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The perceptions of South African Small, Medium and Micro Enterprise Management on occupational fraud risk, economic sustainability and key employee characteristics: What are the relationships?

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Abstract

Purpose: To ascertain whether there are relationships among occupational fraud risk evident in fast-moving-consumer-goods South African SMMEs, these business entities' economic sustainability and the key characteristics of employees.

Methodology: Empirical and exploratory research, complemented by survey research. A quantitative research methodology was used to collect and analyse data from 120 members of management of South African SMMEs who had to adhere to relevant delineation criteria.

Findings: Statistically significant relationships were found to exist between the economic sustainability of SMMEs and key employee characteristics; between occupational fraud risks. In addition, some variables were found to predict others.

Originality/Value: The study provides new perspectives on phenomena which can be tested through empirical research.

Introduction

Small Medium and Micro Enterprises (SMME) play a vital role in the socio-economic stimulation of South Africa through the alleviation of poverty, the creation of work opportunities, and the creation of monetary economic value (Agwa-Ejon & Mbohwa 2015; Manete, 2018). Research also shows that these business entities contribute up to 60% of the national Gross Domestic Product (GDP) and, on average, employ an estimated 60% of the national workforce (Taljaard & Van Der Walt, 2018; Bruwer & Mason, 2020).

Notwithstanding the socio-economic value that South African SMMEs add to the national economy, research shows that these business entities experience difficulties to remain afloat; they have among the worst sustainability rates in the world (Olawale & Garwe, 2010; SEDA, 2010; Bruwer, 2018). The latter is supported by prior research, which found that up to 75% of South African SMMEs close their doors after being in operation for only three years (Adelakun, 2014; Mthabela, 2015). This is disconcerting as these business entities are operating in a harsh economic environment which makes it difficult (sometimes impossible) to remain in existence for an extended period (Bruwer & Van Den Berg, 2017; Herrington & Kew, 2013). Considering both the weak sustainability of South African SMMEs and the harsh economic environment in which they operate, it is not surprising that South African SMMEs are affected by a magnitude of (internal and external) factors (Masama & Bruwer, 2018), one of which is the exposure to occupational fraud risk (Petersen, 2018). Globally, occupational fraud risk is recognised as a phenomenon where at least one employee intentionally mismanages the resources of a business entity to his/her benefit; abusing authority for self-enrichment (Petersen et al. 2018).

Using the above as a basis, it becomes apparent that the combination of a harsh economic environment and weak South African SMME sustainability may result in pressure being placed on relevant stakeholders and/or opportunities being created where occupational fraud risk can realise (Kennedy, 2012; Carroll, 2015). More often than not, since employees have access to all of the resources in a business entity, key

employee characteristics (i.e. integrity, self-motivation and competence) are often relied on to establish trust (Mitchell, 1997; Viviers & Venter, 2008; PwC, 2014).

To this end, this study aims to ascertain whether there are relationships among the perceived occupational fraud risk evident in South African SMMEs, the perceived economic sustainability of South African SMMEs, and the perceived key South African SMME employee characteristics. The study is demarcated under the following headings: 1) conceptual framework, 2) research methodology, 3) analysis and results, and 4) discussions and conclusion.

Conceptual framework

For the remainder of this section, relevant discussion takes place under the following three sub-headings: 1) an overview of South African SMME sustainability, 2) occupational fraud risk, and 3) key employee characteristics.

An overview of South African SMME sustainability

The concept of "SMME" was formally recognised by the adoption of the National Small Business Act, No. 102 of 1996 as "[a] separate and distinct business entity, including co-operative enterprises and non-governmental organisations, managed by one owner or more, which, including its branches or subsidiaries, if any, is predominantly carried on in any sector or subsector of the economy" (South Africa, 1996; South Africa, 2004). South African SMMEs play a crucial role in the creation of employment opportunities, the alleviation of poverty, and the continuous contribution to economic growth (Joubert et al. 1999; Bruwer, 2010; Amra et al. 2013; Agwa-Ejon & Mbohwa 2015). With contributions of at least 45% to the national GDP while also employing roughly 60% of the national workforce (Erasmus et al. 2013; Kelly et al. 2016; Schutte et al. 2019; Chimucheka et al. 2019; Mbumbo et al. 2019; Statistics South Africa, 2019). Notwithstanding the latter statistics, research shows that South African SMMEs have among the worst sustainability rates in the world; up to 75% of these business entities fail after being in operation for only three years (Cant & Wiid, 2013; Moloi, 2013; Wiese, 2014; Bruwer, 2016).

The term "sustainability" has been widely researched. According to Alhaddi (2015), it pertains to the capacity in which a business entity remains in operations, for an extended period, with the main intent to attain its economic objectives (i.e. profitability, solvency and liquidity) in the foreseeable future; Lebacq et al. (2013) describes it as how a business entity is managed to achieve a sound economic performance and/or economic position, to remain in operation for an extended period. Within the ambit of this study however, this term is conceptualised as follows:

> *The ability of a business entity to be managed in such a way that it achieves its economic objectives, to attain a sound economic performance and a sound economic position to remain in operation for the foreseeable future.*

In a South African dispensation, economic sustainability is by far more important than social sustainability and/or environmental sustainability (Bruwer & Mason, 2018). This is mainly attributable to the fact that the ability of a business entity to achieve a sound economic performance (i.e. income is greater than expenses) and a sound economic position (i.e. assets are greater than liabilities, with sufficient cash flow) directly impacts whether it will remain operational in the foreseeable future (Bruwer & Coetzee, 2016). With this in mind, while also considering that South African SMMEs operate in a harsh economic environment (synonymous with high interest rates, high unemployment rates, and increased inflation) it becomes apparent why these business entities have among the weakest sustainability rates in the world (Bruwer & Van Den Berg, 2017). It, therefore, is sensible that South African SMMEs are very susceptible to an array of risks, including that of occupational fraud risk (Du Toit, 2008; PWC, 2016; Sitharam & Hoque, 2016).

Occupational fraud risk

Occupational fraud risk refers to a phenomenon where employees purposefully misuse the resources of a business entity to gain an advantage for themselves, by abusing their respective authority (position) for self-advancement, self-

empowerment, and/or self-enrichment (Steckel, 2011; Milyutina, 2013). Such risk is generally demarcated into three classes namely: 1) asset misappropriation (stealing of business resources for personal gain), 2) corruption (dishonest conduct by individuals with authority) and 3) financial statement fraud (intentional misstatement of financial statements to deceive stakeholders) (ACFE 2014; Kassem, 2014; Mohamed, 2014; PwC, 2014; Dunne, 2014; Carroll, 2015; Petersen, 2018). For the foregoing to materialise, using the foundation of the fraud triangle, there needs to be present at least one of the following aspects (Albrecht, 2008; Lou & Wang, 2011, Kennedy, 2012; Saarni, 2012; Shao 2016):

Opportunity: Where Where internal control activities[1] are ineffective and/or inadequate, a chance is evident for occupational fraud risk to take place. Examples of such chances include, but are not limited to, too much trust being placed in a person, limited and/or no segregation of duties, and improper governance.

Pressure: In the event where an employee is 'pushed too far' – be it by internal-pressures or external-pressures – it may lead to an inner-drive in an employee to commit occupational fraud risk. Examples of pressure include, but are not limited to, personal financial pressure, addiction, greed, lifestyle pressure, and being overworked.

Rationalisation: In the event where an employee intends to commit occupational fraud risk, 'self-justification' is given by the employee to remove possible guilt and/or remorse. Examples of rationalisation include, but are not limited to, "I intended to pay back the money", and "Everyone else is doing it".

[1] Internal control activities are generally demarcated into five groups, namely: 1) segregation of duties, 2) safeguarding of assets, 3) independent checks, 4) proper authorisation, and 5) document usage and design (Petersen, 2018).

In a South African dispensation, more than 25% of business entities are influenced by money laundering, corruption, procurement fraud and asset misappropriation as the most prevailing occupational fraud risk items (Woodard, 2008; Hosken, 2014; Kassem, 2014). These mentioned individual occupational fraud risk items are synonymous with those items that were found in business entities operating in North America, Asia, and Europe (Musarurwa, 2012).

Since most business entities appoint employees to perform operational tasks, it is plausible that management may be biased that their respective business entities are not confronted with occupational fraud risk and/or place too much trust in employees to perform tasks, which may place their respective business entities at risk of not being sustainable (Mitchell, 1997; Viviers & Venter, 2008; PwC, 2014).

Key employee characteristics

The term "characteristic" is defined as a "typical or noticeable quality of someone or something" (Cambridge, 2021). In a business dispensation, the characteristics of employees have been found to directly influence the attainment of relevant business objectives (Hanaysha, 2016; Osabiya, 2015). These characteristics, in turn, generally stem from employees' core values; affected by the corporate culture and/or ethical climate evident inside a business entity (Marcus & Roy, 2019; Bruwer, 2016; Duh et al. 2010). According to prior research (Lumpkin & Achen, 2018; Campbell, 2000), three prevailing employee characteristics which influence the attainment of business objectives is that of integrity, self-motivation, and competence. For the sake of clarity, each of these characteristics is briefly expanded on below.

Integrity: It is defined as "the quality or state of being complete or undivided" (Merriam-Webster, 2021). This characteristic encapsulates the essence of ethical values (Engelbrecht et al. 2017) and is significantly influenced by how management conducts itself[2] (Bruwer & Coetzee, 2016). Prior studies (Snezhko & Coskun, 2019; Yogi & Frinaldi, 2020; Becker, 2005) suggest that integrity, especially in employees, has a positive influence on respect among business stakeholders, overall trust inside

[2] A combination of the managerial philosophy(ies) and the managerial operating style(s). The latter forms part of the control environment of any organisation (Bruwer, 2016).

a business, career progress, employee productivity, and the achievement of business objectives.

Self-motivation: This characteristic is defined as "the initiative to undertake or continue a task or activity without another's prodding or supervision" (Dictionary, 2021). This characteristic generally stems from the positive belief that one has the "ability to influence events and consequences" in life (Zarei, et al. 2016; Sosik & Megerian, 1999). Individuals that have self-motivation are generally more competent and efficient than others (Mustafa & Ali, 2019). Prior studies (Lin, 2017; Henker et al. 2015; Lanaj et al. 2012) suggest that self-motivation, in employees, has a direct influence on, inter alia, career development, productivity, and the achievement of business objectives.

Employee competence: The definition of this characteristic reads: "the ability to do something well or effectively" (Collins, 2021). This characteristic primarily has to do with the collection of abilities and experience of a person to perform a specific task (Mittlestaedt & Wiepcke, 2007). According to prior research (Bruwer & Smith, 2018), in a business dispensation, employee competencies are synonymous with core basic business skills[3] such as literacy skills, mathematical skills, negotiation skills, time-management skills, and writing skills. More often than not, employee competency has a direct influence on productivity, operational efficiency, career development, and the attainment of business objectives, among others (Katuse & Gaur, 2020; Rande et al. 2015; Wanyama & Mutsotso, 2010).

Research Methodology

This study was empirical and constituted exploratory research as it entailed the discovery of new insights on a phenomenon on which little or no research has been conducted (Leedy & Ormrod, 2010; Collis & Hussey, 2009). Holistically, this study was also nascent since it is tantamount to topics that have not attracted significant research and/or formal theorising (Mulatiningsih, 2017). Survey research was also adopted for this study as it entailed the "collection of information from a sample of

[3] "*Those abilities which can be learned and mastered, which can also be utilised and/or relied on when performing certain tasks, with the main intent to achieve certain pre-determined objectives*" (Bruwer & Smith, 2018).

individuals through their responses to questions" (Check & Schutt, 2012) in the form of a questionnaire.

The questionnaire used applied to a larger study and comprised 20 questions which were made up of Likert-scale questions, yes-no-questions, fixed-open-questions, and multiple-choice questions. Out of these questions, only 10 questions were used for this study; analysed accordingly through means of descriptive statistics and inferential statistics.

The sampling frame for this study was South African SMME owners and/or managers that operated in the fast-moving-consumer-goods (FMCG) industry while being physically based in the Cape Metropole. Since the population size was unknown to the authors, a mixture of two non-probability sampling methods was deployed, namely convenience sampling and purposive sampling. Convenience sampling was chosen as no funding was allocated to it, while purposive sampling was chosen as the authors wanted to focus on a sample where respondents adhered to the following delineation criteria:

- Respondents had to be owners and/or managers of their SMMEs.
- Respondents had to have decision-making power in their SMMEs.
- Respondents' SMMEs had to be regarded as sole traders or partnerships.
- Respondents' SMMEs had to adhere to the definition of a SMME as per the National Small Business Act, No. 102 of 1996 and subsequent amendment acts.
- Respondents' SMMEs had to employ between 0 and 50 full-time employees.
- Respondents' SMMEs had to operate in the FMCG industry.
- Respondents' SMMEs had to be physically situated in the Cape Metropole.

A total of 120 respondents were approached and 120 positive responses were received (100% response rate); all responses were also found to be useable as respondents adhered to all applicable delineation criteria.

In addition, relevant ethical considerations were adhered to which included, but were not limited to informed consent, confidentiality of information, anonymity of respondents, voluntary participation, and safeguarding of physical harm. Moreover, ethical clearance to conduct the study was granted by the relevant university that the

corresponding author is affiliated to through ethical clearance certificate number 2016FBREC416.

Analysis and results

Respondents were asked an array of demographical questions, which, in turn, related to the delineation criteria. A summary of respondents' responses is evident in Table 1 below:

Table 1. Summary of respondent's responses concerning demographical questions

Question	Summary of results
Do you have decision-making power?	Yes: 100%
Is your business physically situated in the Cape Metropole?	Yes: 100%
What is your position in the business?	Owner: 18.3% Manager: 60.9% Owner and manager: 20.8%
How long have you been in this position	Minimum: 0.08 years Mean: 7.4 years Maximum: 43 years
How long has this business been in existence?	Minimum: 0.17 years Mean: 12 years Maximum: 50 years
How many full-time employees do you have?	Between 0 and 10: 80.8% Between 11 and 50: 19.2% Minimum: 1 Mean: 7.85 ≈ 8 Maximum: 35
What type of business is this?	Convenience store: 13.3% Fast food business: 38.3% Restaurant: 22.5% Caterer: 2.5% Tuck shop: 0.8% Pharmacy: 1.7% Liquor store: 3.3% Fruit and veg store: 0.8% Tobacconist: 3.3% Bakery: 5.8% Ice cream parlour: 2.6% Coffee shop: 5.0%
What type of sales does your business make?	Cash only: 35.8% Cash and credit: 63.3% Credit only: 0.8%
How would you describe your education level?	Primary school: 19.2% High school: 41.7% Post-school: 39.1%

Source: Authors' own

Stemming from the above, the inference can be made that the average South African SMME of respondents was a micro-enterprise that operated in the FMCG industry (either a restaurant or a fast-food business) for an average of 12 years while

employing an average of 8 full-time employees at a given time and making cash sales only. In turn, from the above, it becomes apparent that the average respondent was a manager with decision-making power in his/her SMMEs, with an average experience equivalent to 7.4 years in the position of manager and an average education level equivalent to at least that of high school.

To better understand respondents' perceptions surrounding their SMMEs, respondents were asked to provide their opinion on statements through means of a five-point Likert-scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). A summary of the responses is apparent in Table 2 below:

Table 2. Summary of respondent's perceptions on statements surrounding their SMMEs

Statement: In this business ...	Summary of results
Income is greater than expenses	Strongly disagree: 3.3% Disagree: 4.2% Neutral: 15.8% Agree: 35.0% Strongly agree: 41.7%
There is sufficient cash on hand	Strongly disagree: 1.7% Disagree: 7.5% Neutral: 17.5% Agree: 34.2% Strongly agree: 39.2%
Assets are greater than liabilities	Strongly disagree: 4.2% Disagree: 5.0% Neutral: 15.8% Agree: 36.7% Strongly agree: 38.3%
Employees are self-motivated	Strongly disagree: 4.2% Disagree: 6.7% Neutral: 12.5% Agree: 40.0% Strongly agree: 40.8%
Employees are competent	Strongly disagree: 4.2% Disagree: 3.3% Neutral: 10.0% Agree: 45.8% Strongly agree: 36.7%
Employees are trustworthy	Strongly disagree: 2.5% Disagree: 5.0% Neutral: 7.5% Agree: 44.2% Strongly agree: 40.8%

Source: Authors' own

Considering the results above, it becomes apparent that at least 73.4% of respondents agreed that their respective SMMEs' economic objectives (i.e. profitability, liquidity, and solvency) while at least 80.8% of respondents agreed that their employees possess key employee characteristics (i.e. self-motivation, competence, and trustworthiness). Notwithstanding the foregoing, respondents were also asked to rate statements surrounding occupational fraud risk evident in their respective SMMEs. Again, a five-point Likert-scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) was used. A summary of the responses is apparent in Table 3 below:

Table 3. Summary of respondent's perceptions on statements surrounding occupational fraud risk

Statement: In this business, there are cases of …	Summary of results
Corruption	Strongly disagree: 44.2% Disagree: 15.0% Neutral: 6.7% Agree: 17.5% Strongly agree: 16.7%
Conflict of interest	Strongly disagree: 36.7% Disagree: 10.0% Neutral: 12.5% Agree: 18.3% Strongly agree: 22.5%
Bribery	Strongly disagree: 54.2% Disagree: 15.8% Neutral: 5.8% Agree: 11.7% Strongly agree: 12.5%
Theft of stationery	Strongly disagree: 60.8% Disagree: 12.5% Neutral: 9.2% Agree: 10.8% Strongly agree: 6.7%
Theft of money	Strongly disagree: 48.3% Disagree: 10.0% Neutral: 12.5% Agree: 15.8% Strongly agree: 13.3%
Theft of inventory	Strongly disagree: 24.2% Disagree: 9.2% Neutral: 13.3% Agree: 33.3% Strongly agree: 20.0%
Sales not being recorded	Strongly disagree: 42.5% Disagree: 13.3% Neutral: 15.8% Agree: 16.7% Strongly agree: 11.7%

Purchases not being recorded	Strongly disagree: 49.2% Disagree: 14.2% Neutral: 13.3% Agree: 15.0% Strongly agree: 8.3%
Receipts not being recorded	Strongly disagree: 46.7% Disagree: 12.5% Neutral: 17.5% Agree: 14.2% Strongly agree: 9.2%
Payments not being recorded	Strongly disagree: 50.8% Disagree: 14.2% Neutral: 14.2% Agree: 14.2% Strongly agree: 6.7%
Incorrect sales amounts being recorded	Strongly disagree: 41.7% Disagree: 15.0% Neutral: 17.5% Agree: 19.2% Strongly agree: 6.7%
Incorrect purchase amounts being recorded	Strongly disagree: 45.8% Disagree: 14.2% Neutral: 12.5% Agree: 21.7% Strongly agree: 5.8%
Incorrect receipt amounts being recorded	Strongly disagree: 45.0% Disagree: 15.8% Neutral: 11.7% Agree: 21.7% Strongly agree: 5.8%
Incorrect payment amounts being recorded	Strongly disagree: 43.3% Disagree: 15.8% Neutral: 14.2% Agree: 20.8% Strongly agree: 5.8%
Payroll aspects not being validated	Strongly disagree: 59.2% Disagree: 15.8% Neutral: 7.5% Agree: 11.7% Strongly agree: 5.8%
Personal expenses being paid with business funds	Strongly disagree: 61.7% Disagree: 14.2% Neutral: 8.3% Agree: 12.5% Strongly agree: 3.3%
Creditors being paid late	Strongly disagree: 54.2% Disagree: 10.8% Neutral: 11.7% Agree: 20.0% Strongly agree: 3.3%
Debtors making late payments	Strongly disagree: 52.5% Disagree: 10.8% Neutral: 11.7% Agree: 19.2% Strongly agree: 5.8%
Payments being made to made-up vendors	Strongly disagree: 70% Disagree: 10.8% Neutral: 5.0%

	Agree: 10.0% Strongly agree: 4.2%
Invoices received from made-up vendors	Strongly disagree: 72.5% Disagree: 10.0% Neutral: 5.0% Agree: 10.0% Strongly agree: 2.5%
Invoices being paid twice	Strongly disagree: 65.8% Disagree: 12.5% Neutral: 6.7% Agree: 10.7% Strongly agree: 4.2%
Payments made for no items received	Strongly disagree: 66.7% Disagree: 10.0% Neutral: 4.2% Agree: 10.8% Strongly agree: 8.3%
Credit being made to unauthorised customers	Strongly disagree: 65.8% Disagree: 12.5% Neutral: 2.5% Agree: 13.3% Strongly agree: 5.8%
Embezzlement	Strongly disagree: 69.2% Disagree: 10.8% Neutral: 3.3% Agree: 10.8% Strongly agree: 5.8%
Employees using work time to do personal work	Strongly disagree: 36.7% Disagree: 13.3% Neutral: 7.5% Agree: 21.7% Strongly agree: 20.8%
Inventory being tampered with by employees for their personal benefit	Strongly disagree: 55.8% Disagree: 10.8% Neutral: 9.2% Agree: 13.3% Strongly agree: 10.8%

Source: Authors' own

Among the occupational fraud risks listed, the "theft of inventory" (53.3% agreement), "employees using work time to do personal work" (42.5% agreement), "conflict of interest" (40.8% agreement), and "corruption" (34.2% agreement) were the most prevailing in sampled SMMEs. On the contrary, the occupational risks that were least evident in sampled South African SMMEs were that of "invoices received from made-up vendors" (12.5% agreement), "payments being made to made-up vendors" (14.2% agreement), and "invoices being paid twice" (14.9% agreement).

Considering the primary objective of this study, and to reduce the number of variables contained in the preceding tables (three variables for economic

sustainability, three variables for key employee characteristics, and 26 variables for occupational fraud risk), Principal Axis Factoring (Exploratory Factor Analysis) was performed. For a factor to be regarded as legitimate, a group of variables need to have a Keizer-Meyer Olkin (KMO) test value of 0.600 and a Cronbach Alpha value of 0.600 (Field, 2009). A summary of the Principle Axis Factoring performed on the applicable variables is evident in Table 4 below:

Table 4. Summary of Principal Axis Factoring performed in this study

Item	Factor loading	KMO value	Cronbach Alpha	Factor name
Income is greater than expenses	0.853	0.720*	0.824*	ES
There is sufficient cash on hand	0.859			
Assets are greater than liabilities	0.869			
Employees are self-motivated	0.873	0.729*	0.863*	KEC
Employees are competent	0.906			
Employees are trustworthy	0.879			
Bribery	0.635	0.924*	0.970*	OFR
Theft of stationery	0.639			
Theft of money	0.697			
Theft of inventory	0.522			
Sales not being recorded	0.784			
Purchases not being recorded	0.844			
Receipts not being recorded	0.854			
Payments not being recorded	0.876			
Incorrect sales amounts being recorded	0.839			
Incorrect purchase amounts being recorded	0.852			
Incorrect receipt amounts being recorded	0.876			
Incorrect payment amounts being recorded	0.860			
Payroll aspects not being validated	0.820			
Personal expenses being paid with business funds	0.781			
Creditors being paid late	0.786			
Debtors making late payments	0.742			
Payments being made to made-up vendors	0.844			
Invoices received from made-up vendors	0.814			
Invoices being paid twice	0.816			
Payments made for no items received	0.778			
Credit being made to unauthorised customers	0.799			
Embezzlement	0.777			
Inventory being tampered with by employees for their personal benefit	0.719			
Corruption	0.624	0.474	0.471	N/A
Conflict of interest	0.849			
Employees using work time to do personal work	0.607			

Source: Authors' own

From the Principal Axis Factoring performed, 32 variables were reduced to three factors and three items. The data from the relevant variables, as applicable to the

three factors, were averaged out to contain a single value. To better explain the latter, a summary of the factor descriptors are shown in Table 5 below:

Table 5. Exploratory factor analysis factor descriptors

Factor	Description	Measurement
ES	Economic Sustainability (consisting of three items)	It measures the perceived attainment of sampled SMMEs' economic objectives while assuming a value between 1 (strongly disagree) and 5 (strongly agree).
KEC	Key Employee Characteristics (consisting of three variables)	It measures the perceived soundness of key employee characteristics while assuming a value between 1 (strongly disagree) and 5 (strongly agree).
OFR	Occupational Fraud Risk (consisting of 23 items)	It measures the perceived presence of occupational fraud risk while assuming a value between 1 (strongly disagree) and 5 (strongly agree).

Source: Authors' own

To test the relationship among ES, KEC and OFR (along with the remaining three items), a two-way Pearson Rank Correlation was performed. A summary of this is shown in Table 6 below:

Table 6. Summary of Pearson Rank Correlation performed

		ES	KEC	OFR	Corruption	Conflict of interest	Employees using work time to do personal work
ES	Pearson correlation Sig. (2-tailed)	1	**0.478** **0.00**	-0.023 0.801	-0.160 0.081	0.094 0.308	0.138 0.134
KEC	Pearson correlation Sig. (2-tailed)	**0.478**** **0.000**	1	-0.078 0.396	-0.038 0.682	0.068 0.460	-0.023 0.804
OFR	Pearson correlation Sig. (2-tailed)	-0.023 0.801	-0.078 0.396	1	**0.467**** **0.000**	**0.467**** **0.000**	**0.305**** **0.001**
Corruption	Pearson correlation Sig. (2-tailed)	-0.160 0.081	-0.038 0.682	**0.467**** **0.000**	1	**0.335**** **0.000**	0.024 0.795
Conflict of interest	Pearson correlation Sig. (2-tailed)	0.094 0.308	0.068 0.460	**0.467**** **0.000**	**0.335**** **0.000**	1	**0.325**** **0.000**
Employees using work time to do personal work	Pearson correlation Sig. (2-tailed)	0.138 0.134	-0.023 0.804	**0.305**** **0.001**	0.024 0.795	**0.325**** **0.000**	1

** Statistically significant at the 99% confidence interval / 0.01 level (2-tailed)

Source: Authors' own

Considering that statistically significant correlations existed between ES and KEC (β = 0.478), Corruption and OFR (β = 0.467), Conflict of interest and OFR (β = 0.467), Employees using work time to do personal work and OFR (β = 0.305), Corruption and Conflict of interest (β = 0.335), and Employees using work time to do personal work and conflict of interest (β = 0.325), logistic regression analyses were also performed. The following standard logistic regression model[4] was used:

$$\text{Logit}\,[\pi_i] = \log\,[\pi_i \div (1 - \pi_i)] = \alpha + \beta_c x_i$$

Table 7. Summary of logistic regression analysis performed

Dependent Variable = ES				
Independent variable	**β**	**Exp(β)**	**p-value**	**Global values**
Corruption	-0.827	0.437	0.173	
Conflict of interest	-0.287	0.751	0.652	
Employees using work time to do personal work	**1.357**	**3.884**	**0.058***	
KEC	**2.285**	**9.830**	**0.01*****	
OFR	0.921	2.512	0.341	
Constant	-0.424	0.655	0.527	
Block 0 model %				83.3%
Block 1 model %				85.8%
Hosmer and Lemeshow test (Chi-square)				4.274
Hosmer and Lemeshow test (p-value)				0.832
Dependent Variable = KEC				
Independent variable	**β**	**Exp(β)**	**p-value**	**Global values**
Corruption	-0.158	0.854	0.834	
Conflict of interest	0.745	2.106	0.359	
Employees using work time to do personal work	-0.654	0.520	0.403	
ES	2.282	**9.794**	**0.001*****	
OFR	-0.006	0.994	0.995	
Constant	0.577	1.781	0.317	
Block 0 model %				89.2%
Block 1 model %				88.3%
Hosmer and Lemeshow test (Chi-square)				5.984
Hosmer and Lemeshow test (p-value)				0.542
Dependent Variable = Corruption				
Independent variable	**β**	**Exp(β)**	**p-value**	**Global values**
Conflict of interest	**1.050**	**2.857**	**0.033****	
Employees using work time to do personal work	-0.563	0.570	0.293	
ES	-0.836	0.434	0.166	
KEC	-0.090	0.914	0.902	

[4] π_i = The probability that the dependent variable takes on a value of 1; x_i = the control variables included in the regression; β_c = the coefficients of the control variables; α = intercept parameter (Bruwer et al. 2019). Where values of factors and items were between 1 and 3, it was transformed to 0; where values of factors and items were greater than 3, it was transformed to 1.

OFR	**2.135**	**8.458**	**0.000*** **	
Constant	-0.581	0.559	0.398	
Block 0 model %				65.8%
Block 1 model %				76.7%
Hosmer and Lemeshow test (Chi-square)				2.252
Hosmer and Lemeshow test (p-value)				0.895
Dependent Variable = Conflict of interest				
Independent variable	**β**	**Exp(β)**	**p-value**	**Global values**
Corruption	**1.055**	**2.872**	**0.032****	
Employees using work time to do personal work	**1.682**	**5.378**	**0.000*** **	
ES	-0.292	0.747	0.649	
KEC	0.673	1.961	0..372	
OFR	**1.126**	**3.084**	**0.080***	
Constant	-2.068	0.126	0.013	
Block 0 model %				59.2%
Block 1 model %				73.3%
Hosmer and Lemeshow test (Chi-square)				2.684
Hosmer and Lemeshow test (p-value)				0.847
Dependent Variable = Employees using work time to do personal work				
Independent variable	**β**	**Exp(β)**	**p-value**	**Global values**
Corruption	-0.518	0.595	0.330	
Conflict of interest	**1.672**	**5.323**	**0.000*** **	
ES	**1.392**	**4.021**	**0.060***	
KEC	-0.614	0.541	0.406	
OFR	**1.555**	**4.734**	**0.016****	
Constant	-1.781	0.169	0.026	
Block 0 model %				57.5%
Block 1 model %				73.3%
Hosmer and Lemeshow test (Chi-square)				2.959
Hosmer and Lemeshow test (p-value)				0.706
Dependent Variable = OFR				
Independent variable	**β**	**Exp(β)**	**p-value**	**Global values**
Corruption	**2.285**	**13.559**	**0.000****	
Conflict of interest	**1.252**	**3.705**	**0.054***	
Employees using work time to do personal work	**1.623**	**6.146**	**0.013***	
ES	1.412	1.752	0.186	
KEC	-0.339	0.111	0.739	
Constant	-5.158	15.096	0.000	
Block 0 model %				80.8%
Block 1 model %				86.7%
Hosmer and Lemeshow test (Chi-square)				6.612
Hosmer and Lemeshow test (p-value)				0.358

*** Statistically significant at the 0.01 level, ** Statistically significant at the 0.05 level, * Statistically significant at the 0.10 level.

Source: Authors' own

From the logistic regression analysis performed, it appears that the logistic regression model used had an acceptable fit since relevant calculated p-values values

were greater than 0.05 (Esarey & Pierce, 2012). A summary of the observations from the five logistic regression models is made below:

- Where ES was the dependent variable, it had positive statistically significant relationships with employees using work time to do personal work (β = 1.357) and KEC (β = 2.285). In the event that management's perceptions surrounding ES improved, the odds were 3.884 times greater for management to perceive employees using work time to do personal work; the odds were 9.830 times greater for management to perceive the KEC in a better light.
- Where KEC was the dependent variable, it had a positive statistically significant relationship with ES (β = 2.282). In the event that management's perceptions surrounding KEC improved, the odds were 9.797 times greater for management to perceive the ES in a better light.
- Where Corruption was the dependent variable, it had positive statistically significant relationships with Conflict of interest (β = 1.050) and OFR (β = 2.135). In the event that management had a perception that Corruption exists in their SMMEs, the odds were 2.857 times greater for management to perceive the existence of Conflict of interest in their SMMEs; the odds were 8.458 times greater for management to perceive the existence of OFR in their SMMEs.
- Where Conflict of interest was the dependent variable, it had positive statistically significant relationships with Corruption (β = 1.055), Employees using work time to do personal work (β = 1.682), and OFR (β = 1.126). In the event that management had a perception that Conflict of interest exists in their SMMEs, the odds were 2.872 times greater for management to perceive the existence of Corruption in their SMMEs; the odds were 5.387 times greater for management to perceive employees using work time to do personal work; the odds were 3.084 times greater for management to perceive the existence of OFR in their SMMEs.
- Where Employees using work time to do personal work was the dependent variable, it had positive statistically significant relationships with Conflict of interest (β = 1.672), ES (β = 1.392), and OFR (β = 1.555). In the event that management had a perception that Employees were using work time to do personal work, the odds were 5.323 times greater for management to perceive the existence of Conflict of interest; the odds were 4.021 times greater for management to have a more favourable perception surrounding their SMMEs' ES;

the odds were 4.734 times greater for management to perceive the existence of OFR in their SMMEs.

- Where OFR was the dependent variable, it had positive statistically significant relationships with Conflict of interest (β = 2.285), Conflict of interest (β = 1.252), and Employees using work time to do personal work (β = 1.623). In the event that management had a perception that OFR was evident, the odds were 13.559 times greater for management to perceive the existence of Corruption; the odds were 3.705 times greater for management to perceive the existence of Conflict of interest; the odds were 6.146 times greater for management to perceive the existence of Employees using work time to do personal work.

Discussion and conclusion

Despite the fact that South African SMMEs are regarded as the driving forces to economic growth in the country, research shows that these business entities have among the worst sustainability rates in the world (Wiese, 2014). Probable reasons for the latter dispensation include that these business entities operate in a harsh economic environment; making them susceptible to risks such as occupational fraud risk (Laufer, 2011; Bruwer & Van Den Berg, 2017). Among the most prevailing occupational fraud risk found in South African SMMEs, according to literature (Hosken, 2014; Kassem, 2014) include money laundering, corruption, procurement fraud and asset misappropriation.

When the focus is placed on the results, it became apparent that, according to South African SMME management, their respective SMMEs had sound economic sustainability and were not greatly affected by occupational fraud risk. When asked about the occurrence of occupational fraud risk, "inventory theft", "employees using work time to do personal work", "conflict of interest" and "corruption" appeared most. Notwithstanding the results, it may be that SMME management was biased in their responses, especially considering their views on occupational fraud risk. Management's perception that occupational fraud risk did not greatly affect their respective SMMEs' sustainability does not particularly "fit" well with the types of occupational fraud risk they indicate that occurs. Alternatively, it can also be that

SMME management was aware to the extent that their respective SMMEs were exposed and/or influenced by occupational fraud risk.

In order for employees to capitalise on occupational fraud risk, at least one of the components of the fraud triangle needs to be present; i.e. opportunity, pressure and/or rationalisation (Lou and Wang, 2011). In the same vein, research (Viviers & Venter, 2008; PwC, 2014) also suggests that in the event where employees have key employee characteristics (e.g. integrity, self-motivation and competency), the chances for occupational fraud risk to materialise is mitigated (Viviers & Venter, 2008; PwC, 2014). When the emphasis is placed on the results, SMME management believed that their employees did possess integrity, self-motivation and competency. This finding gives justification as to why SMME management may not have regarded occupational fraud risk as a major phenomenon affecting their respective SMMEs' sustainability. Alternatively, it is possible that SMME management may not have known their employees as well as they should have.

Since there theoretical links exist between SMME economic sustainability, occupational fraud risk and key employee characteristics (Mitchell, 1997; Viviers & Venter, 2008; Kennedy, 2012; PwC, 2014; Carroll, 2015; Masama & Bruwer, 2018; Petersen et al. 2018), inferential statistics were performed to ascertain the feasibility of the latter links. From the results, the following became evident:

- ES had a positive, statistically significant, moderate relationship with KEC (β = 0.478).
- KEC had a positive, statistically significant, moderate relationship with ES (β = 0.478).
- OFR had a positive, statistically significant moderate relationship with Corruption (β = 0.467)
- OFR had a positive, statistically significant moderate relationship with Conflict of interest (β = 0.467).
- OFR had a positive, statistically significant weak relationship with Employees using work time to do personal work (β = 0.305).
- Corruption had a positive, statistically significant moderate relationship with OFR (β = 0.467).
- Corruption had a positive, statistically significant weak relationship with Conflict of interest (β = 0.335).

- Conflict of interest had a positive, statistically significant moderate relationship with OFR (β = 0.467).
- Conflict of interest had a positive, statistically significant weak relationship with Corruption (β =0.335)
- Conflict of interest had a positive, statistically significant weak relationship with Employees using work time to do personal work (β = 0.325).
- Employees using work time to do personal work had a positive, statistically weak moderate relationship with OFR (β = 0.305).
- Employees using work time to do personal work had a positive, statistically weak moderate relationship with Conflict of interest (β = 0.325).

In quintessence, the results justify that certain factors and/or items are predictors for other factors and/or items. In particular, KEC may be a predictor of EC; EC may be a predictor of KEC; OFR may be a predictor for Conflict of interest, and Employees using work time to do personal work; Corruption may be a predictor for Conflict of interest and OFR; Conflict of interest may be a predictor for OFR, Corruption, and Employees using work time to do personal work; Employees using work time to do personal work may be a predictor for OFR and Conflict of interest. To further test the significance of these predictors, logistic regression analyses were performed. From the results, the following became evident:

- ES was a predictor of KEC (odds were 9.830 greater of KEC being good when ES was good).
- KEC was a predictor of ES (odds were 9.794 greater of ES being good if KEC was good).
- Corruption was a predictor for OFR (odds were 8.458 greater of OFR being evident when Corruption was evident).
- Conflict of interest was a predictor of Corruption (odds were 2.872 greater of Corruption being evident when Conflict of interest was evident).
- Conflict of interest was a predictor of Employees using work time to do personal work (odds were 5.387 greater of Employees using work time was evident when Conflict of interest was evident).
- Conflict of interest was a predictor of OFR (odds were 3.084 greater of OFR being evident when Conflict of interest was evident).

- Employees using work time to do personal work was a predictor of Conflict of interest (odds were 5.323 greater of Conflict of interest being evident when Employees using work time to do personal work was evident).
- Employees using work time to do personal work was a predictor of OFR (odds were 4.734 greater of OFR being evident when Employees using work time to do personal work was evident).
- OFR was a predictor of Conflict of interest (odds were 3.705 greater of Conflict of interest being evident when OFR was evident).
- OFR was a predictor of Employees using work time to do personal work (odds were 6.146 greater of Employees using work time to do personal work was evident when OFR was evident).

From the above, it becomes apparent that, for this study, at least, ES was a predictor for KEC; KEC was a predictor for ES; Corruption was a predictor for OFR; Conflict of interest was a predictor for Corruption, Employees using work time to do personal work, and OFR; Employees using work time to do personal work was a predictor for Conflict of interest and OFR; OFR was a predictor for Conflict of interest and Employees using work time to do personal work. In other words, there existed empirical relationships between ES and KEC, as well as between OFR, Conflict of Interest, Corruption, and Employees using work time to do personal work.

It should be noted that the results from this study pertain to a specific sample (South African FMCG SMMEs operating in the Cape Metropole) before the outbreak of COVID-19; hence results cannot be generalised. These results do however provide a foundation for further studies to be conducted which include, but are not limited to 1) The impact of occupational fraud risk on South African SMMEs' economic sustainability, 2) The extent to which key employee characteristics affect the economic sustainability of South African SMMEs, and 3) The influence of key employee characteristics in combating occupational fraud risks within a South African SMME dispensation.

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