teaching responsibilities at Japanese tertiary institutions. The study found that a large number of accounting academics in Japan perceive that the International Education Standards had insignificant influence on accounting education. The study also found that although accounting academics are aware of the impediment, they lack the requisite know-how to surmount the challenges in order to achieve global convergence.

Rezaee et al. (2010) compared the perceptions of academic scholars and practitioners on harmonization of a set of international accounting standards, including approaches to the adoption of IFRS. A sample size of 500 professors, specializing in international accounting and financial accounting were randomly selected for the study through an electronic survey. Results of the study indicate that the majority of the accounting professors are of the view that convergence should be of benefit to standard setters, users, auditors, preparers, and analysts, and that there should be an agreement on a suitable framework for universal recognition and enforcement of IFRS.

Caramanis (2002) examined the changes that took place in the Greek accounting and auditing profession and the role played by major economic powers like the USA, politico-economic blocks like the EU, and other powerful international actors. The monopoly of a group of indigenous auditors who had the sole right to engage in the statutory audit was overpowered, and the market for statutory audit became open to the international auditing firms. The author further asserted that the politics of international accounting professionalism in the present era of globalisation is becoming more complex with nation-states becoming less powerful in the complex system of superimposition, overlapping and often competing national and international agencies of governance. Caramanis contends that although official commentary of these processes appears to portray them as unproblematic and neutral, there exist hidden tensions, contradictions, conflicts and political bargaining and threats in implementing such processes both at the national and international levels. According to Neufeldt (2008), international project evaluations are presented from the viewpoint of the donor, which mostly fails to capture the actual results on the ground and the associated unforeseen impacts on the locals or beneficiaries. Thus, donors and beneficiaries have different perspectives on results and impacts emanating from the same input, activities and output.

It is therefore imperative that this study is conducted to view the perception of stakeholders on the outcomes of donor-funded intervention received by ICAG as well as to investigate the effect of CPDs, examination and training on a credible professional qualification.

### ***2.3 Hypotheses development***

According to Elliott and Jacobson (2002), the revolution of the accounting profession hinges on education and training. This view of Elliott and Jacobson is further supported by the President of the Federation of Accountants, Olivia Kirtley, who in a keynote address during ICAG Presidential Luncheon in 2015, said that a robust education, training and continuous professional development are the key ingredients in sustaining the supply of highly qualified accounting professionals for all sectors of the Ghanaian economy. Furthermore, Abbot (1988) argues that the accounting profession's occupational dominance is dynamic and evolving and therefore should be safeguarded. To Abbot, the protection and renewal of the professional dominance of the accountant can be achieved through the continuing expansion of the knowledge base. Kostadinovski, Dimitrova

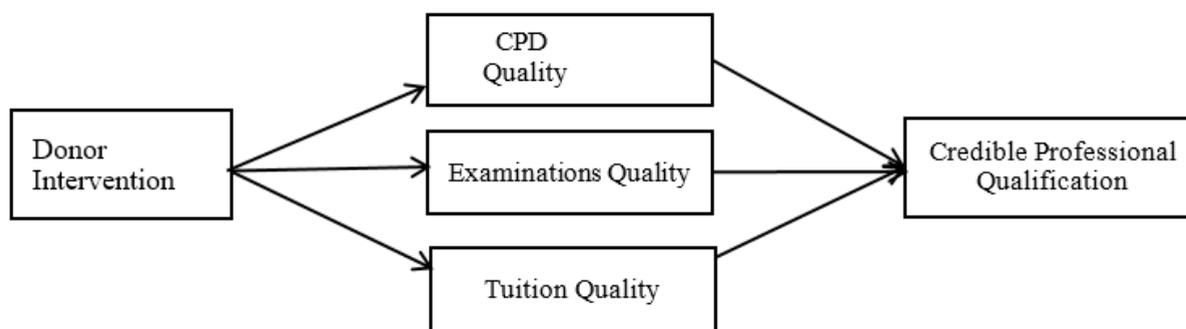
and Svrtinov (2013) argue that for the accountancy profession to continue to meet the challenges facing the world economy, the profession must ensure that persons who become professional accountants attain a certain level of competence, which is then sustained. The authors further posit that the competence of the accountant is developed and maintained through initial education, followed by continuing professional development. Thus, CPDs, education and examination are very important components for developing the knowledge base and ensuring a credible professional qualification. A credible professional qualification will obviously lead to well-educated and highly skilled professionals capable of meeting the changing demands of stakeholders. From the foregoing discussion, the study proposes the following hypotheses.

*H1: There is a positive relationship between quality continuous professional development and credible professional qualification.*

*H2: There is a positive relationship between examination quality and credible professional qualification.*

*H3: There is a positive relationship between tuition quality and credible professional qualification*

The reviews indicate that education (tuition and examination) and continuous professional development could influence a credible professional qualification. The study integrates these factors to form a broader conceptual framework to guide the present study. Figure 1 illustrates the conceptual framework for a credible professional qualification.



Source: Researcher’s construct

**Figure 1:** Conceptual framework for drivers of credible professional qualification

### 3. Methodology

#### 3.1 Research design and strategy

The paper employs a survey strategy to describe stakeholders’ views about institutional intervention outcomes. This allows for generalisation from a sample to a population in order that inferences can be made about the characteristics or behaviour of the population. This strategy has the advantage of allowing the collection of a large quantity of data from a sizable population in a cost-effective manner. In terms of the nature of the survey, the study utilised the cross-sectional survey as against the longitudinal survey. This is because data for the study were collected at two different point in time as against collecting data over time on the same object.

The population of the study consists of the examiners, members and students of the Institute of Chartered Accountants, Ghana. The choice of these three stakeholders is consistent with the popular definition of a

stakeholder by Freeman in 1984. The achievement of the intended outcomes of the donor-funded interventions can have a direct consequence on examiners, members and students. As at the end of the 2017/2018 financial year, the Institute of Chartered Accountants, Ghana, has 246 examiners, 6300 members and 16,000 students (ICAG Annual Report, 2017).

The Morgan Probability Sampling table was used to determine the sample for each category of stakeholders. From the table, the sample size consisted of 361 members, 152 examiners and 375 students. The convenience sampling technique was used to select the sample for this study. The use of the convenience sampling technique allowed the sample to be selected based on ease of accessibility and availability of respondents.

Data for the study was collected via administration of questionnaire to ICAG examiners, Chartered Accountants (members) and ICAG students. The main content of the questionnaire included the constructs: examination quality, tuition quality, CPD quality, intervention outcome, as well as a section on the demographic profile of respondents. Questionnaire responses were anchored on a five-point Likert scale ranging from 1-5, with 1 being strongly disagree and 5 being strongly agree with the respective statements. Before developing items for each of the constructs, an initial list of items was generated to gauge stakeholders' views about donor-funded intervention outcomes. Following the recommendations by Creswell (2013), a pilot test was carried out in order to establish the content validity of the items as well as to improve the questions, format and the scales used for the instrument. Firstly, the items generated were submitted to ten chartered accountants, who also happened to be examiners. Following the feedback from the expertise, several corrections were made to the initial list of items. Secondly, two researchers who are also examiners and members of the ICAG who did not see the initial instrument made a comment on the items so that the instrument was free from any ambiguity and was presented appropriately. Again, likely wording and formulation consistency issues were identified and resolved. The study was conducted in two phases.

In the first phase, questionnaires for examiners were administered at the May 2018 examination's conference marking of the Institute of Chartered Accountants, Ghana. Data from members were collected at the 2018 annual general meeting of Chartered Accountants in Accra while views of ICAG students were collected from students enrolled in accredited tuition providers scattered around Ghana with the majority coming from Accra. To complete a questionnaire, a respondent should have been associated with ICAG for at least three years. This was done to ensure that the questionnaires were appropriately completed by persons who are in the position to attest to the quality of examinations, tuition and continuous professional development over the period. In order to improve the response rate, questionnaires were personally handed over to respondents by the researcher and respondents were assured about the confidentiality and anonymity of their responses and that their personal information would not be disclosed. In addition, respondents were informed that participation in the study was voluntary. Of the questionnaires distributed, 226 were returned by members, 145 by examiners and 340 by students yielding response rates of 63%, 91% and 95%, respectively.

In the second phase of the study, the questionnaire for examiners was administered during the November 2019 examination's conference marking of the Institute of Chartered Accountants, Ghana. Data from members and students were gathered through the distribution of the questionnaire through google forms. The on-line data collection process commenced on 23rd May, 2020 and ended on 29th June, 2020. The on-line data collection approach was informed by the outbreak of COVID-19 and the subsequent lock down of Tuition Centres and large gatherings including conferences. With the on-line administered questionnaire, 360 were returned by members and 192 by students. The self-administered questionnaire of examiners yielded 80 responses.

### **3.2 Measurement of variables**

The dependent variable is a credible professional qualification, and it is measured with an eight-item scale adopted from IFAC's theory of change document, which gives descriptions of expected outputs and outcomes of IFAC's intervention programmes. The measurement items for examination quality and tuition quality are created by this study. Examination quality and tuition quality are measured by nine items each. Moreover, continuous professional development is measured by 12 items and was culled from the literature (De Lange,

Jackling & Suwardy, 2015). In this study, age, gender, level of education and residence are controlled for. Gender is a dummy variable (1 for male and 0 otherwise). Other dummy variables are residence and education. For residence, if a respondent is in an urban area, it was assigned a value of 1, and 0 otherwise. In the case of education, highly educated (above masters) was assigned a value of 1, and 0 otherwise. Age was measured by the natural age of respondents.

The problem of common method bias was addressed by following Podsakoff, Mackenzie, Lee and Podsakoff (2003). According to Podsakoff et al. (2003), Harman's one-factor (or single-factor) test is one of the most commonly used techniques employed to address the issue of common method bias. The test result for the study shows a single factor of 20.929, meaning that the single factor explains approximately 21% of the total variance explained. This clearly shows that common method bias did not affect the results of this study.

### 3.3 Empirical estimation strategy

For the purposes of analysis, an ordinary least squares (OLS) estimation strategy, which is the framework for testing the relationship of interest, was developed (Hair, Anderson & Tatham, 1987). A close observation of the correlation matrix confirms the non-existence of multicollinearity. The interventions are expected to improve the quality of examinations, quality of tuition and quality CPDs, which will in turn influence the credibility of ICAG professional qualification. The problem of heteroscedasticity was resolved by the use of robust standard errors to test the estimation model. The empirical model, which investigates this relationship, is:

$$CrePQ_i = \alpha_0 + \beta_1 ExamQty_i + \beta_2 TuitQty_i + \beta_3 CPDQty_i + \sum_j^K \beta_j X_j + \varepsilon_i \quad (1)$$

$$CrePQ_i = \alpha_0 + \alpha_1 ExamQty_i + \beta_2 TuitQty_i + \beta_3 CPDQty_i + \beta_4 (CPDQty_i * Education_i) + \sum_j^K \beta_j X_j + \varepsilon_i \quad (2)$$

$$CrePQ_i = \alpha_0 + \beta_1 ExamQty_i + \beta_2 TuitQty_i + \beta_3 CPDQty_i + \beta_4 (ExamsQty_i * Education_i) + \sum_j^K \beta_j X_j + \varepsilon_i \quad (3)$$

$$CrePQ_i = \alpha_0 + \beta_1 ExamQty_i + \beta_2 TuitQty_i + \beta_3 CPDQty_i + \beta_4 (TuitQty_i * Education_i) + \sum_j^K \beta_j X_j + \varepsilon_i \quad (4)$$

Where  $CrePQ$  is the credible professional qualification of unit  $i$ ,  $ExamQty_i$  is the examination quality,  $TuitQty_i$  is tuition quality,  $CPDQty_i$  is the continuous professional development quality,  $(CPDQty_i * Education_i)$  is the interaction between CPD quality and education,  $(ExamsQty_i * Education_i)$  is the interaction between exams quality and education,  $(TuitQty_i * Education_i)$  is the interaction between tuition quality and education, variable  $X_{i,j}$  are a set of  $\{k\}$  variables controlling for individual-specific characteristics,  $\alpha$ 's are the parameter vectors, and  $\varepsilon_i$  is the error term.

Descriptive statistics are used to analyse the perception of stakeholders with respect to CPD quality, examination quality and tuition quality; and the independent sample t-test was conducted to compare the mean values in phase 1 and phase 2 of the study.

## 4. Empirical results

### Phase 1

#### 4.1 Sample characteristics

Table 1a shows the sample characteristics of respondents. From the table, 74.8% of members are males with 24.2 per cent females. With respect to age, a large number of members (71.4%) are in the 36 to 60 years age bracket. None of the members falls below 19 years while 2.5% of members are above 60 years. The ages of the respondents suggest that they are all adults who could respond appropriately to the questionnaires. Furthermore, the educational qualifications of members show that 0.4 % had secondary education, 12.9% are degree holders, 48% have masters while 2.2% have PhDs. The remaining 36.4% have other qualifications. Additionally, the majority (94.7 %) of the members are employees, and only 4.4% are self-employed. Another interesting observation from Table 1a is the regional distribution of members: 90.3% of the chartered accountants are resident in the urban cities, and 9.7% are in the rural areas. The high number of accountants in the urban areas may be attributed to the lack of vibrant economic activities and the poor infrastructure in the rural areas.

With respect to the sample characteristics of the examiners, Table 1a shows that the majority of them are males. Specifically, 88.6% are males, and 11.4% are females. It is evident from the analysis that the majority of members, examiners and students are males suggesting that the accounting profession is a male-dominated profession. With regards to the age of the examiners, 71.5% are within 36 to 60 age brackets, and 9.2% are above 60 years. As with the members, the majority (97.8%) of the examiners are urban dwellers with 2.2% resident in the rural area.

**Table 1a: Sample characteristics**

Profile	Members		Examiners		Students	
	No	%	No.	%	No.	%
<b>Gender</b>						
Male	169	74.8	124	88.6	247	72.6
Female	57	24.2	16	11.4	93	27.4
Total	226	100.0	140	100.0	340	100.0
<b>Age (years)</b>						
Less than 19	0	0.0	0	0.0	7	2.2
19 to 35	52	26.1	20	18.3	258	82.7
36 to 60	152	71.4	82	71.5	47	15.1
Above 60	6	2.5	10	9.2	0	0.0
Total	210	100.0	112	100.0	312	100.0
<b>Marital status</b>						
Single/never married	42	18.6	13	9.3	253	74.6
Married	178	78.8	126	90.0	86	25.4
Separated/divorced	6	2.7	1	0.7	0	0.0
Total	226	100.0	140	100.0	339	100.0
<b>Area/region</b>						
Urban	204	90.3	135	97.8	309	91.2
Rural	22	9.7	3	2.2	30	8.8
Total	226	100.0	138	100.0	339	100.0
<b>Educational qualification</b>						
Secondary	1	0.4	0	0.0	59	17.5

Degree	29	12.9	4	2.9	215	63.6
Masters	108	48.0	77	55.0	60	17.8
PhD	5	2.2	44	4.1	1	0.3
Other	82	36.4	45	13.2	3	0.9
Total	225	100.0	140	100.0	338	100.0
<b>Employment status</b>						
Student	2	0.9	1	0.7	102	30.0
Unemployed	0	0.0	6	4.3	31	9.1
Self-employed	10	4.4	19	13.6	21	6.2
Employed	214	94.7	112	80.0	186	54.7
Total	226	100.0	138	100.0	340	100.0
<b>Religion</b>						
Christianity	209	92.5	131	93.6	313	92.9
Islam	14	6.2	8	5.7	23	6.8
Traditional	1	0.4	1	0.7	0	0.0
Other	2	0.9	0	0.0	1	0.3
Total	226	100.0	140	100.0	337	100.0

**Source:** Researcher's computations

Table 1a also shows the sample characteristics of student respondents. Out of total student number of 340, 247, representing 72.6% are males, and the remaining 27.4% are females. With respect to the ages of the students, a large number (82.7%) of them are within the 19 to 35 years bracket. Only 2.2% of them are below 19 years, and none of the students are above 60 years. With respect to the educational background of student respondents, 17.5 have a secondary school certificate, 63.6% are degree holders, 17.8% have masters while 0.3 % are PhD holders. Furthermore, the majority (91.2%) of student respondents are resident in urban cities. Additionally, 54.7% are employees, 6.2% are self-employed, 9.1% are unemployed, and the remaining 30% are full-time students. Table 1b presents the demographic profile of respondents in Phase 2 of the study. The characteristics of the respondents are very similar to that of Phase 1.

**Table 1b: Sample characteristics**

Profile	Members		Examiners		Students	
	No	%	No.	%	No.	%
<b>Gender</b>						
Male	265	73.6	72	90.0	146	76.0
Female	95	26.4	8	10.0	46	24.0
Total	360	100.0	80	100.0	192	100.0
<b>Age (years)</b>						
Less than 19	0	0.0	0	0.0	0	0.0
19 to 35	119	33.1	12	15.0	143	74.5
36 to 60	239	65.6	63	78.8	48	25.0
Above 60	3	0.8	5	6.2	1	0.5
Total	360	100.0	80	100.0	192	100.0
<b>Marital status</b>						
Single/never married	42	18.6	8	10.0	152	79.2
Married	178	78.8	63	78.7	40	20.8

Separated/divorced	6	2.7	9	11.3	0	0.0
Total	226	100.0	80	100.0	192	100.0
<b>Area/region</b>						
Urban	304	84.4	77	96.3	172	89.6
Rural	56	15.6	3	3.7	20	10.4
Total	360	100.0	80	100.0	192	100.0
<b>Educational qualification</b>						
Secondary	0	0.0	0	0.0	11	5.7
Degree	59	16.4	4	5.0	127	66.1
Masters	198	55.0	37	46.3	54	29.1
PhD	4	1.1	11	13.8	0	0.0
Other	99	27.5	28	35.0	0	0.0
Total	360	100.0	80	100.0	192	100.0
<b>Employment status</b>						
Student	5	1.4	0	0.0	66	34.4
Unemployed	4	1.1	4	5.0	19	9.9
Self-employed	28	7.8	14	17.5	15	7.8
Employed	323	89.7	62	77.5	92	47.9
Total	360	100.0	80	100.0	192	100.0
<b>Religion</b>						
Christianity	321	89.2	69	86.3	171	89.1
Islam	34	9.4	11	13.7	20	10.4
Traditional	1	0.3	0	0.0	0	0.0
Other	4	1.1	0	0.0	1	0.5
Total	360	100.0	80	100.0	192	100.0

**Source:** Researchers' computations

#### 4.2 Perceptions of CPD quality, exams quality and tuition quality

**Table 2:** Perceptions towards CPD quality, exams quality and tuition quality

Measurement Items	PHASE 1			PHASE 2		
	No.	Mean	SD	No.	Mean	SD
<b>CPD quality</b>						
CPDs have been good value in relation to their cost	189	3.841	0.755	243	3.604	0.895
CPDs have been offered at times of the year that fitted my schedule	189	3.396	0.920	243	3.189	0.951
CPDs have been of high quality	189	3.761	0.779	243	3.691	0.786
CPDs been practical	189	3.703	0.810	243	3.535	0.891
CPDs have covered complex and emerging issues in accounting and audit	189	3.925	0.821	243	3.674	0.916
CPDs have been delivered by facilitators of adequate practical experience	189	4.068	0.945	243	3.925	0.910
CPDs have been pitched at the right level for me	189	3.587	0.784	243	3.502	0.859
CPDs have been relevant to my professional development	189	4.005	0.788	243	3.856	0.876
CPDs have been of the right length of time for my needs	189	3.486	0.841	243	3.374	0.906
CPDs have enhanced my employability/marketability	189	3.687	0.839	243	3.382	0.952
CPDs have provided useful networking opportunities with my peers	189	3.783	0.779	243	3.612	0.878
CPDs have provided valuable contacts with experts	189	3.709	0.718	243	3.538	0.828
Overall, I am satisfied with my CPD experience in the last three years	189	3.883	0.755	243	3.751	0.806
Overall	189	3.168	0.750	243	3.587	0.881
<b>Exams quality</b>						
Quality of examination questions	140	3.900	0.859	80	3.725	1.043
Structure of examination questions	140	3.871	0.888	80	3.650	0.969
Clarity of examination questions	140	3.657	0.879	80	3.587	0.837
Syllabus coverage in examination questions	140	3.828	0.889	80	3.637	1.058
Appropriate weighting of questions	140	3.728	0.871	80	3.500	1.018
Quality of scripts marking	140	3.921	0.873	80	3.800	1.023
Quality of moderating	140	3.921	0.873	80	3.800	1.023

Pass rates	140	3.885	0.960	80	3.850	1.091
Access to results	140	3.321	0.858	80	3.262	0.937
Overall	140	3.935	0.997	80	3.937	1.194
	140	3.783	0.897	80	3.661	1.019
<b><i>Tuition quality</i></b>						
Improvement in teaching and learning	340	3.597	0.930	192	3.656	0.890
Improvement in lecturer delivery	340	3.626	0.898	192	3.619	0.859
Increase coverage of syllabus	340	3.494	0.935	192	3.510	0.909
Increased enthusiasm of lecturers about teaching	340	3.620	0.889	192	3.645	0.868
Increased accessibility of lecturers to students	340	3.497	0.916	192	3.494	0.970
Increased participation of students in teaching	340	3.414	0.938	192	3.510	0.886
More practical illustrations are used during teaching	340	3.461	0.939	192	3.214	1.000
Regular and timely feedback on assignments presented	340	3.388	0.906	192	3.195	0.994
Effective utilisation of lecture time by lecturers	340	3.741	0.970	192	3.713	0.841
Overall	340	3.537	0.925	192	3.506	0.913

**Source:** Researchers' computation

Respondents (members) were asked about their participation in CPDs activities over the past three years. The result indicates that 189 representing 84% of respondents participated in CPDs in the last three years, with 37, representing 16% of respondents responding in the negative. This finding shows that a large number of Chartered Accountants in Ghana participate in CPDs. The descriptive statistics of the level of CPD quality is shown in Table 2. Table 2a shows the reasons offered by respondents as to why they do not participate in CPDs. A large number of respondents who do not participate in CPDs activities cited the high cost of CPD activities as the reason for their non-participation. Following the cost of CPDs as the reason for non-participation is the flexibility of CPDs with respect to time.

**Table 2a: Reasons for non-participation in CPDs**

Reason	Number	Percentage (%)
CPDs are too costly	20	54
CPDs are not flexible (timing)	10	27
Location of CPDs is far from me	5	14
CPDs are not of high quality	1	3
Other	1	3
Total	37	100

Source: Researchers' computations

Respondents who have been attending CPDs were asked to evaluate their satisfaction with the level of CPD quality over the past three years from a list of 13 items (comprising an overall evaluation of quality). The results, as presented in Table 2, show that respondents generally perceive CPDs to be effective and of quality. The responses indicate a reasonable level of agreement to statements such as 'CPDs have been delivered by facilitators of adequate practical experience and training' (mean of 4.0688), 'CPDs have been relevant to my professional development' (mean of 4.0053), and 'CPDs have covered complex and emerging issues in accounting and auditing' (mean of 3.9259) and that 'CPDs have been of high quality' (mean of 3.7619). The lowest levels of agreement were noted for 'CPDs have been offered at times of the year that fitted my schedule' (mean of 3.3968), 'CPDs have been of the right length of time for my needs' (mean of 3.4868). Overall, respondents indicated a reasonable level of agreement that they were satisfied with the effectiveness of their CPD experience in the last three years (mean of 3.8836).

Again, Table 2 displays the means and standard deviations of the various items used to measure examinations quality. The findings show moderate to high mean values for the measurement items. The table shows high levels of agreement to statements such as 'improvement to access to results' (mean of 3.9357), 'improvement in the quality of script marking' (mean of 3.9214) and 'improvement in the quality of examination questions' (mean of 3.9000). The lowest mean value is 3.3214 (improvement in pass rates).

Over the years, the quality of tuition and the availability of teaching and learning materials have been a subject of concern to students of the Institute of Chartered Accountants, Ghana. For instance, Ghartey (1992) and Awayiga et al. (2010) attributed the high failure rate of students in the professional accountancy examinations to the lack of quality tuition and the absence of study manuals and materials. The study, therefore, sought to find out from respondents their views on the quality of tuition over the period of the intervention. Table 2 provides the means and standard deviations of tuition quality measurement items, which indicates moderate to high scores. From the table, the highest mean score is 3.7412 (effective utilisation of lecture time by lecturer), and the lowest mean score is 3.3882 (regular and timely feedback on assignments presented). The overall mean score appears to indicate a general agreement among respondents that there has been an improvement in tuition quality during the period of the intervention.

## Phase 2

Out of the 360 member respondents, 243 participate in CPDs and 117 do not participate in CPDs. Varied reasons were proffered by respondents for their inability to participate in CPD organised by the professional accountancy body. Key among the reasons cited by a large number of respondents, representing 34.2%, was high cost of CPD. This is followed by the lack of flexibility with respect to time. About 29.1% of the respondents cited time flexibility as the reason for non-attendance of CPDs. The third most popular reason given by respondents (18.8%) for not attending CPD activities was the fact that CPD locations were too far from them.

Table 2 presents the descriptive statistics of the respondents' views on CPD quality, examination quality and tuition quality. With respect to the CPD quality, the overall mean was 3.5876, an indication that members perceive the quality of CPDs to be high. Generally, all the indicators measuring the "CPD quality variable" are all higher than the average score of 2.5. The indicator "CPDs have been delivered by facilitators of adequate practical experience" had the highest score (Mean = 3.9259; SD = 0.91060). This was followed by the indicator "CPDs have been relevant to my professional development" (Mean = 3.8560; SD = 0.87660). The indicator with the least score was "CPDs have been offered at times of the year that fitted my schedule" (Mean = 3.1893; SD = 0.95193).

Also shown in Table 2 are the mean scores and standard deviations of examiners' perception of examination quality over the period of the study. Given that the study employed a five-point Likert scale, all the indicators used to measure examination quality are all above the middle level score of 2.5. This suggests that examiners generally view examination quality to be high. The highest levels of agreement were noted for "Access to results" (Mean = 3.9375; SD = 1.19433), "Quality of moderating" (Mean = 3.8500; SD = 1.09197), "Quality of scripts marking" (Mean = 3.8000; SD = 1.02377), and "Quality of examination questions" (Mean = 3.7250, SD = 1.04306). The indicator "Pass rates" had the lowest rating (Mean = 3.2625; SD = 0.93786). The overall mean of the "Exams quality" variable was 3.6611. Thus, on the whole, examiners rate the examination quality on a higher scale.

With respect to students' perception of tuition quality over the period of the intervention, Table 2 shows that all the indicators' means were above the average of 2.5. This shows that on average, the respondents score each of the indicators as high. The indicator with the highest score was "Effective utilisation of lecture time by lecturer" (Mean = 3.735; SD = 0.84148) while the lowest score is reported for the indicator "More practical illustrations are used during teaching" (Mean = 3.2147; SD = 1.00052).

Differences in the mean value for CPD quality, exams quality and tuition quality were examined between the first and second phases of the study. An independent sample t-test was conducted to compare the scores for the two phases. The results from the test show that there was a significant difference in CPD scores for the first phase (M = 3.76, SD = 0.194) and the second phase (M = 3.59, SD = 0.202;  $t = 2.178$ ,  $p = 0.039$ , two-tailed). This suggests that chartered accountants' perception of CPD quality in phase 1 was significantly higher than that of phase 2. The fall in CPD quality in phase 2 of the study may be attributed to the outbreak of the COVID-19 pandemic, which resulted in the organisation of virtual CPDs as opposed to the more familiar face-to-face sections. However, there was no significant difference in the scores for exams quality in phase 1 (M = 3.78, SD = 0.196) and phase 2 (M = 3.66, SD = 0.202;  $t = 1.301$ ,  $p = 0.212$ , two-tailed). Similarly, although the phase 1 mean score for tuition quality (M = 3.54, SD = 0.115) was higher than phase 2 (M = 3.51, SD = 0.187;  $t = 0.425$ ,  $p = 0.677$ ) the result shows that there was no significant difference.

**Table 2b: Reasons for non-participation in CPDs**

Reason	Number	Percentage (%)
CPDs are too costly	40	34.2
CPDs are not flexible (timing)	34	29.1
Location of CPDs is far from me	32	18.8
CPDs are not of high quality	2	1.7
Other	19	16.2
Total	117	100

*Source:* Researchers' computations

#### 4.3 Perceptions of credible professional qualification

The support given by IFAC to the PAOs is aimed at building a credible professional qualification in member countries. The IFAC theory of change outlines the expected outcomes of any support given to member countries. For instance, it is expected that there would be an increased quality of financial management, reporting and audit in both public and private sectors after a PAO had received the support. The study sought to find out from the stakeholders their perceptions about the outcomes of the IFAC support over the past three years. Table 3a captures the means and standard deviations of the measurement items of a credible professional qualification. From the table, the intervention outcome scores ranged from 1 to 5 with a mean 3.7331, 3.6509 and 3.6735 for members, examiners and students, respectively. Based on the mean results, the participants regarded the intervention outcomes to be moderately positive: between three (meaning neutral) but below four (meaning agree).

From the members' perspective, the highest-ranked intervention outcome item was 'increased quality of financial reporting' with a mean value of 3.8238. The second-ranked intervention outcome item was 'more confidence in accountancy qualification' with a mean score of 3.8106. The lowest rank intervention outcome item was 'better professional representation of accountants' with a mean of 3.6211. This suggests that members of the Institute regard the increased financial reporting and more confidence in the accountancy qualification as the two most important outcome of the IFAC support.

With respect to the examiners, the responses indicate a reasonable level of agreement to statements such as 'more confidence in accountancy qualification' (mean: 3.8357), 'increased quality of financial reporting' (mean: 3.7500), 'adoption and enforcement of international standards' (mean 3.7429) and 'better professional representation of accountants' (mean: 3.6929). The lowest level of agreement with intervention outcomes was 'adequate capacity of accountancy advocates' (mean: 3.4714).

Student participants rated the highest 'more confidence in accountancy qualification' (mean: 3.7765) as the key outcome of the intervention. The second-highest ranked intervention outcome was 'adoption and enforcement of international standards' (3.7500), which was followed by 'better professional representation of accountants' (mean: 3.7353). The least ranked intervention outcome from the students' perspective was 'increased quality of auditing' (mean: 3.5706).

It is of interest to know that all the three stakeholders rated 'more confidence in the accountancy qualification' as the highest item of intervention outcome over the past three years.

**Table 3a: Perceptions of a credible professional qualification**

Measurement items	Members		Examiners		Students	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
more confidence in accountancy qualification	3.8106	0.89456	3.8357	0.99358	3.7765	0.98815
better professional representation of accountants	3.6211	0.82927	3.6929	0.91271	3.7353	0.89604
more financially literate experts	3.6960	0.72876	3.5714	0.85783	3.5794	0.92308
adequate capacity of accountancy advocates	3.6388	0.85284	3.4714	0.80861	3.6382	0.89328
adoption and enforcement of international standards	3.7401	0.79730	3.7429	0.96984	3.7500	0.88539
increased quality of financial reporting	3.8238	0.84913	3.7500	0.84073	3.7029	0.89739
increased quality of financial management	3.7181	0.81457	3.5429	0.77154	3.6353	0.92615
increased quality of auditing	3.8018	0.86239	3.6000	0.89932	3.5706	0.93963
Overall	3.7331	0.82860	3.6509	0.88177	3.6735	0.91863

**Source:** Researchers' computations

The perception of members, examiners and students on the credibility of the professional qualification during the second phase of the study is presented in Table 3b. Generally, all the indicators of credible professional qualification had scores above the middle level score of three. This suggests that the respondents, to a large extent, agree that the professional accountancy qualification in Ghana was credible. Interestingly, "adoption and enforcement of international standards" was rated the highest indicator by all the three stakeholders. The overall average scores for examiners and students were almost the same with a score of 3.6796 and 3.6907, respectively. The overall perception score for members stood at 3.5700. The results from the independent sample t-test show that perception of members on credible professional qualification in phase 1 ( $M = 3.65$ ,  $SD = 0.124$ ) and phase 2 ( $M = 3.68$ ,  $SD = 0.131$ ;  $t = 2.530$ ,  $p = 0.024$ ) witnessed a significant difference. With respect to examiners and students' perception of credible professional qualification, the results from the independent sample t-test indicate that there were no significant differences between the mean values of the two phases.

**Table 3b: Perceptions of a credible professional qualification**

Measurement items	Members		Examiners		Students	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
more confidence in accountancy qualification	3.5906	0.96875	3.7500	1.06141	3.7316	0.96858
better professional representation of accountants	3.4483	0.94652	3.7000	0.86273	3.6931	0.93456
more financially literate experts	3.6076	0.83826	3.7125	0.85970	3.7181	0.8771
adequate capacity of accountancy advocates	3.3448	0.95836	3.5375	0.91325	3.5079	0.90283
adoption and enforcement of international standards	3.8469	0.86647	3.9000	1.00127	3.8783	0.93456
increased quality of financial reporting	3.7367	0.83153	3.7375	1.00308	3.7766	0.95519
increased quality of financial management	3.5219	0.82638	3.4875	0.94123	3.6489	0.92739
increased quality of auditing	3.4639	0.94059	3.6125	1.02493	3.5714	0.99007
Overall	3.5700	0.89710	3.6796	0.95845	3.6907	0.93628

**Source:** Researchers' computations

#### 4.4 Principal component analysis

The 29 items of continuous professional development quality, examination quality and tuition quality, which measures a strong system of professional certification, were subjected to principal component analysis (PCA). Prior to carrying out the PCA, data suitability for such an analysis was assessed. An examination of the correlation matrix shows the existence of a large number of coefficients 0.3 and above. The Bartlett's Test of Sphericity (Approx.: Chi-Square = 1692.340, df. 465, sig. 0.000) reached statistical significance, to support the application of factor analysis of the correlation matrix. The Kaiser-Meyer-Oklin (KMO), which is used to measure sampling adequacy, was 0.835 exceeding the suggested value of 0.60 (Kaiser, 1974). The total variance explained show the presence of five components with eigenvalues above 1 after performing the PCA. The five components explained 20.929%, 17.054%, 13.951%, 4.653% and 3.834% of the variance, respectively. An examination of the scree plot shows a clear break between the third and the fourth components. Employing Catelli's (1966) scree test, three components were retained for further analysis. Components 1, 2 and 3 capture much more of the variance as compared to the remaining components. In all, the three components explain satisfactory 51.934% of the total variance.

To support the interpretation of the three components, the 29 items were rotated by employing varimax rotation. The rotated results showed that the variables loaded substantially on the three components with a number of strong loadings. Twelve variables loaded strongly on component 1 and were all related to continuous professional development. Component 2 had nine variable loadings, which were all related to examinations. The third component had eight variables loading strongly on it, and they related to tuition. The results of the analysis support the general acceptance among the accounting professional fraternity that the quality of continuous professional development, examinations and tuition has an effect on the credibility of professional qualification in a country.

Regarding the reliability of the PCA, the Cronbach alpha coefficient is used to analyse the internal reliability of the three components. Only components that had Cronbach's Alpha values of 0.7 and above (Hair et al., 2010) were used for further analysis. Appendix 1 shows the measurement items, loadings, eigenvalues, Cronbach's Alpha values and the percentage variance for each component. Thus, the factors that define a credible professional qualification in Ghana are continuous professional development effectiveness, quality of examinations and quality of tuition. The measurement items for credible professional qualification were checked for their internal reliability as well as their loadings. Findings show a Cronbach's Alpha value of 0.900 and high loadings for the measurement items. The loadings range from 0.718 to 0.849, suggesting that items used to measure the variable are valid in explaining the variable.

#### 4.5 Analysis of regression results

**Table 5: Relationship between the drivers of CPQ and CPQ**

Variable	Phase 1	Phase 2
	Model 1	Model
CPD quality	0.343*** (0.063)	0.366*** (0.079)
Exams quality	0.405*** (0.054)	0.270*** (0.068)
Tuition	0.305*** (0.066)	0.171** (0.082)
Age	0.072 (0.008)	-0.009 (0.021)
Gender	0.210**	0.191

	(0.158)	(0.158)
Education	-0.159	-0.209*
	(0.072)	(0.105)
Residence	-0.278**	0.614
	(0.245)	(0.583)
	1.844***	0.643
	(0.637)	(0.998)
<b>Diagnostic tests</b>		
R squared	0.438	0.561
Adjusted R squared	0.369	0.489
F-statistic	6.356***	7.845***

**Notes:**

The dependent variable is credible professional qualification (CPQ). This is regressed against CPD quality measured as chartered accountants' overall perception of quality of CPDs. Exams quality is measured as examiners' perception of examination quality. Tuition quality is measured by students' perception of quality of tuition. Age, gender, education and residence are control variables. Standard errors are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5 presents the regression results of the estimation model for phase 1 and phase 2 of the study. The results confirm all the three hypotheses proposed. As predicted, the continuous professional development quality, examination quality and the quality of tuition have a positive coefficient with credible professional qualification suggesting that high-quality education and training indeed enhances the credibility of professional qualification in a country. Furthermore, the improvement in credible professional qualification is significant at 1% level of significance. This result demonstrates that with the right investment of resources in CPDs, exams and tuition, members and students alike will acquire the requisite skills, knowledge and competences. These skills and competencies are then applied in providing quality accounting and auditing services to the society at large. This will undoubtedly improve the quality of financial reporting, auditing and financial management in the country and thus the credibility of the professional qualification. Our findings are in line with extant literature as a number of studies have found that the quality of education and training has an effect on credible professional qualification (Kostadinovski et al., 2013; West, 2003; Elliott & Jacobson, 2002; Abbot, 1988). The result is also consistent with the principal notion of the sociology of professions by Abbot (1988). According to Abbot, a profession strives to achieve societal legitimacy so that the profession continues to have a monopoly over a specialized body of knowledge. To sustain the profession's privileged position in society, there is the need to expand the knowledge base of the profession through quality tuition, examination and continuous professional development, which in turn influences the system of certification in the society. This suggests that professional accountancy organisations must continuously endeavour to improve the quality of CPDs, examinations and tuition in achieving credible professional qualifications.

Regarding the control variables, credible professional qualification shows a positive relationship with age and gender, while it shows a negative relationship with education and residence. The relationship is significant with respect to gender and residence and insignificant to age and education. The evidence implies that males are more positive about the improvement in the credibility of the professional qualification over of the years of IFAC's intervention than females. This evidence may partly be explained by the fact that the accounting profession is a male-dominated profession (Fosu & Delle, 2015). With respect to the residence, respondents resident in urban cities are less positive about the improvement in the credibility of the professional qualification as a result of IFAC's intervention than those in the rural areas. This may be due to the fact that those living in urban cities are more enlightened and exposed to the activities and operations of other more efficient and effective accountancy organisations across the world.

Finally, the credible professional qualification model shown in Table 5 reports a good fit for the regression model with an adjusted R<sup>2</sup> of 36.9%, indicating that the variables may influence the dependent variable. The

F-statistic for the model is significant at 1% level suggesting the joint significance of the independent variables for the dependent variable. In other words, the explanatory variables are important in explaining the variation in credible professional qualification.

#### 4.6 Interaction analysis

**Table 6a: The interaction analysis of drivers of CPQ and education to CPQ**

Variable	Model		
	1	2	3
CPD quality	1.3428* (0.439)	0.345*** (0.063)	0.360*** (0.063)
Exams quality	0.414*** (0.053)	-0.157 (0.380)	0.417*** (0.054)
Tuition quality	0.265** (0.068)	0.313*** (0.067)	-0.584 (0.423)
CPD quality*Education	-1.597 (0.136)		
Exams quality * Education		0.848 (0.125)	
Tuition quality * Education			1.290 (0.134)
Age	0.048 (0.008)	0.345** (0.063)	-0.009 (0.021)
Gender	0.213** (0.156)	0.199* (0.160)	0.191 (0.158)
Education	0.951 (0.072)	-0.730 (0.485)	-1.103 (0.471)
Residence	-0.314*** (0.250)	-0.282*** (0.246)	-0.255** (0.246)
Constant	-0.269 (1.627)	3.008* (1.607)	3.685** (1.509)
<b>Diagnostic tests</b>			
R squared	0.458	0.445	0.456
Adjusted R squared	0.380	0.365	0.378
F-statistic	5.906***	5.603***	5.866***

**Notes:**

The dependent variable is credible professional qualification. This is regressed against CPD quality measured as chartered accountants' overall perception of quality of CPDs. Exams quality is measured as examiners' perception of examinations quality. Tuition quality is measured by students' perception of quality of tuition. The drivers of credible professional qualification (CPD quality, exams quality and tuition quality) are interacted with education. Age, gender, education and residence are control variables. Standard errors are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively

In order to check the robustness of the results as reported in Table 5, some variations are made. Education was interacted with the main variables, CPD quality, exams quality and tuition quality. Table 6a shows the results and aims at exploring the overall sensitivity of the association between the drivers of credible professional

qualification and education to credible professional qualification. Model 1 examines the relationship between CPD quality, exams quality, tuition quality and credible professional qualification. With the introduction of the interaction between CPD quality and education, the relationship between the drivers of professional qualification and credible professional qualification remained positive and significant. The interaction between CPD quality and education has a negative influence on credible professional qualification. This suggests that people with higher academic qualifications are likely to assess the quality of CPDs low as well as the credibility of professional qualification. This may be explained by the experience and exposure of such people. Again, Table 6b shows an analysis of the relationship between CPD quality, exams quality, tuition quality and credible professional qualification as well as the interaction between exams quality and education and then the interaction between tuition quality and education in models 3 and 4, respectively. The relationship between the interaction terms and credible professional qualification is positive in both models 3 and 4. The results imply that the level of education positively influences people's perception of the quality of exams and tuition as well as an improvement in credible professional qualification.

**Table 6b: The interaction analysis of drivers of CPQ and education to CPQ**

Variable	Model		
	1	2	3
CPD quality	1.098** (0.472)	0.379*** (0.075)	0.369*** (0.080)
Exams quality	0.258*** (0.067)	-0.708 (0.431)	0.262*** (0.072)
Tuition quality	0.149* (0.082)	0.112 (0.082)	0.022 (0.447)
CPD quality*Education	-0.249 (0.158)		
Exams quality * Education		0.323** (0.140)	
Tuition quality * Education			0.050 (0.148)
Age	-0.012 (0.021)	-0.015 (0.020)	-0.010 (0.022)
Gender	0.176 (0.222)	0.230 (0.216)	0.192 (0.228)
Education	0.711 (0.595)	-1.392** (0.525)	-0.393 (0.554)
Residence	0.558 (0.574)	0.445 (0.561)	0.570 (0.603)
Constant	-1.843 (1.861)	4.601** (1.969)	1.259 (2.082)
Diagnostic tests			
R squared	0.585	0.610	0.562
Adjusted R squared	0.506	0.536	0.479
F-statistic	7.408***	8.206***	6.737***

**Notes:**

The dependent variable is credible professional qualification. This is regressed against CPD quality measured as chartered accountants' overall perception of quality of CPDs. Exams quality is measured as examiners' perception of examination quality. Tuition quality is measured by students' perception of quality of tuition. The drivers of credible professional qualification (CPD quality, exams quality and tuition quality) are interacted with education. Age, gender, education and residence are control variables. Standard errors are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively.

## **5. Conclusion and avenues for future research**

This paper aims at investigating stakeholders' perceptions of the outcomes of donor-funded intervention on the Institute of Chartered Accountants, Ghana and how the outcome influences the credibility of the accountancy professional qualification. The study employs principal component analysis (PCA) and a regression to establish the relationship between CPD quality, exams quality, tuition quality and credible professional qualification.

The results are highly informative and useful to gauge how members, examiners and students, who are the key stakeholders of any PAO, perceive the outcome of the IFAC intervention on the activities of a professional accountancy organisation. For example, the results show that the majority of members, examiners and students believed that the institutional intervention by IFAC to ICAG had improved the quality of continuous professional development, quality of examinations and quality of tuition provided by accredited tuition centres.

The results further reveal that the coefficients of CPD quality, examination quality and tuition quality are positive; confirming the hypothesis that CPD quality, examination quality and tuition quality will positively influence a credible professional qualification. Thus, the intervention by IFAC has indeed improved on the credibility of the professional accountancy qualification in Ghana.

Regarding policy implications, regulators of the accountancy profession can use the results of this study to improve the credibility of professional qualifications in their respective countries. This is because this study has empirically confirmed that CPD quality, exams quality and tuition quality significantly enhance the credibility of professional qualification in a country. In addition, donors and sponsors of capacity building projects aimed at improving the financial reporting and disclosure practices of developing countries can use the results of this study to help in the allocation of resources to achieve the required impact.

The present study, like all other studies, is not without its limitations. The study considered three stakeholders, namely students, examiners and members. The perceptions of other stakeholders such as employers, audit firms, regulatory institutions and by extension government were not solicited in this study. Future studies should consider the perceptions of other stakeholders on the outcomes of donor funded interventions. The study involves a single accountancy organisation in one developing country that has benefited from donor funded interventions. Using respondents from the same accountancy organisation limits the extent of the generalisation of the study findings. Similar studies in other countries where such an intervention has been implemented will be an important extension to this study. Furthermore, given that people's perceptions change with time, a longitudinal survey could have improved the current findings. Longitudinal surveys offer the opportunity to observe an individual's patterns of change. Notwithstanding these limitations, this study makes important contributions to the aid literature, especially technical and capacity building aid from a developing country.

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### ***Appendix I: Principal component analysis result***

Items	Component		
	1 CPD	2 Exams quality	3 Tuition quality
CPDm	0.823		
CPDh	0.782		
CPDe	0.754		
CPDc	0.751		
CPDf	0.749		
CPDg	0.706		
CPDj	0.698		
CPDd	0.698		
CPDI	0.617		
CPDi	0.599		
CPDk	0.590		
CPDa	0.575		
EQa		0.825	
EQg		0.817	
EQb		0.795	
EQc		0.770	
EQd		0.743	
EQf		0.736	
EQi		0.729	
EQe		0.680	
EQh		0.491	
TQa			0.789
TQb			0.780
TQd			0.775
TQc			0.750
TQi			0.665
TQh			0.635
TQe			0.611
TQf			0.595
Cronbach's alpha	0.903	0.893	0.854
Eigenvalues	6.070	4.946	4.046
Variance (%)	20.929	17.054	13.951

**Source:** Researchers' computations

## DIGITALISATION AND THE ACCOUNTING PROFESSION: A CONCEPTUAL PAPER ON APPLICATIONS, OPPORTUNITIES AND CHALLENGES

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### Abstract

This conceptual paper aims to review literature on digitalisation trends, opportunities, and challenges in the accounting profession. Available and relevant professional and academic literature were reviewed and analysed to achieve the research goal. Accredited databases, publications, and journals were searched to find scholarly literature on digitalisation and the accounting profession. It was found that digitalisation has disrupted the accounting profession and industry in many ways. Some researchers propose that digitalisation will adversely influence the accounting profession, while others believe that digitalisation provides new opportunities in the accounting services industry and for individual professionals. Digitalisation trends such as artificial intelligence, big data and cloud computing present tremendous opportunities to the accounting profession. Nonetheless, accountants have to equip themselves to meet the requirement presented by digitalisation in the accounting profession adequately; and stakeholders, especially regulators, have to collaborate in preparing standards to foster the development of the industry and professionals in the take up of digitalisation.

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### Article Info

#### **Keywords:**

*Digitalisation*

*Accounting*

*Artificial intelligence*

*Big data*

*Cloud computing*

*Machine learning*

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## 1. Introduction

Digital transformation has become one of the areas of concern in the twenty-first century. Digital transformation, commonly termed digitalisation, affects every aspect of economies, societies, human living, processes, production and industry operations in the modern age. The fourth industrial revolution is characterised by digital trends, new technology, tech-based services, policies and other developments beyond traditional economies and industrial processes (Ciurea & Man, 2020). Professionals are forced to adapt to the current trends presented by the digital revolution in numerous industries. To fully comprehend the digital process, we need to move past the transition to understand the factors that influence the fast-paced digital economy. The accounting profession is one of the significant fields influenced by digitalisation trends (Ogaluzor, 2020). This influence can be of advantage or disadvantage, depending on how professionals, organisations and regulators will handle the digitalisation of the accounting profession.

Many rules and principles in accounting have not changed over the years. However, the accounting industry and profession have evolved and transformed over the years (Gulin et al., 2019; Ogaluzor, 2020). As a result, there have been debates on the future of accounting in the face of rapidly developing technologies and innovations (Ferreira et al., 2021; Ogaluzor, 2020). While some researchers and experts propose that the digital economy will adversely affect accounting industries, others believe digitalisation will positively impact the accounting profession and industry (Bygren, 2016; Ciurea & Man, 2020; Ogaluzor, 2020).

It is needful to define digitalisation at this point. “Digitalisation is the process of turning information into a digital (computer-readable) format in which the data is grouped into bits” according to Collins English Dictionary. The concept of digitalisation refers to digitised data in the form of binary digits, which enable computers to process data into information. Digitising is essentially the transfer of an analogue source of data or information into a numerical format, whether decimal or any other number system, that computers can readily utilise (Ogaluzor, 2020). According to Ogaluzor (2019), digitisation significantly impacts accountants’ activities and the accounting profession. As a result of technological advancements, the scope of accountants’ jobs and operations is expanding, and client expectations are shifting (Gulin et al., 2019). These changes depend on an appropriate and timely response from accounting professionals.

The rapid shift in the business environment as digitalisation continues to improve and be integrated into business processes has proven critical for modern businesses to handle difficulties and create possibilities for competitive advantage in a digital economy (Schiavi et al., 2019). The increase in technological advancement is causing changes in accounting firms in the accounting industry and their business models (Adiloglu & Gungor, 2019). Incorporating disruptive technology and transforming accounting processes to be much more agile, practical, and forceful are digitalisation goals in the accounting industry. These changes are essential for increasing the quality of client services that an accountant can provide, and accounting professionals’ overall productivity and efficiency (Anton & Trifu, 2021).

From the beginning of the accounting profession till now, the profession has evolved vividly. Accounting has progressed from manual to digital accounting or digitalised accounting. Like every other industry globally, accounting has been disrupted by technological advancements (Ogaluzor, 2020). The dependence of the accounting industry on numbers and its predictability propose that the accounting profession will hugely be impacted by technological progress. As a result, we expect profound changes from accounting firms’ business models to how accounting professionals perform their tasks. This conceptual paper provides a literature review of digitalisation trends, opportunities, and challenges in the accounting profession. The paper seeks to provide a vivid overview of the impact of digitalisation on the accounting profession by reviewing current articles from credible sources. This conceptual paper will primarily discuss the impact digitalisation has on the accounting profession, thus its application for good and some challenges.

## 2. Literature review

Digitalisation offers tremendous significance to work and improves individuals’ lives as the world advances into the fourth industrial revolution. Any industry or company that seeks to remain relevant cannot help but digitalise its process, operations and business models. In the accounting profession, digitisation of the accounting process is currently a vital topic (Ogaluzor, 2020). Both accountants and accounting firms must adjust to the new trends in technology. While some argue about the advantages and disadvantages of the digitalisation of accounting, one thing remains certain: the industry and profession cannot remain the same (Moll & Yigitbasioglu, 2019; Peng & Chang, 2019).

Some practical evidence of the change includes introducing an online program to help finance professionals adapt to the new trends in technology dubbed Machine Learning: an introduction for finance professionals by the Association of Certified Chartered Accountants (ACCA, 2021). New accounting software and other Enterprise Resource Planning Software showcase the potential of new technology and how they are changing the way of work. The personal development approach and other strategies implemented show that the accounting profession should carefully assess its stance on digitalisation and how it can remain competitive and provide satisfactory services to clients (Cao, 2020).

According to the World Economic Forum, computers and algorithms performed 36% of regular work in the financial services sector in 2018 (World Economic Forum, 2018). This statistic is projected to climb to 61% by 2022, with data entry and accounting personnel accounting for most employment losses (World Economic Forum, 2018). The accounting industry has been selected as one industry in which digitalisation will continue

to expand and disrupt (Bygren, 2016; Ogaluzor, 2020). In their study, Ciurea and Man (2020) listed the accounting profession as one of the professions that will be mainly affected by digitalisation. As stated, the current trend in the accounting industry makes it necessary for researchers to investigate the good and the destructive effects of technological advancement on the accounting profession and industry. This conceptual paper assesses the accounting profession's trends and how the accounting industry can leveraged technological advancement for good.

## **2.1 Digitalisation**

The term “digitalisation” refers to converting analogue knowledge and information into a digital form that can be stored. This process allows for more real-time access to knowledge and information, as well as a global exchange of data between individuals and plugged-in digital gadgets (Bygren, 2016). Gartner’s glossary defines digitalization “as the use of digital technologies to change a business model and provide new income and value creation opportunities” (as cited in, Shanika et al., 2020). The distinction between fully functional, matured digital firms and organisations that have not yet fully digitalised is that mature businesses use digital technologies such as cloud, analytic tools, social tools, and mobile devices internally and externally (Bygren, 2016; Schiavi et al., 2019). The process of reorienting the economy, organisations, and communities on a system level is referred to as transformation into digitalisation.

Bygren (2016) described digitalisation as converting analogue data and information into a digitalised form of communication. This definition covers the real-time transfer of data. According to Anton and Trifu (2021), the term “digitalisation” refers to developing new business models and processes that use technological advancements”. Digital items, digital tools, social collaboration platforms, and unified communication platforms are part of our digital workplace (Adiloglu & Gungor, 2019; Anton & Trifu, 2021). In other words, the notion relates to the involvement of knowledge systems in processes and activities through data and digitised processes. Digitalisation can refer to an environment, a region, or an operation at the same time. While some researchers indicate no single definition for digitalisation, they all agree that its impact on economies, societies and companies cannot be ignored (Shanika et al., 2020).

Gradually, digitalisation is taking over the world of business as its trend is forcing companies to digitalise to have a competitive advantage over others. Companies that do not link their digital business strategy with the competitive trends of digitalisation are more likely to face serious problems in the future (Shanika et al., 2020). In this regard, a survey conducted by MIT Sloan Management Review and Deloitte indicated that over 90% of managers had seen the influence of digital technology on their businesses; nevertheless, less than half believe they have done enough to prepare for this digital revolution (Schiavi et al., 2019). The digitalisation is becoming imperative for companies and industries that seek to serve their customers better and meet the needs of a fast-paced world in the fourth industrial revolution.

## **2.2 Digitalisation and accounting profession**

As stated earlier, the accounting industry is among the sector most susceptible to the influence of digitalisation. The American Institute of Certified Public Accountants defines accounting as “the art of recording, classifying, and summarising, in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character, and interpreting the results thereof”. This makes accounting the language of business while its activities become the bloodline of business. Without implementing technological advancement in the accounting industry, it will not keep up to expectations. According to Schiavi (2019), different digital technologies will substantially impact accounting services in future years, indicating their leadership role in altering the accounting sector. This occurrence is due to the numerical and repetitive nature of the accounting profession and processes (Bygren, 2016). In addition, the nature and function of accounting makes it easier for digitalisation to influence it in many ways.

The impact of digitalisation on accounting differs. Thus, it can be good or bad depending on the perspective from which it is viewed (Peng & Chang, 2019; Wu, 2021). For example, routine and basic tasks such as

bookkeeping and data entry are among the most accessible aspects of accounting that technology advancement has already impacted. But, on the other hand, digitalisation provides opportunities and advantages such as data security and fast delivery of reports. In addition, the changes and need for companies to remain competitive force firms to pivot their business strategies (Bygren, 2016; Gulin et al., 2019). Consumers request companies to deliver sustainable products and services in the digitalisation age that the accounting industry is not exempted from (Ferreira et al., 2021).

It is important to note that the accounting profession and industry have changed along with technological development (Knudsen, 2020). The first change to the sector was from manual to a computerised form of accounting. Even though the basic principle of double-entry is still practised today, the approach of recording and retrieving financial information has changed. Accounting in modern times has moved from manual to automated systems. Over the years, computers have been used to collect, store and store information. As a result, it has become easier and faster to handle large amounts of data and create more accurate and real-time reports (Murungi & Kayigamba, 2015). The rapid changes in technology and the introduction of system software have shaped the accounting industry.

The next phase, after introducing computers that led to changes in the accounting industry, is the introduction of enterprise resource planning systems. Enterprise resource planning (ERP) systems make it possible for client-focused and integrated IT systems to ease the work of organisations. ERP, as defined by McGaughey and Gunasekaran (2009, p.360), is an “information system that integrates business processes, to create value and reduce costs by making the right information available to the right people at the right time to help them make good decisions in managing resources productively and proactively”. ERP evolved from a back-office server that excludes customers and the general public to a more integrated system for running a business. ERP integrated the works of various departments in an organisation such as accounting, marketing, human resources and production units. While some researchers argue that the essence of the creation of accountants is declining due to technology ERP, the benefits of the ERP on the accounting industry remains evident (Caglio, 2003; McGaughey & Gunasekaran, 2009).

The current phase of technological impact on accounting is digitalisation. Digitalisation is one of the factors that will change the human, societal and organisational orientation in the short and long term (Gbadegeshin, 2019). The impact of digitalisation is felt in every aspect of human life. The accounting profession and industry is being transformed by digitalisation in many ways. Consequently, there is pressure on individuals in the accounting industry to keep up with current trends and remain relevant in the fourth industrial revolution (Rashwan & Alhelou, 2020). Nonetheless, the full impact of digitalisation has not yet unfolded.

The demand for skills linked to the optimum use of digital technology has been expanding among business and accounting professionals as digital technologies have become more prevalent in accounting tasks (Hamdan et al., 2021). According to Knudsen (2020), accounting professionals will be challenged to look beyond the traditional skills used to perform mandatory and routine tasks to find new ways to create value for customers and ensure business sustainability by exploring new digital technologies. As a result, the demand placed on accountants and the accounting industry continues to expand as technological advancement increases. This situation represents both an advantage and a threat to the accounting industry. However, the incidence of the effects of digitalisation on accounting, be it an advantage or a threat, depends on the accounting industry stakeholders and their ability to stay in line with the current trends in digitalisation.

### **3. Methodology**

Available and relevant professional and academic literature were reviewed and analysed to achieve the research goals. Accredited databases, publications, and journals were searched to find academic literature. Digitalisation in accounting, developments and trends in the accounting profession, online transactions, cloud computing, artificial intelligence, big data, and blockchain technology were all utilised as search terms. The study looked into the topic of digitalisation and its impact on the accounting profession. Scientific-research methodologies

such as induction and deduction, analysis and synthesis, generalisation method, and abstraction method were used to assess selected academic and professional articles (Pandey & Pandey, 2015).

## 4. Findings

The findings on the application of advanced technology in the field of accounting are presented here; and the opportunities that these technologies provide to accounting and their associated challenges are discussed. The examples of digitalisation covered in this conceptual paper are artificial intelligence, machine learning, big data, blockchain and cloud computing.

### 4.1 Applications of digitalization

#### *Artificial Intelligence*

Artificial intelligence, commonly known as AI, is becoming a household name among industry players in the fourth industrial revolution (Hamdan et al., 2021). Adiloglu and Gungor (2019) define AI as “intelligence exhibited by machines”. This definition proposes that machines will be able to observe and learn from their environment. The end goal of AI is that devices will perform human-like activities by leaning on their own. AI is currently implemented in many fields of learning and aspects of life, such as self-driving cars and ATMs that can receive deposits.

While some predict that the development of AI may result in an apocalypse, research conducted by BCG and MIT Sloan Management Review (as cited by Ogaluzor, 2021) indicates that 75% of executives are of the view that AI will assist their organisations in transitioning to new areas of business. Furthermore, 80% of the respondents believed that AI will provide them with a competitive edge. Chukwudi et al. (2018) opined AI is rapidly transforming how financial institutions operate, and it is expected to take over essential activities due to operational efficiency and cost savings. The growth of AI in accounting relies on the demand of clients and regulators for accounts to perform their responsibilities with more accuracy and within time. Areas such as financial reporting, auditing and fraud detection can leverage AI for work efficiency.

#### *Machine Learning*

Machine learning is a subset of Artificial Intelligence that allows computers or machines to learn without explicit programming (Van Den Bogaerd & Aerts, 2011). Machine learning algorithms mimic human behaviour in classifying large sets and identifying objects. Similarly, like AI, machine learning algorithms have been implemented in working with a large volume of data, training robots and classifying accounting data. This branch of AI appears to be promising in solving human problems. Machine learning implementation will save human time and ensure high performance in business operations (Ahmed, 2020; Mending et al., 2018). Hence, the accounting profession and industry can take advantage of these advantages.

#### *Big Data and Data Analytics*

According to Farhaoui (2018), the term “big data” is now used to denote the application of predictive and behavioural analytics, and possibly other higher-level data analysis methodologies. Big data is a term that refers to datasets that are too large for traditional database software tools to acquire, store, manage, and analyse (Adiloglu & Gungor, 2019). Suri et al. (2019) define big data as the collection, storage, analysis, and sharing of data and the source, updating, visualisation, transfer, and privacy of information. When compared to traditional data processing tools, big data refers to data collections that are more complex and huge

Big data is a novel idea in accounting that has emerged as a result of digitalisation (Cockcroft & Russell, 2018; Yakimova, 2020). Big data impacts accounting in various ways, including how companies conduct business, compile financial statements, and conduct audits. In addition, according to Liu and Vassarhlyi (2014), big data

has a considerable impact on decision-making quality. According to the authors, this benefit is due to greater data measurement and comprehensiveness and a better interpretation of information (Liu & Vassarhlyi, 2014).  
Blockchain

A blockchain is a continuously increasing and distributed database that holds the list of data records that is hardened against tampering and revision, even by the data store's nodes' operators (Adiloglu & Gungor, 2019). Users can benefit from blockchain technology in a variety of ways. The blockchain keeps track of all transactions made by all participants in a single book, allowing this service to be delivered without the need for centralised transaction processing (Qasim & Kharbat, 2020; Zhang et al., 2020). It is also feasible to retroactively reach each party to a transaction because each blockchain maintains copies of past operations inside the chain. Furthermore, the fact that transactions cannot be altered or intervened after a recording has increased the fair presentation of the data produced by the system (Moll & Yigitbasioglu, 2019). Blockchain has been widely adopted in areas such as cryptocurrency and trading. Others are also researching how blockchain can be implemented in fields such as ensuring food security and accounting. Blockchain technology can help the finance and accounting industry by securing transactions and preventing fraud.

#### *Cloud computing*

Cloud-based solutions or services are available in various essential functions recognised as part of the accountant's work (Moll & Yigitbasioglu, 2019). Cloud computing is a digitalisation technology that stores data in remote and highly-protected storage facilities known as the "cloud" (Faccia et al., 2019). Compared to the regular computers that have their data stored in their immediate hardware (storage devices), cloud computing allows for it to be stored and protected in the cloud. Cloud computing allows firms to use the same ERP system across different countries and locations. The centralised ERP system hosted by a cloud computing service offers numerous advantages: centralised security, real-time updates and easy accessibility to data (Moll & Yigitbasioglu, 2019). Cloud accounting is a new trend of accounting that is made possible by the introduction of cloud computing. Cloud offers unparalleled data-sharing capabilities and agility (Weir et al., 2017).

#### **4.2 Opportunities of digitalisation in accounting**

According to Amiri and Amiri (2014), Accountants can leverage modern technology to improve their intra-organizational responsibilities and reduce potential dangers. Furthermore, according to Zvirtes and Alves (2014), digitalisation can play a critical role in the accounting industry and operations.

Some research opines that advanced technologies are not being developed to replace human intelligence; more accurately, they are built to assist accountants in becoming better strategic advisors by offering vital company insights. Artificial intelligence and machine learning will improve accountants' access to a broader range of near-real-time data from a wider range of sources (Gulin et al., 2019). Many practitioners and organisations, such as Ernst and Young and Deloitte, employ artificial intelligence (AI) to detect fraudulent invoicing and aid with tax returns, cutting processing time down drastically (Zhou, 2017).

The trends of digitalisation are beneficial primarily to the audit sector of the accounting industry. The human auditor's job will be updated from that of a performer in the auditing process to that of a designer of the audit process. This improvement will require auditors to monitor audit efficacy, correctness, and lack of partiality in firm data and the interpretation of the results.

Since the adoption and implementation of digitalisation techniques provide real-time data, the real-time updates made available-by modern digital technology, big data, according to Gulin et al. (2019), can save reporting time. Furthermore, combining the analytical skills of accountants and the available digital tools will allow accountants to be intuitive and analyse facts that will facilitate a shift in the business decision-making process (Gulin et al., 2019). Technology such as big data gives more relevant business insights and higher-quality audit evidence. Auditors can use big data and data analytics to help them identify financial reporting fraud and operational business hazards and change their methodology to provide a more relevant audit within the shortest possible time (Adiloglu & Gungor, 2019).

In summary, digitalisation provides a lot of benefits to the accounting profession and industry. Even though the accounting industry is catching up with digitalisation trends, the progress so far is admirable. Digitalisation continues to offer many opportunities to accountants and their profession, which can help them provide competitive services and remain relevant in their field.

### **4.3 Challenges**

It is worthwhile to note that despite the advantage and opportunities presented by digitalisation in the accounting industry, there are some challenges that accountants have to deal with. For example, according to a 2015 study conducted by the University of Oxford, when computers take over the task of data analytics and numbers crunching, accountants will face a 95% probability of losing their profession (Chukwudi et al., 2018). In addition, some professionals, such as those in management accounting, believe that accountants' abilities are insufficient to deal with AI requirements. According to Gulin et al. (2019), accountants must acquire up-to-date skills and knowledge to effectively use digital technology and other emerging technologies to continue delivering value to the organisation in today's dynamic business climate. This disposition is a threat against which finance and accounting professionals are implementing mitigation plans to deal with the adverse effect of digitalisation.

Lastly, advanced technology, such as big data, cloud computing and the development of AI (machine learning) algorithms, has become more expensive and developed, according to Fledsberg (2019); thus, the acquisition and implementation of advanced technology will require considerable capital.

### **4.4 Future research areas**

The topic of digitalisation remains understudied when it comes to its application to research areas such as accounting. As a result, researchers are investing the impact of digitalisation on the accounting profession and associated industry. However, more research is needed to understand this area thoroughly. In addition, researchers should focus more on how accountants can be prepared to meet the demand that comes with the trends in digitalisation.

Most studies from the review are conducted in the western world, leaving out places such as Africa with little contribution to the research output. Therefore, researchers should equally focus on how these trends and changes in the accounting industry play out in Africa. Such research will help international bodies and organisations evaluate the state of the impact of digitalisation in Africa.

Further studies in this area could focus on the impact of regulations in adopting digitalisation trends; and could investigate how laws have affected the adoption and implementation of digitalisation in the accounting profession.

## **5. Conclusion**

This conceptual paper followed an empirical review approach to evaluate the impact of digitalisation on the accounting industry. The report found that digitalisation is an essential topic in the field of accounting. Accountants' routine, repetitive, and systematic jobs are or will be automated in the near future. Furthermore, the literature review revealed that areas of digitisation such as artificial intelligence, machine learning, big data, cloud computing and blockchain could be utilised by accountants to gain a competitive edge on the market. These applications of digitalisation offer opportunities for companies to expand operations and sustain positive performance.

The paper assesses some opportunities and challenges presented by digitalisation in the accounting profession. Accountants can carry out their services on time, communicate effectively and ensure a smooth work process

when the opportunities presented by digitalisation are utilised well. On the other hand, there are some challenges, such as being it being costly, requiring excessive training, and threatening the accounting profession.

Further review of the literature indicates that accountants, regulators and other stakeholders can collaborate and strategically position the accounting profession competitively in the fourth industrial revolution. For businesses, digitalisation and the advancement of information technologies provide a huge opportunity. These advantages can be tapped if organisations strategize their business operations to meet the requirement of digitalisation.

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