Impact of fraud on Ghanaian SMEs and coping mechanisms

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Abstract

Purpose – Small and medium-scale enterprises (SMEs) are the engine of growth of most developing countries, as they employ a large number of people as opposed to large firms. Consequently, these enterprises should succeed in expanding to become significant employers and producers. However, what seems obvious at least through cursory observation is that the current state of SMEs betrays an economic loss with respect to the benefits that ought to be forthcoming from their potential. This loss can be triggered by a number of factors. The study determines the drivers of internal fraud and their impact on Ghanaian SMEs and prescribes coping mechanisms.

Design/methodology/approach – Primary data collected on 250 SMEs collected from various sectors across Accra, the capital of Ghana, are used for this study. Using a cross-sectional regression, the authors identify the key drivers of internal fraud that hamper the growth of Ghanaian SMEs.

Findings – The regression results show that although several fraud variables impact negatively the growth of the SME sector, it is only accounting fraud which is significant. This study also revealed that stealing, fake currency issued for the payment of goods or service and non-payment of goods or service account for almost 83 per cent of fraud cases experienced by SMEs.

Research limitations/implications – The study was limited to the SMEs located in the Accra, the capital of Ghana.

Practical implications – The study will offer SMEs owners methods that will assist in their determination to fight fraud in the business that they manage.

Social implications – The survival of SMEs is paramount to job creation. Consequently, combating fraud that stifle the growth of SMEs will allow SMEs to grow to their full potential and create more job opportunities for the unemployed. This will minimizes the social vices such as robbery, stealing, drug trafficking and prostitution that confront nations.

Originality/value – This study should be useful to managers of SMEs, auditors and the security agencies in developing economies in particular, in their quest to combat fraud within SMEs.

Keywords Regression, Internal fraud, Accounting fraud, Fraud diamond, Small and medium enterprises, Stratified sampling

Paper type Research paper

1. Introduction

Small and medium-scale enterprises (SMEs) are important to almost all economies in the world. They contribute to output and to the creation of jobs; they are a nursery for large firms of the future and serve as the next (and important) step up for expanding

Journal of Financial Crime
Vol. 25 No. 2, 2018
pp. 400-418

1359-0790
DOI 10.1108/JFC-05-2017-0050

micro-enterprises. They contribute directly and often significantly to aggregate savings and investment, and they are involved in the development of appropriate technology the world over.

Particularly, from the perspective of developing countries, such as Ghana, SMEs contribute quite significantly to economic growth and development. Evidence from literature reveals that SMEs provide about 85 per cent of manufacturing employment and contribute up to about 70 per cent of national gross domestic product (Abor and Quartey, 2010). Additionally, they constitute about 92 per cent of businesses in Ghana including retailing, manufacturing and trading businesses (Abor and Quartey, 2010). Available data from the Registrar General's Department in Ghana indicate that 90 per cent of companies registered in Ghana are either micro-enterprises or SMEs (Mensah, 2004), which underpins SMEs as the catalyst for Ghana's economic growth. In view of the strategic importance of SMEs to socio-economic development, their growth is critical, especially in a developing country like Ghana where the issues of unemployment and income distribution have become persistent challenges for successive governments (Palma, 2005).

However, despite efforts made by successive Ghanaian governments to promote the SME sector, there has been little success. In fact, it is not far-fetched to indicate that effort to promote the SME sector has been bedeviled with problems. These challenges include the absence of adequate and timely banking finance; limited capital and knowledge; non-availability of suitable technology; low production capacity, ineffective marketing strategies, lack of capacity to identify new markets, non-availability of highly skilled labour at affordable cost; bureaucratic delays and the complex maze of rules in following up with various government agencies to resolve problem.

To address such challenges, several empirical studies have been conducted to establish how these constraints can be minimized to ensure SMEs' growth. Notwithstanding the effort by researchers to investigate these problems thus facilitating the growth of SMEs, very little effort has gone into investigating the effect of fraud on the expansion of SMEs. Yet, the impact of fraud on SME operations cannot be discounted. For instance, almost half (48 per cent) of companies surveyed in a recent survey by PricewaterhouseCoopers (PwC) reported being victims of fraud and the average direct cost of this economic crime was estimated at £1.75bn (www.managers.org.uk). In fact, the true cost of fraud goes beyond the financial loss and has implications for firm's reputation, morale and management time, as well as trust within the business sector (Savage, 2003).

Similarly, US Chamber of Commerce estimated employee fraud cost businesses $20-40bn yearly (Hanno and Hughes, 1999). Other authors reported that 30 per cent of workers look for ways to steal from employers, and another 30 per cent will steal if given the opportunity (Krambia-Kapardis and Zopiatis, 2010).

Interestingly, fraud is costlier to SMEs than large businesses (Thomas and Gibson, 2003; Bierstaker *et al.*, 2006). Bressler and Bressler (2007) corroborate this view by noting that fraud accounted for 30 per cent of small business failure in the 1990s. Hanno and Hughes (1999) added that small businesses are likely to be more susceptible to fraud, owing to their limited number of employees and the lack of resources to implement efficient internal controls. Bierstaker *et al.* (2006) argued that SMEs do not have the resources or the capital to invest in anti-fraud technology despite the fact that they are the most in need of fraud detection and prevention technology. Wells (2004) added that SMEs are vulnerable because they are hardly audited and lack hotlines and internal controls.

The juxtaposition of the lack of research into the impact of fraud on SMEs with their vulnerability to fraud as a result of the lack of safeguards to prevent and detect fraudulent activity, warrants an investigation into the impact of fraud on the growth of Ghanaian

SMEs. Although fraud activities among SMEs may be committed by owner-managers and external parties, this study focuses on fraud activities by employees (which may transpire through their dealings with customers). We pose the following research questions: How does accounting fraud committed by the workers of an SME affect its growth? How does the abuse of time by an employee affect the growth of an SME? Does customer identity fraud and fraud committed by the apprentices affect the growth of an SME? What coping mechanism exists to combat these frauds? What is the nature of fraud that confronts the SME sector? Specifically, the objectives of the study are as follows:

- to determine the nature of fraud that confronts Ghanaian SME sector;
- to determine the drivers of internal fraud of SMEs in Ghana; and
- to determine the coping mechanisms that can effectively combat these frauds.

The rest of the study is organized as follows. Section 2 is the literature review. There we examined the definitions of fraud and discussed the forms of fraud and related works that exists in the literature. The method used for the study is discussed in Section 3. This section examines the method used in collecting the data and specifies the model used for the analyses. Section 4 presents the analysis of the data collected and Section 5 concludes the study.

2. Literature review

We structure our literature into three parts: conceptual, theoretical and empirical reviews.

2.1 Conceptual review

2.1.1 Definition of fraud. There are several definitions of fraud, each depending on the perspective from which fraud is considered. This is congruent with Higson's (1999) assertion that there are definitional problems relating to fraud as well as uncertainties as to what constitutes fraud. Yet, fraud definitions abound, which offer an appreciable understanding of what it is about. Thus, Jans, Lybaert and Vanhoof (2009) define fraud as a deception deliberately practiced to secure unfair or unlawful gain. Wells (2004) equally stresses deception as the linchpin to fraud. Davia *et al.* (2000) added that fraud includes all those activities involving dishonesty and deception that can drain value from a business, directly or indirectly, whether there is a personal gain. Thus, fraud in this context is considered to be more than just the intentional distortion of financial statements, and can range from the exaggeration of expenses, to international fraud (www.managers.org.uk, last accessed, 14 June, 2013). According to Wells (2004), employee fraud or dishonesty can be as simple as pilferage of company supplies or as complex as sophisticated financial statements.

2.1.2 Forms of fraud. Bologna and Lindquist (1995) went further making a distinction between internal versus external fraud. Thus frauds committed by vendors, suppliers or contractors are examples of external fraud, while an employee stealing from the company or a manager cooking the books are examples of internal fraud (Akomea-Frimpong *et al.*, 2016; Bologna and Lindquist, 1995). However, a combination of internal and external fraud can also occur, for example when an employee collaborates with a supplier to dupe the company. Bressler (2009) noted that theft, embezzlement, fraud, customer identity theft and sabotage are the key crimes committed against businesses internally. They can also include activities such as non-reporting of transactions intentionally, performing unauthorized transactions and intentional mismarking of positions. An examination of literature in the public domain indicates that common employee fraudulent activities also include: theft of cash, theft of inventory-merchandise or equipment; writing company cheques; falsifying revenue reports;

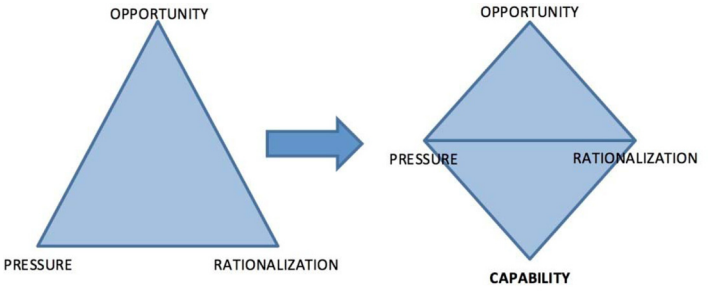
processing fraudulent invoices; customer identity theft; money laundering; intellectual property theft; credit card fraud; overstated expense reports; and payroll fraud (Albrecht *et al.*, 2006). For the purpose of this study, Bologna and Lindquist's (1995) definition of internal fraud best describes employee fraudulent activities. These authors describe fraud as a situation where the perpetrator is internal to the victim (the company). Thus, it seems appropriate for this description of fraud to be adopted in this study. In this type of fraud, the perpetrator engages in activities that are designed to defraud, misappropriate property or circumvent the regulations, law or policies of a company.

2.1.3 Definitions of small and medium-scale enterprises. Osei *et al.* (1993) defined SMEs as firms that employ a maximum of 30 people. Teal (2002) classified SMEs as employing 5-99 workers. Kayanula and Quartey (2000) justified the use of turnover over fixed assets. Furthermore, Abor and Quartey (2010) categorized an SME as a company comprising not more than 20 employees and mostly privately owned. Furthermore, the Bolton (1971) Committee argued an SME has a relatively small share of the market, and it is mostly independent and managed by individuals without a very formal management structure. However, Quaye and Acheampong (2013) postulated that SMEs are business operations that move beyond the micro level, employs more than five workers, operates within the formal sector and has a starting capital of US$5,000. While the task of defining an SME is arduous, the authors have opted for a working definition that is consistent with this study. Therefore, this study adopts Osei *et al.*'s (1993) definition of SMEs.

2.2 Theoretical review

In the absence of studies on the impact of fraud on Ghanaian SMEs, there is no tested sample frame that could be followed here. However, there are some related studies that offer at least an indirect guide as to understanding the triggers of fraud in the workplace. Thus, Cressey (1986) initiated the fraud triangle theory. However, Wolfe and Hermanson (2004) expanded on the fraud triangle theory propounded by Cressey (1986). The fraud diamond (Figure 1) adds "capability" as the fourth element of the opportunities, rationalization and pressure proposed in the fraud triangle. According to Wolfe and Hermanson (2004), the capability of a fraudster opens the door for other elements in the fraud triangle to be perpetrated. In Figure 1, the Fraud Triangle by Cressey (1986) is shown with the fraud diamond to give it a better picture as to how the theory has been transformed.

2.2.1 Capability. This is the situation of having the necessary traits or skills and abilities for the person to commit fraud. It is where the fraudster recognized the particular fraud opportunity and ability to turn it into reality. Position, intelligence, ego, coercion, deceit and



Source: Association of Certified Fraud Examiners (ACFE, 1996)

Figure 1.
Fraud diamond

stress are the supporting elements of capability (Wolfe and Hermanson, 2004). Furthermore, Albrecht *et al.* (1995) believe that only the person who has an extremely high capacity will be able to understand the existing internal control, to identify its weaknesses and to use them in planning the implementation of fraud. Similarly, Kunz and Wilson (2004) disclose that rationalization and capability are all inter-related, and the strength of each element influences the other.

2.2.2 Pressure. The initial factor to enable the fraudster to have the capability to commit fraud is the function or position holding in an organization or business, and this puts pressure on the fraudster to commit the act. The position and the role of the employee may perfect his way to breach the organizational trust (Wolfe and Hermanson, 2004). The authors also reported that organizations that do not implement sufficient cheques and balances to mitigate these pressures will increase the chances of the perpetrators committing frauds. Burden from external forces like family, church and friends can put a strain on an employee to commit fraud.

2.2.3 Rationalization. The fraudster is someone who understands and who is capable of exploiting internal control weaknesses and justifying them (Mansor, 2015). Intelligent, experienced, creative people with a solid grasp of controls and vulnerabilities, commit many of today's largest frauds. This knowledge is used to influence the individual's concern for authorize access to systems or assets (Wolfe and Hermanson, 2004). Such confidence or arrogance can affect one's cost benefit analysis of engaging in fraud. The perpetrators justify their actions. According to Adam's equity theory, fraudsters feel justified for the actions taken with the explanation that the organization must share all the profits or benefits from the operations of the organization equally to all employees (Adams, 1963). Failure to this encourages the fraudsters to siphon these profits to their advantage.

2.2.4 Opportunity. A successful fraudster can coerce others to commit or conceal fraud (Rudewicz, 2011). A person with a very persuasive personality may be able to convince others to go along with a fraud or to simply look the other way when an opportunity is obtained. Many financial frauds on the operations of the small-scale enterprises are committed by subordinates reacting to an edict from above to "make your numbers at all costs, or else" (Wolfe and Hermanson, 2004). The organization must put effective controls in place to check the weak channels and also fill all loopholes to prevent the fraudsters from getting access to the organizations' systems. The theories of Cressey (1986) and Wolfe and Hermanson (2004) inform our understanding of the reasons underpinning fraud in the workplace and further offer justifications for such action. However, this study transcends these approaches by investigating the impact of these fraudulent activities on the SMEs involved. In other words, the combination of pressure, opportunity, rationalization and capability when transformed into fraud must attain a certain impact on the business involved. This is our contribution to knowledge.

2.3 Empirical review on SMEs growth

This section examines indicators that characterizes growth among SMEs, thus assisting us understand growth indicators and fraud-related activities. While it is hard to find studies that addresses the constitution of growth among SMEs in Ghana and fraudulent activities related to the SMEs, business growth has attracted considerable attention (Delmar *et al.*, 2003; Collins and Porras 1994; Gundry and Welsch 2001; Kirchhoff 1993; Ostgaard and Birley 1995; Siegel *et al.*, 1993; Welbourne, 1997). A review of literature on firm growth suggests heterogeneity characterizes this phenomenon. For instance, it has been characterized by sales, profitability and market share (Dunne and Hughes 1996; McCann 1991; Merz and Sauber 1995; Miller 1987). Other times, growth has been evaluated as the

relative performance against competitors (Oke *et al.*, 2007; Prajogo and Ahmed, 2006; Wan *et al.*, 2005). Other studies rely on the number of employees in measuring growth (Cooper, Gimeno-Gascon and Woo 1994; Donckels and Lambrecht 1995; Peters and Brush, 1996; Vaessen and Keeble 1995; Zahra and Covin (1993). The heterogeneity in the number of factors that are used to measure firms' growth implies that firm growth is fundamentally a multi-dimensional rather than uni-dimensional phenomenon. Thus, while a firm is relying on market share to measure growth, another firm may be using an increase in sales to indicate growth.

Nevertheless, this study has little problem accepting these indicators as expansion indicators in their own right. While increased in profits, sales and market share may be readily identifiable as growth indicators; increase in the number of employees can also serve as a proxy for improved productivity, so it ought to be a good indicator of SME growth.

3. Methodology

This section discusses the sampling method used for the study and how we obtained data for the analysis.

3.1 Data source

Primary data were sourced from 250 SMEs operating in Accra metropolis. Questionnaires were designed to solicit information about fraud that confronts SME's operations. The questions posed were broadly categorized into general and fraud-specific questions. The general questions dealt with the background information of their business such as the number of employees, the number of branches, marital status of the manager/owner among others. The fraud-specific questions dealt with issues with fraud they have encountered (in the past five years) in the course of running their business. Respondent were made to answer questions pertaining to nature of fraud that they have experienced, the fraud that they know and the how often they experience fraud in the operations of their business. In addition, using a Likert scale of 1 to 5, respondent were made to answer a number of questions on some key fraud variables (customer identify fraud/theft, accounting fraud, time abuse, apprentice fraud) that we believe confronts these SMEs.

We selected Accra because being the capital of Ghana, it is where most economic activities take place, and thus where the majority of SMEs reside. We first divided the SMEs into ten sectors (25 questionnaires for each sector), namely, transportation, forestry, medicals, manufacturing, hospitality, beauty care, education, trading, information technology (IT)/communication and car dealers/repairers. To ensure that the entire area of Accra is covered, we divided the city into five zones; five questionnaires from each sector were then randomly deployed to these SMEs. In addition, interviews were conducted with fraud experts about measures to be adopted in combating fraud emanating from the SMEs sector.

3.2 Model specification

We specify the model for our analysis in the form:

$$Y = X\beta + \varepsilon$$

where Y is an $n \times 1$ vector, X is an $n \times (k + 1)$ design matrix of fraud and some controls variables, β is a $(k + 1) \times 1$ vector of parameters and ε is an $n \times 1$ vector of residuals for n, $k \in Z^{+}$.

Specifically, we postulate that the growth of an SME captured by a series of questions in the past five years of operations of the SME is summarized by the profitability, P and related to the fraud and the control variables by the function f where:

$$P_i = f(CIF_i, AF_i, TA_i, APF_i, NB_i, NE_i, MS_i) + \varepsilon_i$$

for $i = 1,\ldots, n$ where n is the number of SMEs. Here, CIF_i, AF_i, TA_i and APF_i are, respectively, customer identity fraud that the SME has experienced in the course its operations, accounting fraud committed by the workforce, time abuse (the mis-use of time allotted to the workers of the SME) and apprentice fraud depicted by the SME i. We used the mean values of the responses obtained for our regression analysis because the mean fair very well as an estimator of the true mean when judged by the three criteria of bias, consistency and efficiency (Stock and Watson, 2007, pp. 67-70). On the other hand, NB_i, NE_i and MS_i are the control variables represented, respectively, by the number of branches the SME has, the number of employees that the SME possesses and marital status of the manager of the SME.

If an SME has more branches, then it is an indication of growth, and so we expect the coefficient of NB to be positive.

We used the number of employees an SME has as a measure of NE If an SME employs a greater number of people, then there is the greater chance that it is profitable; otherwise, its existence may be questionable. Consequently, we expect the coefficient of NE to be positive.

Being married goes with greater responsibility and the desire to ensure that one's business grows. We assigned 1 to an SME whose owner is married and 0 otherwise. It is expected that the coefficient of MS is positive.

4. Data analysis and presentation

This section reports the analysis of the data extracted from the questionnaires and information obtained from the security experts about methods to combat fraud.

4.1 Fraud experienced by various sectors

Table I depicts the nature of fraud the SMEs have experienced in the course of running their business in the past five years. Stealing tops the list with 70 reported cases representing approximately 29 per cent fraud experienced by the SME sector. This is followed closely by fake currency that has been used to pay for goods or service rendered. Non-payment of goods/service has 61 reported cases representing just over 25 per cent of fraud cases experienced. Altogether, stealing, fake currency issued for the payment of goods or service and non-payment of goods or service accounts for almost 83 per cent of fraud cases experienced.

Tables AI to AX in the Appendix disintegrate the nature of fraud experienced in Table 1 into the various sectors. For example, in the beauty care sector depicted in Table AI, service without payment records the highest of 42.86 per cent of all fraud cases they have experienced. This is followed closely by stealing and the issuance of fake currency for the provision of service representing 37.14 and 20 per cent, respectively.

4.2 Descriptive statistics

From Table II, the mean response of the SME growth is 3.84, and so the growth of the SMEs is high with a minimum of 1 and a maximum of 5. The distribution of the responses for the growth variable P is slightly negatively skewed, as both the median and the mode exceed the mean. The distribution is platykurtic, and so the tails are lighter than the normal distribution an indication that very few experienced very high grow or very low growth. All

Nature of fraud experienced	Frequency	Relative frequency
Stealing	70	0.2905
Fake currency	69	0.2863
Non-payment of goods/service	61	0.2531
Supply of fake/expired/wrong products	18	0.0747
Bribery (Police/Port/Custom officials)	5	0.0207
Purchasing items on credit without payment	5	0.0207
Perching	4	0.0166
Dud/fake cheques	2	0.0083
Non-collection of items after completion	2	0.0083
Incomplete supply of goods	1	0.0041
Billing fake items	1	0.0041
Incomplete payment of goods purchased	1	0.0041
Cyber fraud	1	0.0041
Arm robbery	1	0.0041
Totals	241	1

Table I.
Fraud SMEs have experienced

Summary statistic	*P*	*CIF*	*AF*	*TA*	*APF*	*NB*	*NE*	*MS*
Mean	3.842	0.902	0.978	1.426	0.99	1.112	6.182	0.556
Standard Error	0.0627	0.0318	0.0259	0.05413	0.0525	0.0328	0.4486	0.0315
Median	4	1	1	1	1	1	3	1
Mode	4	1	1	1	1	1	3	1
Standard Deviation	0.992	0.5024	0.4089	0.8558	0.8305	0.5182	7.093	0.4979
Sample Variance	0.984	0.2524	0.1672	0.7325	0.6897	0.2685	50.3111	0.2479
Kurtosis	1.0442	3.6299	8.9702	−0.1658	0.7842	38.6068	5.1044	−1.9643
Skewness	−1.0048	0.4737	1.0142	0.9637	0.9067	5.9113	2.4896	−0.2268
Range	4	3	3	4	4	4	27	1
Minimum	1	0	0	0	0	1	3	0
Maximum	5	3	3	4	4	5	30	1
Count	250	250	250	250	250	250	250	250

Table II.
Summary statistics for SME growth and growth indicators

the fraud variables, *CIF*, *AF*, *TA* and *APF*, are slightly positively skewed with the tails of *CIF* and *AF* heavier than normal distribution, an indication that greater number of the SMEs are exposed to these fraud variables. *TA* and *APF*, however, have their tails lighter than the normal distribution. The minimum value of 0 corresponds to questions, and 13 SMEs found it either not applicable to their operations or no feedback was obtained. We inserted 0 for those cases in our analysis.

4.3 Correlation matrix

As can be seen in the sample correlation coefficients on Table III, the fraud variables *CIF*, *AF*, *TA* and *APF* have negative relationship with profitability. This is no surprising, as these variables stifle the growth of a business. However, *Corr*(*NE*, *TA*) = –0.2971 is an indication that as the SME employs more hands, the abuse of time by employees is suppressed. As the SME employs more hands, competition among the workforce will mean that one has to work hard to keep their jobs suppressing the abuse of time committed by the

employees. The same argument explains the negative correlation between the *NE* and other fraud variables *CIF*, *AF* and *APF*.

Also the *Corr*(*NB*,*TA*) = –0.1533 also indicates a suppression of time abuse of employees by SMEs as number of branches increases. *NB* is also negatively correlated with *AF* and *APF* indicating that as the number of branches increases these fraud variables declines. This findings tie in with Hano and Hughes (1999) findings that small businesses are likely to be more susceptible to fraud. That is, as a firm or business grows, the less likely there will be widespread fraud.

We run a number of regressions and settled on the regression output indicated in Table IV. From the regression output accounting fraud significantly negatively impact fraud. This can be seen from the fact that $|-2.1595| = 2.1595 > 1.96$. Observe also that the *P*-value of $0.0318 < 0.05$ which goes to confirm the significance of the accounting fraud variable. The confidence interval does not also contain zero, and consequently, we can be 95 per cent confident that the true coefficient lies in [–0.6062, – 0.0279]. A unit increase in accounting fraud leads to a reduction in the profitability of a SME by 0.3171, and these results make intuitive sense. Hardly does auditing go with SMEs as compared with large businesses or organizations in which their books are audited either internally externally or

Table III.
Sample correlation coefficients among the dependent and the independent variables

	P	*CIF*	*AF*	*TA*	*APF*	*NB*	*NE*	*MS*
P	1							
CIF	−0.1017	1						
AF	−0.177	0.2632	1					
TA	−0.1912	−0.0683	0.2163	1				
APF	−0.0336	0.2094	0.1827	−0.042	1			
NB	0.0932	0.0269	−0.102	−0.1533	−0.0207	1		
NE	0.3009	−0.1116	−0.171	−0.2971	−0.0662	0.2588	1	
MS	0.0241	−0.0382	0.1097	0.1299	0.0135	0.02229	0.0889	1

Table IV.
Regression output for SME growth

SUMMARY OUTPUT

Regression statistics

Multiple R	0.34250065
R square	0.117306695
Adjusted *R* square	0.110159381
Standard Error	0.935723332
Observations	250

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	28.74119608	14.3706	16.4127	2.03009E-07
Residual	247	216.2678039	0.875578		
Total	249	245.009			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	4.056670259	0.159274759	25.46964	4.79E-71	3.742960342	4.370380175
AF	−0.31705798	0.14681918	−2.15951	0.031773	−0.606235203	−0.027880758
NE Cubed	4.66929E-05	9.51822E-06	4.905638	1.69E-06	2.79457E-05	6.54402E-05

both. Our finding confirms the work by Wells (2004) that SMEs are vulnerable because they are hardly audited and lack hotlines and internal controls.

The coefficient of the number of employees cubed has a positive impact on growth. The cube of any additional person employed by an SME increases profitability by 4.6693×10^{-5}. Overall, the independent variables explain approximately 11 per cent of the variation in the SME's growth.

To verify whether the R^2 obtained in Table III reflect a true relationship, we test the hypothesis:

$$H_0 : R^2 = R^2_{crit} \text{ versus } H_1 : R^2 > R^2_{crit}$$

where R^2_{crit} is defined below. From the F-statistics of goodness of fit, we can write:

$$R^2_{crit} = \frac{kF_{crit}}{kF_{crit} + (n - k + 1)},$$

where $F_{crit} = F^k_{n-k+1}$ has the F distribution with column corresponding to k degrees of freedom and rows corresponding to $n - k - 1$ from the F-distribution (compare with Doughertey, 2007, pp. 114-116). It should be noted that k is the number of independent variables and n is the number of SMEs. $F_{crit} = F^2_{247} \cong 3.03$, and so $R^2_{crit} = 0.0239 < R^2 = 0.1173$. Thus, we should reject *H0*. Consequently, the R^2 reported on Table IV has not arisen as a matter of chance. Also the plots in the appendix (Figures AI and AIII) depict no apparent patterns and so there is no evidence of heteroscedasticity. In addition, we checked for normality of the residuals by computing a histogram of the regression residuals. As can be seen in Figure AIII (in the appendix), the residuals appear to be normally distributed.

4.4 Coping mechanisms

The above analysis indicates it is imperative for Ghanaian SMEs to tackle fraud in their bid to expand, thus reaching their full potential. To achieve this objective, this study prescribes the following solutions to the fraudulent activities experienced by the SMEs used for the study.

4.4.1 Stealing. Stealing tends to thrive in a work environment where the roles and responsibilities of staff are unclear. Thus SME owners must ensure that its staff is allocated clearly defined roles and responsibilities. The transparency of the roles and responsibilities makes it easy to track thefts when committed, thus serving as deterrence to "notorious" employees. Furthermore, the presence of the owner must be felt by the employees. An absentee owner is far more likely to experience thefts in his/her absence as opposed to an owner who is regularly at work. Furthermore, SME owners must prevent high turnover rate of personnel, particularly in positions that are prone to stealing. SMEs should use their own security instead of outsourcing its security to a security agency. This is because with outside security, management has no control on the security personnel discharged to take care of the SME's security needs. Laws on stealing and pilfering should be clearly spelt out to employees even before they are recruited. In addition, employees should be tasked such that the time allotted for work is properly used so that there is no room for an employee to loiter around. Security cameras can also be installed in sensitive areas of their operations.

4.4.2 Fake currency. SME owners must watch out for currency notes of high denominations, particularly if it is a new note. The fraudsters operate using these large denominations and in places where there is quick movement of people. Hence, they must

scrutinize them when customers hand them in. In this regard, SME owners must familiarize themselves with the features on the original denominations, thus allowing them to distinguish them from the fake notes. Also, SMEs operators have to educate its employees on the features of the new notes and use fake currency detectors when large denominations are issued.

4.4.3 Supply of fake/expired/wrong product. To avoid these, SME owners must develop the habit of purchasing their items from businesses with established track record of credibility or from a regular source. It is in their attempt to "cut corners" and maximize profit that SMEs fall victim to dodgy products. Managers of SMEs should read labels to identify substandard products or expired products. When there are changes in suppliers, the danger of expired or substandard products being mixed with good ones can be high, and so SMEs owners have to be very vigilant any time there is the need to change suppliers. There is also the need for an SME to get a purchasing officer who will be in charge of purchases.

4.4.4 Bribery. Although several SMEs operate at the risky end of business, they must nonetheless offer their workers' salaries that allow them to achieve with sustainable incomes, thus deterring them from accepting bribe. Furthermore, workplace ills, such as low morale, incessant complaints and lack of promotion must be quickly addressed, thus preventing bribery.

4.4.5 Default on items purchased on credit. SME owners must adopt a strictly no credit policy to avoid this fraudulent behaviour. Furthermore, if extended family pressures are likely to dim SME owner's determination to pursue payments for items purchase on credit by extended family members, a non-family-salesperson should conduct the sale. Alternatively, SME owners must institute a guarantor system, whereby, a person of good financial standing is sought to vouch for the credit seeking customer.

4.4.6 Perching. A type of fraud prevalent in the hospitality industry where a reservation meant for one person ends up accommodating three or more people. They increase the cost of running rooms at these hotels. This type of fraud can be prevented through keeping proper records of guests and placing phone calls to guest-rooms intermittently to check on visitors. However, the most effective approach will be the installation of CCTV cameras to check on room visitors.

4.4.7 Issuing dud/fake cheques. Some measures that may serve as coping mechanisms, include, first check the account of the check issuer is valid. Second, submit the cheque for payment within a period of three months (beyond three months, the check issuer can refuse payment should the cheque turn out to be fake). Third, ensure the words and figures of the stated amount, match. Fourth, ensure the number of signature spaces on the cheque matches the actual number of signatures on the cheque. Words that are not properly written on cheques are all signs of fraud intention. A criminal case cannot be filed against the issuer of dud cheque after three months. Consequences, SME owners should as a matter of urgently withdraw any cheque as quickly as possible.

4.4.8 Non-collection of items after completion. The guarantor system, prescribed for "Default on Items Purchased on Credit", whereby a person of good financial standing will vouch for the customer to collect the item after completion, and pay the outstanding amount, will deter this fraud.

4.4.9 Incomplete supply of goods. The coping mechanism for this fraud is akin to that prescribed for "Supply of Wrong Product" in that SME owners must ensure businesses supplying products have a long history of credibility track record.

4.4.10 Billing fake items. The recommendation prescribed for "Supply of Fake/Expired/Wrong Products" can address this fraud, i.e. SME owners must purchase their item from businesses with established credibility track record.

4.4.11 Incomplete payment of goods. Either the guarantor system or a strictly no credit policy, both already prescribed for "Default on Items Purchased on Credit" would prevent this fraudulent activity.

4.4.12 Cyber fraud. Cyber fraud is big issue with the security agencies in Ghana. Cyber fraud can be dealt with in various ways. First, SME owners must establish the identity of online correspondents before they yield to their demands. Second, SME owners must check the background of their employees to ensure they do not have a history of crime, and as such are not prone to crime, thus alleviating the possibility of employees engaging in cyber fraud. Third, SME owners must acquire at least fundamental knowledge of IT, thus avoiding becoming easy prey to cyber fraud. SMEs are advised not to transact business on yahoo.com. SMEs are advised to pay greater attention to details for internet-based transactions. There should be basic training for employees on how to operate an e-mail account. Close scrutiny of e-mail address that are used for transactions are critical. A change in an alphabet from an "i" to an "e" changes everything. It is also important that an SME check the background of people before they hire.

4.4.13 Armed robbery. First, SME owners must erect a sign warning potential robbers that "no valuables are kept on the premises". Second, daily sales must not be kept at the workplace overnight. Third, SME owners must desist from carrying bulk cash when they travel, to avoid highway robbery.

5. Conclusion

It is imperative for Ghanaian SMEs adopt the coping mechanisms to tackle fraud in their bid to expand, thus reaching their full potential. Accounting fraud is the significant variable affecting the growth of Ghanaian SMEs. Owners should therefore seek the services of external auditors to examine their books or form teams to pay for that service if they cannot independently do so. Feedback they receive from auditors should assist in combating the menace.

Workers efforts should be recognized by owners/managers of SMEs especially if the business is doing well. Good working conditions and flexible working hours will endear the hearts of employees and employee loyalty to the business. If the employees of the business see that their efforts are not being rewarded and the managers are merely interested in expanding the business, then they may be tempted to stifle growth by stealing items from the company or connive with customers to dupe the company. Communicating to workers about the state of affairs of the business especially when the business is not doing well is paramount. This will assure the workers that in good times, their efforts will be rewarded. Owners should also ensure that employees are properly used during working hours to give no room for idleness that may prompt any form of fraudulent activity.

Cashiers of SMEs should be vigilant with currencies they receive especially those with higher denomination to be able to detect any fake currency that are used for payments. They should encourage their customers to obtain an e-zwich cards or other form of electronic payments as mobile money transfers so that they do not necessarily use cash for payments. Strict adherence to "no credit" policy will ensure that customers do not get away with goods or service they receive.

References

Abor, J. and Quartey, P. (2010), "Issues in SME development in Ghana and South Africa", *International Research Journal of Finance and Economics*, Vol. 39 No. 6, pp. pp.215-228.

Adams, J.S. (1963), "Towards an understanding of inequity", *The Journal of Abnormal and Social Psychology*, Vol. 67 No. 5, p. 422.

Akomea-Frimpong, I., Andoh, C. and Ofosu-Hene, E.D. (2016), "Causes, effects and deterrence of insurance fraud: evidence from Ghana", *Journal of Financial Crime*, Vol. 23 No. 4, pp. 678-699.

Albrecht, W.S., Albrecht, C.C. and Albrecht, C.O. (2006), *Fraud Examination 2e*, Thomson Southwestern Publishers, Mason.

Albrecht, W.S., Wernz, G.W. and Williams, T.L. (1995), *Fraud: Bringing Light to the Dark Side of Business*, Irwin Professional Publisher.

Association of Certified Fraud Examiners (ACFE) (1996), *Report to the Nation: Occupational Fraud and Abuse*, Association of Certified Fraud Examiners.

Bierstaker, J.L., Brody, R.G. and Pacini, C. (2006), "Accountants' perceptions regarding fraud detection and prevention methods", *Managerial Auditing Journal*, Vol. 21 No. 5, pp. 520-535.

Bologna, G. and Lindquist, R. (1995), *Fraud Auditing and Forensic Accounting*, John Wiley & Sons, New Jersey.

Bolton, J.E. (1971), *Small Firms: Report of the Committee of Inquiry on Small Firms Chairman JE Bolton*, HM Stationery Office.

Bressler, M.S. (2009), "The impact of crime on business: a model for prevention, detection and remedy", *Journal of Management and Marketing Research*, Vol. 2, p. 1.

Bressler, M.S. and Bressler, L.A. (2007), "A model for prevention and detection of criminal activity impacting small business", *The Entrepreneurial Executive*, Vol. 12, p. 23.

Cressey, D.R. (1986), "Why managers commit fraud", *Australian and New Zealand Journal of Criminology*, Vol. 19 No. 4, pp. 195-209.

Collins, J.C., Porras, J.I. (1994), "Built to last: successful habits of visionary companies", *Good to Great: Why Some Companies Make the Leap [. . .] and Others Don't*, HarperBusiness; James C. Collins New York, NY.

Cooper, A.C., Gimeno-Gascon, F.J. and Woo, C.Y. (1994), "Initial human and financial Capital as predictors of new venture performance", *Journal of Business Venturing*, Vol. 9 No. 5, pp. 371-395.

Davia, H.R., Coggins, P., Wideman, J. and Kastantin, J. (2000), *Accountant's Guide to Fraud Detection and Control*, 2nd ed., John Wiley and Sons, Chichester.

Delmar, F., Davidsson, P. and Gartner, W.B. (2003), "Arriving at the high-growth firm", *Journal of Business Venturing*, Vol. 18 No. 2, pp. 189-216.

Donckels, R. and Lambrecht, J. (1995), "Networks and small business growth: an explanatory model", *Small Business Economics*, Vol. 7 No. 4, pp. 273-289.

Doughertey, C. (2007), *Introduction to Econometrics*, 3rd ed., Oxford University Press, pp. 114-116.

Dunne, P. and Hughes, A. (1996), "Age, size, growth and survival: UK companies in the 1980s", *Journal of Industrial Economics*, Vol. 42 No. 2, pp. 115-140.

Gundry, L.K. and Welsch, H.P. (2001), "The ambitious entrepreneur: high growth strategies of women-owned enterprises", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 453-470.

Hanno, D.M. and Hughes, T.A. (1999), "Defending your dollars", *Strategic Finance*, Vol. 81 No. 2, pp. 56-60.

Higson, A. (1999), *Why Is Management Reticent to Report Fraud? An Exploratory Study*, FAP, London.

Jans, M., Lybaert, N. and Vanhoof, K. (2009), "A framework for internal fraud risk reduction at IT integrating business processes: the IFR^2 framework", *The International Journal of Digital Accounting Research*, Vol. 9, pp. 1-29.

Kayanula, D. and Quartey, P. (2000), "The policy environment for promoting small and medium-sized enterprises in Ghana and Malawi", *Finanace and Development Research Programme, Working Paper Series, Paper No. 15, IDPM*, University of Manchester.

Kirchhoff, B. (1993), *Entrepreneurship and Dynamic Capitalism: The Economics of Business Firm Formation and Growth*, Praeger.

Krambia-Kapardis, M. and Zopiatis, A. (2010), "Investigating incidents of fraud in small economies: the case for Cyprus", *Journal of Financial*, Vol. 17 No. 2, pp. 195-209.

Kunz, M. and Wilson, P. (2004), "Computer crime and computer fraud", Professional Master Degree Thesis, Department of Criminology and Criminal Justice in University of Maryland.

McCann, J. (1991), "Patterns of growth, competitive technology, and financial strategies in young ventures", *Journal of Business Venturing*, Vol. 6 No. 3, pp. 198-208.

Mansor, N. (2015), "Fraud triangle theory and fraud diamond theory. Understanding the convergent and divergent for future research", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 1 No. 5, pp. 38-45.

Mensah, S. (2004), "A review of financing schemes in Ghana", Presented at the UNIDO Regional Workshop of Financing Small and Medium Scale Enterprises, Accra, Ghana, 15-16 March.

Merz, G.R. and Sauber, M.H. (1995), "Profiles of managerial activities in small firms", *Strategic Management Journal*, Vol. 16 No. 7, pp. 551-564.

Miller, D. (1987), "Strategy making and structure: analysis and implications for performance", *Academy of Management Journal*, Vol. 30 No. 1, pp. 7-32.

Oke, A., Burke, G. and Myers, A. (2007), "Innovation types and performance in growing UK SMEs", *International Journal of Operations & Production Management*, Vol. 27 No. 7, pp. 735-753.

Osei, B., Baah-Nuakoh, A., Tutu, K. and Sowa, N.K. (1993), "Impact of structural adjustment on small-scale in Ghana", in Helmsing, A.H.J. and Kolstee, T. (Eds), *Small Enterprises and Changing Policies*, IT Publications.

Ostgaard, T.A. and Birley, S. (1995), "New venture growth and personal networks", *Journal of Business Research*, Vol. 36, pp. 37-50.

Palma, G. (2005), *Four Sources of Deindustrialization and a New Concept of the Dutch Disease*, in Peters, M.P. and Brush, C.G. (1996), Market information scanning activities and growth in new ventures: a comparison of service and manufacturing ventures. Journal of Business Research 36, pp. 81-89.

Peters, M.P. and Brush, C.G. (1996), "Market information scanning activities and growth in new ventures: a comparison of service and manufacturing businesses", *Journal of Business Research*, Vol. 36 No. 1, pp. 81-89.

Prajogo, D.I. and Ahmed, P.K. (2006), "Relationships between innovation stimulus, innovation capacity, and innovation performance", *R&D Management*, Vol. 36 No. 5, pp. 499-515.

Quaye, D. and Acheampong, G. (2013), "Are SME owner-managers entrepreneurs? Evidence from Ghana", *European Journal of Business and Management*, Vol. 5 No. 23, pp. 37-47.

Rudewicz, F. (2011), "The fraud diamond: use of investigative due diligence to identify the capability element of fraud", *The Connecticut Turnaround Association Management Newsletter*, Vol. 4 No. 1, pp. 1-3.

Savage, M. (2003), "Food for insomnia", *Accountancy SA*, May: 6-7.

Siegel, R., Siegel, E. and MacMillan, I.C. (1993), "Characteristics distinguishing high-growth ventures", *Journal of Business Venturing*, Vol. 8, pp. 169-180.

Stock, J.H. and Watson, M.W. (2007), "Introduction to Econometrics", 2nd ed., Pearson-Addison Wesley, pp. 67-70.

Teal, F. (2002), "Export growth and trade policy in Ghana in the twentieth century", *The World Economy*, Vol. 25 No. 9, pp. 1319-1337.

Thomas, A.R. and Gibson, K.M. (2003), "Management is responsible, too" *Journal of Accountancy*, pp. 53-55.

Vaessen, P. and Keeble, D. (1995), "Growth oriented SMEs in Unfavourable regional environments", *The Journal of the of Regional Studies Association*, Vol. 29 No. 6, pp. 489-505.

Wan, D., Ong, C.H. and Lee, F. (2005), "Determinants of firm innovation in Singapore", *Technovation*, Vol. 25 No. 3, pp. 261-268.

Welbourne, T.M. (1997), "Valuing employees: a success strategy for fast growth firms and fast paced individuals", CAHRS Working Paper Series, p. 148.

Wells, J.T. (2004), "Small business big losses", *Journal of Accountancy*, Vol. 198 No. 6, pp. 42-47.

Wolfe, D.T. and Hermanson, D.R. (2004), "The fraud diamond: considering the four elements of fraud", *The CPA Journal*, Vol. 74 No. 12, p. 38.

Zahra, S.A. and Covin, J.G. (1993), "Business strategy, technology policy and firm performance", *Strategic Management Journal*, Vol. 14 No. 6, pp. 451-478.

Further reading

Barkham, R., Gudgin, G., Hanvey, E. and Hart, M. (2002), *Determinants of Small Firm Growth: An Inter-Regional Study in the United Kingdom 1986-90 (Vol. 12)*, Psychology Press.

Davidsson, P. and Wiklund, J. (2000), "Conceptual and empirical challenges in the study of firm growth", in Sexton, D. and Landström, H. (Eds), *The Blackwell Handbook of Entrepreneurship*, Blackwell, Oxford, MA, pp. 26-44.

Davies, D. (2000), *Fraud Watch*, 2nd ed., ABG Professional Services, London.

Appendix. Fraud experienced by various sectors

Nature of fraud experienced	Frequency	Relative frequency
Stealing	13	0.3714
Service without payment	15	0.4286
Fake currency	7	0.2000
Totals	35	1

Table AI. Beauty care experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	8	0.3810
Service without payment	6	0.2857
Fake currency	4	0.1905
Bribery at port	2	0.0952
Impersonation	1	0.0476
Totals	21	1

Table AII. Car dealers experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	2	0.0909
Non-payment of goods	18	0.8182
Fake currency	1	0.0455
Supply of wrong goods	1	0.0455
Totals	22	1

Table AIII. Forestry experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	8	0.1860
Non-payment of goods	2	0.0465
Fake currency	20	0.4651
Supply of fake or expired goods	9	0.2093
Fake cheques	1	0.0233
Not all medicines bought supplied	1	0.0233
Identity theft	2	0.0465
Totals	43	1

Table AIV. Medicals experiences with fraud

Table AV. Education experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	2	0.1818
Non-payment of fees	5	0.4545
Fake currency	4	0.3636
Totals	11	1

Table AVI. Trading experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	11	0.4231
Non-payment of goods	2	0.0769
Fake currency	9	0.3462
Purchasing items on credit without paying	3	0.1154
Billing fake items	1	0.0385
Totals	26	1

Table AVII. Manufacturing experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	8	0.3478
Non-payment of service	6	0.2609
Fake currency	5	0.2174
Non-collection of item after completion	2	0.0870
Fake products	2	0.0870
Totals	23	1

Table AVIII. Transportation experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	10	0.3030
Non-payment of service	6	0.1818
Fake currency	11	0.3334
Deception	1	0.0303
Fake spare parts	2	0.0606
Police bribery	2	0.0606
Arm robbery	1	0.0303
Totals	33	1

Nature of fraud experienced	Frequency	Relative frequency
Stealing	5	0.1563
Non-payment of service	11	0.3438
Fake currency	12	0.3750
Perching	4	0.1250
Totals	32	1

Table AIX. Hospitality experiences with fraud

Nature of fraud experienced	Frequency	Relative frequency
Stealing	8	0.3077
Non-payment of goods	1	0.0385
Fake currency	5	0.1923
Dud cheques	1	0.0385
Fake products	4	0.1538
Buying items on credit without payment	2	0.0769
Identity theft	2	0.0769
Bribery of custom officials	1	0.0385
Incomplete payment of goods purchased	1	0.0385
Cyber fraud	1	0.0385
Totals	26	1

Table AX. IT/communication experiences with fraud

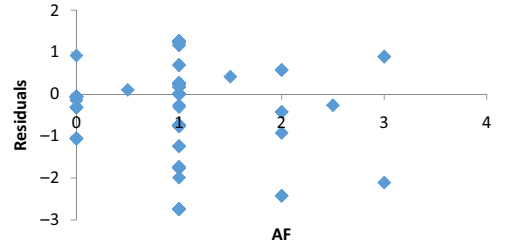


Figure A1. Plot of residuals against accounting fraud, *AF*

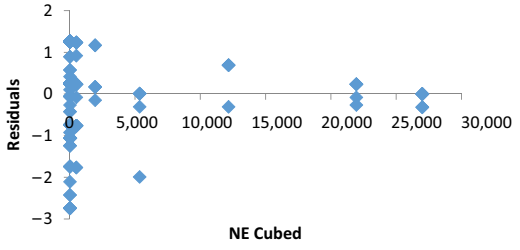


Figure A2. Plot of residuals against number of employees cubed, *NE*

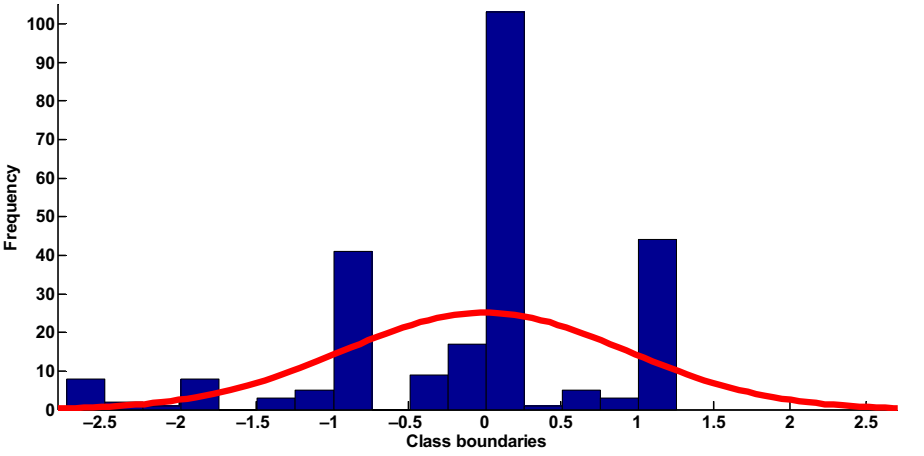


Figure A3.
Normality of residuals

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