“Adoption of strategic management accounting by small enterprises in South Africa”

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ADOPTION OF STRATEGIC MANAGEMENT ACCOUNTING BY SMALL ENTERPRISES IN SOUTH AFRICA

Abstract

Strategic management accounting (SMA) is essential for small enterprises to enhance business decision-making and optimize resource allocation, thereby fostering competitiveness and long-term sustainability in dynamic markets. The study aims to investigate the factors influencing the adoption of SMA by small enterprises in South Africa, using KwaZulu-Natal as a case study. To achieve this objective, a quantitative and cross-sectional design was employed, utilizing a questionnaire and covering 191 SEs owners. The research framework is based on contingency theory, and data analysis was performed using Stata. The vector autoregression analysis indicates that the adoption of SMA is driven by its perceived ability to address financial aspects such as cash management, decision-making regarding return on investment, and financial variance analysis. Furthermore, SMA adoption is influenced by its effectiveness in addressing non-financial factors, such as customer service. The observed relationships between SMA adoption and both financial and non-financial factors are all statistically significant at the 0.000 level. These findings underscore the critical role of SMA for small enterprises in South Africa, emphasizing its significance in their success and long-term sustainability.

Keywords strategic management accounting, financial factors, non-financial factors, small enterprises, contingency theory, adoption

JEL Classification M41, M10

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INTRODUCTION

Strategic management accounting (SMA) has emerged as a significant topic in both corporate and academic circles. Research on SMA dates back to a seminal paper published by Simmonds around 1982. Since then, SMA has been extensively explored in various professional and academic papers, including an influential work by Bromwich in 1990 and the publication of the book "Pathways to Progress" by Bromwich and Bhimani (2005). Concurrently, in the USA, notable academics such as Robert Kaplan, Robin Cooper, and John Shank criticized traditional management accounting and embraced strategic cost management to enhance the relevance of management accounting. Many studies now highlight the advantages of SMA and strategic cost management over traditional management accounting practices, promoting the acceptance of a strategic approach to management accounting as the new norm. However, surveys from the 1990s indicated a slow adoption of SMA in practice. Some commentators, like Lord (1996), questioned whether SMA was merely "a figment of academic imagination," while others doubted whether accountants possessed the necessary skills to implement SMA successfully (Coad, 1996). Despite these concerns, several commentators remain convinced that the widespread adoption of SMA is inevitable and that it has had a significant impact on modern management accounting. South African SEs often struggle with maintaining proper bookkeeping, which is essential for

generating financial information needed for strategic decisions. These enterprises face numerous challenges, including weak governance, inadequate staff skills, poor bookkeeping practices, and insufficient regulatory oversight. Therefore, examining the specific factors influencing the adoption of SMA in KwaZulu-Natal is crucial. This investigation can provide valuable insights into how SEs can use SMA to enhance both financial and non-financial strategic decision-making. The significant relationships found between SMA adoption and various financial and non-financial factors will highlight a critical gap in the literature and offer practical implications for SEs owners seeking to achieve success and sustainability in a competitive market.

1. LITERATURE REVIEW

In this study, contingency theory is employed as a theoretical framework, positing that the adoption of SMA in South African small enterprises (SEs) is influenced by distinct financial and non-financial factors. This framework has previously been utilized under the same assumption that factors influencing one organization may not have identical effects on another organization (Abba et al., 2018). In the context of the current study, contingency theory suggests that the adoption of SMA depends on how well the practices of SEs are aligned with specific situational variables within the business (Granlund & Lukka, 2017; Otley, 1980).

SEs play a critical role in the South African economy by creating jobs and contributing to GDP growth. Despite their significant impact, there is no universally accepted definition of SEs. Definitions differ significantly based on the criteria employed by various countries. For example, the National Small Business Amendment Act (26 of 2003) illustrates how definitions of small enterprises can vary (Nieuwenhuizen, 2019). SEs are characterized by a small number of employees and relatively low sales volumes. However, SEs vary in size and participate in a diverse range of economic activities, such as agriculture, manufacturing, mining, construction, and retail. In fact, the South Government Gazette (2019) categorizes SEs based on four criteria: size, industry, number of employees, and revenue. This study utilizes the definition from the National Small Business Amendment Act 26 of 2003. Table 1 outlines the specific criteria used to define SEs in South Africa according to this legislation (Mtshali & Chinyamurindi, 2021).

In South Africa, the criteria for determining the size of a business vary by sector, with the primary metric being the number of employees. The classifications are as follows: Microenterprises employ between 0 and 4 people; Very small enterprises have between 5 and 9 employees; Small enterprises consist of 10 to 49 employees; and Medium enterprises have a workforce ranging from 50 to 200 employees (Nieuwenhuizen, 2019).

South Africa is home to over 2 million SEs, which contribute more than 57% of the nation's GDP and employ over 80% of its workforce (Maziriri, 2018). SEs account for 70% of all employment and 50% of the country's GDP. In addition to their substantial economic impact, SEs play a pivotal role in community development (Dlamini & Schutte, 2021). They participate in various social initiatives, such as skills training, women's empowerment, crime reduction, and local economic support, benefiting township communities through numerous programs (Zulu & Nzuza, 2023). SEs are vital for the government's efforts to promote rural development and achieve inclusive growth, thereby providing tangible resources and benefits to communities (Dlamini & Schutte, 2021). Despite their importance, SEs in South Africa face significant challenges in accessing finance. This difficulty is

Table 1. South Africa: National Small Business Amendment Act of 2003

Business type	Micro	Very small	Small	Medium
Manufacturing	R0.2m	R5m	R12m	R51m
Wholesale trade, commercial agents, and allied services	R0.2m	R6m	R32m	R64m
Finance and business services	R0.2m	R3m	R13m	R26m
Community, social and personal services	R0.2m	R1m	R6m	R13m

Note: Selected main sectors for SEs by annual turnover.

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partly due to the small number of investors focusing on townships and issues like high levels of informality, poor recordkeeping, low financial literacy, and lack of collateral. Additionally, access to markets is another common challenge for SEs, as townships are historically designed to be isolated from major urban areas, necessitating support from both government and private sectors to help them expand into more formalized markets (Davidson et al., 2024).

To establish a foundation for defining SMA, it is important first to define the well-known concept of strategic management. Although strategic management has been defined in various ways, there is broad consensus that its key activities include "the development of a grand strategy, establishing a sense of direction, formulating strategic goals and plans, implementing these plans, and conducting monitoring, evaluation, and corrective action" (Miller & O'leary, 1994). The well-known role of management accountants is to facilitate effective decision-making, which typically involves gathering and analyzing information, identifying options, and implementing, monitoring, and evaluating decisions (Bromwich, 1990). Consequently, the focus of SMA is on the strategic positioning of accounting (Flórez-Parra & Arévalo-Galindo, 2022), incorporating a broader approach that integrates a strategic management focus into its framework. Ever since Simmonds attempted to be the first to define SMA as "the provision and analysis of management accounting data about a business and its competitors, for use in developing and monitoring business strategy," other scholars have sought to identify the main attributes of SMA (Simmonds, 1982).

CIMA describes SMA as a management accounting technique that emphasizes information related to internal and external factors and non-financial data (Bromwich, 1990; Guay, 2014). The study titled "*What is strategic management accounting*?" concluded that there are two viewpoints of SMA. The first view is strategically concerned with accounting techniques, while the second focuses on the definite participation of accountants in the strategic decision-making (Cadez & Guilding, 2008). Following the first viewpoint, the literature has expanded to reveal sixteen more SMA techniques (Cadez & Guilding, 2012; Ditkaew, 2023), which are further categorized into five SMA themes: strategic costing, strategic planning, control and performance measurement, strategic decision-making, competitor accounting, and customer accounting (Sumkaew & Intanon, 2020).

Basically, in the literature, there is no single, universally accepted definition of SMA. However, a common element in various perspectives is that SMA entails taking a strategic approach to the creation, interpretation, and analysis of management accounting data, with a significant focus on competitors' activities as a key point of comparison. Several techniques are associated with SMA, and some experts define it based on these methods (Simmonds, 1982). These techniques include target costing, life-cycle costing, strategic cost analysis, competitor cost analysis, activity-based costing, activity-based management, attribute costing, and strategic performance measurement systems (Nik Abdullah et al., 2022).

From a North American viewpoint, John Shank argues that SMA should encompass not only the use of financial information in decision-making across various business issues but also the business context in which these decisions occur, whether explicitly or implicitly. The shortcomings of traditional management accounting systems and costing techniques in providing useful information for managing manufacturing operations were underscored in Kaplan and Johnson's 1987 book Relevance Lost (Langfield-Smith, 2008). SMA advocates that sustaining a cost advantage over current and potential competitors is crucial for a sustainable strategy (Baumol, 1982; Nik Abdullah et al., 2022). When management accounting was perceived to be in crisis, it was equally contended that the primary problem is the inappropriateness of a short-term, internally focused approach to accounting information in the face of intense global competition, which necessitates long-term sustainability and strategic positioning. A major criticism of past accounting practices is that accountants rarely assumed a proactive role in the strategic management process (Schroeder et al., 2022).

SMA posits that for a company to sustain its strategy, it must maintain a cost advantage over its current and potential competitors (Nik Abdullah et al., 2022). During a period when management

accounting was considered to be in crisis, it was argued that the core issue was the inadequacy of continuing with a short-term, internally focused approach to accounting information amid intense global competition, which necessitates long-term sustainability and strategic positioning. A significant criticism of earlier accounting practices is that accountants had rarely taken a proactive role in the business strategic management process (Bhimani & Bromwich, 2009).

The transformation of business systems in the 1980s challenged the relevance of traditional management accounting, leading to the introduction of SMA with various techniques to address the limitations of conventional tools used by management accountants. The rapid advancements in technology adoption and application in business and decision-making facilitated the shift from traditional management accounting. Research identified several factors promoting the adoption of SMA, including its ability to evaluate competitor information, enhance the decision-making process, aid in the management and control of product development, and leverage artificial intelligence and big data analysis to improve business performance (Nik Abdullah, 2019). SMA is not a theory but a term that encompasses a range of techniques, approaches, tools, and applications crucial for analyzing competitor data and formulating effective strategies (Nik Abdullah et al., 2020). Simmonds who is often regarded as the father of SMA, emphasized that a company's growth depends not only on internal efficiency but also on establishing a strong external position in the market, including understanding and positioning against competitors (Simmonds, 1982).

Company structure has been recognized as a factor influencing the acceptance of SMA, with delegation identified as a critical component (Oyewo, 2022). There is an argument that SMA acceptance is likely to be higher in companies that practice delegation of duties across various business structures. The findings of a study conducted in hotels support the theory that companies with delegated duties have a greater need for SMA, as employees throughout the company require information to enhance decision-making (Pavlatos, 2015). Though, this conclusion both aligns with and contradicts previous research, such as Pavlatos (2015) and Verbeeten (2010). SMA's characteristics are associated with aspects of horizontal company, aiming to connect strategy to the value chain and link activities across the company (Nik Abdullah et al., 2022). In a typical horizontal company, the approach involves identifying customer-oriented strategic priorities and then leveraging process efficiency, continuous improvements, flattened structures, and team empowerment to drive change. This suggests that a higher use of SMA practices would be most effective in companies where delegation of duties is well structured (Chenhall, 2009; Ussahawanitchakit, 2017).

Another crucial internal organizational factor in understanding SMA is the organizational strategy. Since SMA is expected to enhance management decision-making and ultimately improve organizational performance, it is reasonable to anticipate that organizations aligning their SMA practices with their strategic orientation will achieve higher organizational performance (Alsharari, 2024; Cinquini & Tenucci, 2010). A fundamental principle in the foundation of SMA is that management accounting plays a crucial role in helping organizations achieve sustained competitiveness (Ojra et al., 2021). Previous research reveals that SMA techniques, including target costing, balanced scorecards, and just-in-time production systems, are useful in tackling investment decisions (El-Baz et al., 2013; Aduvaga, 2020). Another benefit of SMA practice is that it enables a company to achieve a more strategic focus by incorporating elements such as customer relationships, human resources, processes, and financial reporting (Alsharari, 2024).

The adoption of SMA in companies is justified by the enhancement of organizational performance (Ojra et al., 2021; Phornlaphatrachakorn & Na-Kalasindhu, 2020; Dang et al., 2021). SMA extends its influence beyond financial performance to impact non-financial aspects of company activities (Ojra, 2014). This observation aligns with Sedevich-Fons (2018) findings, suggesting that different management accounting practices correlate with the utilization of non-financial metrics. Furthermore, management accountants are entrusted with the strategic duty of ensuring the fairness and accuracy of internal financial reporting, in accordance with the company's established policies (Cosma et al., 2022).

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It is imperative that all business activities maintain a good financial performance (Van Horne & Wachowicz Jr, 2001). Sound financial performance indicates a company's robust financial position and its capacity to yield returns on invested capital (Mondal et al., 2016). Achieving this entails the implementation of effective resource management and control. However, a company's returns should not come at the detriment of other stakeholders. This underscores the necessity for companies to address various other aspects, including social responsibility, governance, and the environmental context in which they operate (Weetman, 2019). The interpretation of financial performance can vary considerably, and its definition is often contingent on the specific industry under consideration.

Financial performance measures, as described by Matoušek (2012), involve two principal approaches to evaluating a company's economic position, divided into two main categories: fundamental technical analysis methods and advanced financial analysis methods. Fundamental technical analysis methods utilize basic arithmetic operations and indicators, with their primary advantage being the speed and simplicity of the calculations involved. It encompasses absolute ratios analysis, cash flow analysis, proportion ratio analysis, differential ratios analysis, and system of ratios analysis. Advanced financial analysis methods involve complex mathematical techniques and more in-depth considerations. These include mathematical statistical methods, such as statistical tests and regression simulations, as well as non-statistical methods, which incorporate expert systems and fuzzy sets (Matoušek, 2012).

Users of financial information utilize ratio analysis for various purposes, including assessing a company's ability to meet its debt obligations, evaluating business and managerial performance, and ensuring compliance with statutory regulations regarding the company's performance (Barnes, 1987). Financial ratios provide a straightforward method for interpreting the figures within financial statements (Ligocká & Stavárek, 2019). Financial ratios can be categorized based on the statistics they offer as outlined by Jořenková (2011): investors' return, profitability, liquidity, solvency, and activity/efficiency.

The liquidity ratios measure a company's ability to pay its short-term debts as when they become due. The measure of liquidity is based on the comparison of the most liquid current assets or those that can be easily converted into cash against the company's short-term debts. There are three liquidity indicators as shown below (Jořenková, 2011). Solvency ratio assesses a company's ability to pay its long-term debt with its cash flow, therefore mitigating the risk of bankruptcy. It reveals the company's inclination toward either debt or equity as a source of funding. A high solvency ratio is a positive indicator of financial health for the company. Generally, a ratio of less than 20% suggests a higher likelihood of the company defaulting on its obligations (Dance & Imade, 2019). Profitability ratios offer a comprehensive evaluation of overall profitability relative to the capital provided by shareholders and lenders in relation to expenses and other incurred costs over a specific period (Wijaya & Muljo, 2022). If these ratios are equal to or higher than those of competitors or previous years, it may indicate positive company performance (Susellawati et al., 2022), provided that the change in the rand value is not solely due to inflation but improvement in the company activities (Pratama et al., 2022). Investors are keen to evaluate the performance of their invested shares. Several ratios are of particular interest to investors, whether they are debt investors or equity investors (Ogilvie, 2009).

Although company management is responsible for reporting on the company's financial activities (Cosma et al., 2022), studies by Ballwieser (2004) and Hasanaj and Kuqi (2019) indicate that financial reports primarily consist of quantitative data without explanations for the actual results. A relatively new framework, known as integrated reporting, has emerged to enhance reporting practices. However, integrated reporting has its limitations, including providing concise or summary reports for matters that require more detailed explanations, which necessitates individuals with high expertise to unpack. In contrast, SMA offers comprehensive explanatory information, encompassing various facets of a company's operations, such as economic, social, environmental, and governance perspectives. Despite misconceptions from accountants who are not research-informed, claiming that the integrated reporting approach is

new and trending globally, the reality is that SMA has long included non-financial reports. Unlike traditional management accounting, SMA adopts a more holistic approach, as noted by Vaz et al. (2016), and Eccles and Serafeim (2011). These holistic approaches incorporate extensive reporting on various aspects, such as formulating a grand strategy, establishing internal policies, setting strategic goals and plans, implementing company plans, and conducting monitoring, evaluation, and corrective action (Miller & O'leary, 1994).

Literature indicates that SEs in South Africa continue to face challenges in achieving significant growth. Conversely, SMA has been demonstrated in other studies to enhance a company's performance, both large and small, by improving financial and non-financial outcomes. However, previous findings may not be directly applicable to SEs in South African townships. Therefore, the purpose of this study is to investigate factors influencing the adoption of SMA in the Ntuzuma township, located in KwaZulu-Natal, South Africa. The study seeks to test the following hypotheses:

H1: *There is a significant relationship between cash flow management as an SMA practice and Assist with control costs (AwCCs), Assists in choosing the best investment opportunities (AssCio), Yield an advantage over competitors (Competitive), For problem identification (ProbIdent), Helps in financial reporting (HFinRep), and Development of business strategy (DevBusStrat).*

H2: *There is a significant relationship between the application of variance analysis as an SMA practice and Assist with control costs, Assists in choosing the best investment opportunities, Yield an advantage over competitors, for problem identification, Helps in financial reporting, and Development of business strategy.*

H3: *There is a significant relationship between the application of return on investment management as an SMA practice and Assist with control costs, Assists in choosing the best investment opportunities, Yield an advantage over competitors, for problem identification, Helps in financial reporting, and Development of business strategy.*

H4: *There is a significant relationship between proper handling of customers' complaints or satisfaction management as an SMA practice and Assist with control costs, Assists in choosing the best investment opportunities, Yield an advantage over competitors, For problem identification, Helps in financial reporting, and Development of business strategy.*

H5: *There is a significant relationship between being conscious about why customers returned products as an SMA practice and Assist with control costs, Assists in choosing the best investment opportunities, Yield an advantage over competitors, For problem identification, Helps in financial reporting, and Development of business strategy.*

2. METHODOLOGY

This study adopted a quantitative and cross-sectional approach, utilizing a self-administered questionnaire as the data collection instrument. The researcher provided clarification to respondents when needed and, in some instances, completed the questionnaire in their presence. The target population comprised small enterprises in the Ntuzuma Township of the KwaZulu-Natal province, focusing specifically on retailing businesses, particularly tuck shops. According to SEDA's 2023 report, there were a total of 753 registered small enterprises operating in Ntuzuma Township. Ntuzuma Township was selected as the study location due to the lack of prior research in this area. Probability sampling was employed to ensure each respondent had an equal chance of selection, without bias toward specific groups. The sample size was determined using the Cochran method:

$$\text{The sample size equals} = \frac{Z^2 \cdot p \cdot q}{E^2}. \quad (1)$$

The sample size of 384 was determined using a modified version:

$$\text{Modified sample method} = \frac{S}{1 + \left(\frac{S-1}{N}\right) \cdot Z^2}. \quad (2)$$

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The Cochran formula, specifically designed for determining sample size in small populations, was utilized in this study resulting in the sample size of:

$$254 = \frac{384.16}{1+\left(\frac{384.16-1}{753}\right)\cdot(1.96)^2}. \quad (3)$$

A pilot study involving 13 managers who were not part of the main study was conducted to assess the readability, comprehensibility, and completion time of the questionnaire. Hard copies of the questionnaires were hand-delivered to the pilot managers. Out of the 254 questionnaires dispatched for the main study, only 75% (191) were successfully returned by managers. However, 11 of them were incomplete and were excluded from the main study analysis. The remaining 180 questionnaires were deemed suitable for analysis, resulting in a final response rate of 71% for the study.

Table 2. Research variables

Variables	Measurement
Strategic management accounting practices	
Financial factors	
Dependent variables	
Cash flows (CFLow)	Questionnaire statement
Return on investment (ROI)	Questionnaire statement
Variance analysis (V/Analysis)	Questionnaire statement
Non-Financial factors	
Customers' complaints and satisfaction (CComplain)	Questionnaire statement
Number of returned products (NRP)	Questionnaire statement
Independent variables	
Assist with control costs (AwCCs)	Questionnaire statement
Assists in choosing the best investment opportunities (AssCio)	Questionnaire statement
Yield an advantage over competitors (Competitive)	Questionnaire statement
For problem identification (ProbIdent)	Questionnaire statement
Helps in financial reporting (HFinRep)	Questionnaire statement
Development of business strategy (DevBusStrat)	Questionnaire statement

The data were analyzed using Stata, and to test the hypotheses, a panel econometric model was used (Cherkassky & Ma, 2002). A panel dataset is defined as a cross-sectional time-series dataset, it provides repeated measurements of specific variables over a period of time across observed units (Eom et al., 2008). Essentially, panel models can be divided into two categories: the static panel model and the dynamic panel model, as outlined by Bai (2009). This study used the following static panel model:

$$Y_{it} = X_{it}\beta + \pi_i + \mu_{it}, \quad (4)$$

where π_i represents disturbances and μ_{it} represents time-varying idiosyncratic shock. Y_{it} is the vector of overall factor return on assets across the firms, the unobserved firms' specific effect shows that β is a vector of estimating parameter for each of the explanatory variables, while constant X_{it} is the K-dimensional row vector of explanatory variables.

2.1. The model for the study

$$CFLows_{it} = \alpha + \beta_1 AwCCs_{it}, \beta_2 AssCio_{it}, \beta_3 Competitive_{it}, \beta_4 ProbIdent_{it}, \beta_5 HFinRep_{it}, \beta_6 DevBusStrat_{it} + \pi_i + \mu_{it}, \quad (5)$$

$$ROIs_{it} = \alpha + \beta_1 AwCCs_{it}, \beta_2 AssCio_{it}, \beta_3 Competitive_{it}, \beta_4 ProbIdent_{it}, \beta_5 HFinRep_{it}, \beta_6 DevBusStrat_{it} + \pi_i + \mu_{it}, \quad (6)$$

$$V/Analysis_{it} = \alpha + \beta_1 AwCCs_{it}, \beta_2 AssCio_{it}, \beta_3 Competitive_{it}, \beta_4 ProbIdent_{it}, \beta_5 HFinRep_{it}, \beta_6 DevBusStrat_{it} + \pi_i + \mu_{it}, \quad (7)$$

$$CComplain_{it} = \alpha + \beta_1 AwCCs_{it}, \beta_2 AssCio_{it}, \beta_3 Competitive_{it}, \beta_4 ProbIdent_{it}, \beta_5 HFinRep_{it}, \beta_6 DevBusStrat_{it} + \pi_i + \mu_{it}, \quad (8)$$

$$NRP_{it} = \alpha + \beta_1 AwCCs_{it}, \beta_2 AssCio_{it}, \beta_3 Competitive_{it}, \beta_4 ProbIdent_{it}, \beta_5 HFinRep_{it}, \beta_6 DevBusStrat_{it} + \pi_i + \mu_{it}. \quad (9)$$

2.2. Inferential statistics

The study used VAR to capture the linear interdependencies among multiple time series. It is a system of equations where each variable is a function of its own lagged values and the lagged values of

all other variables in the system (Zhao, 2023). VAR model specification is:

A *VAR* model of order p(*VAR*(p)) includes p lags of each variable.

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_p Y_{t-p} + u_t, \quad (10)$$

where Y is a vector of the time series variables at time t, A_i is the coefficient matrices for each lag i, and u_t is a vector of error terms (white noise).

2.3. Statistical tests

The study used the Kao test for cointegration. The Kao test is used to determine whether there is a long-run equilibrium relationship between two or more time series variables in panel data. Cointegration suggests that despite being non-stationary individually, a linear combination of these variables is stationary (Kao, 1999).

2.4. Principal component analysis (PCA)

PCA is a statistical procedure that transforms a set of correlated variables into a set of uncorrelated variables called principal components. The goal is to reduce the dimensionality of the data while retaining as much variability as possible (Maćkiewicz & Ratajczak, 1993).

Standardization ensures that each variable contributes equally to the analysis.

$$Z_{ij} = \frac{X_{ij} - \bar{X}_j}{S_j}, \quad (11)$$

where X_{ij} is the value of variance j for observation i, $\bar{X}_j$ is the mean of variable j, and S_j is the standard deviation of variable j.

3. RESULTS

This section seeks to analyze the results regarding the determinants of adopting SMA by small enterprises in South Africa.

Table 3. Reliability test

Observations	Coefficient
Average interitem covariance	.0883252
Number of items in the scale	8
Scale reliability coefficient	0.7857

The reliability coefficient for the set of items is 0.7875. This indicates a good level of internal consistency, as values between 0.7 and 0.8 are generally considered acceptable in social science research contexts. This suggests that the items used in the survey measured the same underlying construct effectively.

3.1. SMA used by small enterprises

The respondents were asked to indicate how often they apply financial-related SMA practices, such as cash flows, return on investment (ROI), and variance analysis. Their responses are analyzed in Tables 4 to 6.

Table 4. Return on investment

ROI		
Percentiles		**Smallest**
1%	1	1
5%	1	1
10%	1	1
25%	1	1
50%	2	
Percentiles		**Largest**
75%	2	5
90%	3	5
95%	4	5
99%	5	5
Obs	180	
Sum of wgt.	180	
Mean	1.927778	
Std. dev.	0.9917568	
Variance	0.9835816	
Skewness	1.144094	
Kurtosis	4.186996	

Note: Never (1), Rarely (2) Occasionally (3), Frequently (4), Always (5).

25% of the observations have an ROI of 1 or less, while 75% have an ROI of 2 or less. The mean ROI is 1.927778, and is close to 2 with a standard deviation of 0.9917568. The mean value represents the average ROI, while the standard deviation measures the extent of variation or dispersion of ROI values from the mean. The skewness of the ROI data is 1.144094, indicating a moderate positive skew. The kurtosis is 4.186996, suggesting that the distribution has heavy tails and is more peaked than a normal distribution.

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Table 5. Cash flows

Percentiles		Smallest
1%	1	1
5%	2	1
10%	3	1
25%	3	2
50%	4	–
Percentiles		**Largest**
75%	4	5
90%	5	5
95%	5	5
99%	5	5
Obs	180	
Sum of wgt.	180	
Mean	3.616667	
Std. dev.	.8734124	
Variance	.7628492	
Skewness	–.4862273	
Kurtosis	3.224799	

Note: Never (1), Rarely (2) Occasionally (3), Frequently (4), Always (5).

25% of the observations have a cash flow of 3 or less, while 75% have a cash flow of 4 or less. The mean cash flow is 3.616667 and is close to 4 with a standard deviation of 0.8734124. This indicates the average cash flow value and the extent to which individual cash flow values deviate from the mean. Skewness is –0.4862273, indicating a slight negative skew, suggesting that the distribution is slightly left-skewed. Kurtosis is 3.224799, indicating a relatively high peakness or heavy-tailedness compared to a normal distribution.

Table 6. Variance analysis

Percentiles		Smallest
1%	1	1
5%	2	1
10%	1	1
25%	1	1
50%	2	–
Percentiles		**Largest**
75%	2	5
90%	3	5
95%	4	5
99%	5	5
Obs	180	
Sum of wgt.	180	
Mean	1.833333	
Std. dev.	.9773982	
Variance	.9553073	
Skewness	1.273973	
Kurtosis	4.290038	

Note: Never (1), Rarely (2) Occasionally (3), Frequently (4), Always (5).

25% of the observations have a V/Analysis value of 1 or less, while 75% have a V/Analysis value of 2 or less. The mean V/Analysis value is 1.833333 and is close to 2 with a standard deviation of 0.9773982. The mean represents the average V/Analysis value, while the standard deviation measures the dispersion of V/Analysis values around the mean. The skewness of the V/Analysis data is 1.273973, indicating a moderate positive skew. The kurtosis is 4.290038, suggesting that the distribution has heavy tails and is more peaked than a normal distribution.

Table 7. Summary statistics

Variable	Obs	Mean	Std. dev.	Min	Max
CComplain	180	4.177778	.9102492	1	5
NRP	180	3.616667	1.33402	1	5

Note: Never (1), Rarely (2) Occasionally (3), Frequently (4), Always (5).

Customers' complaints and satisfaction (CCmplain) range from a minimum of 1 to a maximum of 5, implying that there are occasions when customer complaints are Never received, while on other occasions, they are Always received. Similarly, the number of returned products ranges (NRP) from a minimum of 1 to a maximum of 5, also indicating that there are times when no returned products are received, while at other times, they are consistently received.

Table 8. Summary statistics

Variable	Obs	Mean	Std. dev.	Min	Max
AwCCs	180	2.816667	.4543397	1	3
AssCio	180	2.827778	.4463453	1	3
Competitive	180	2.811111	.4581831	1	3
ProbIdent	180	2.805556	.4619273	1	3
HFinRep	180	2.822222	.4503947	1	3
DevBussStrat	180	2.844444	.4204576	1	3

Note: Disagree (1), Don't know (2), Agree (3).

The respondents were asked to indicate what factors influenced their decision to adopt strategic management accounting. Their responses averaged close to 3 on a scale where 3 represents agreement. This suggests that respondents agree that strategic management accounting helps with controlling costs (AwCCs), selecting the best investment opportunities (AssCio), identifying problems (ProbIdent), facilitating financial reporting (HFinRep), and supporting the development of

business strategy (DevBusStrat). The standard deviations for these variables are approximately 0.45, indicating moderate variability around the mean and suggesting a consistent level of agreement among the respondents.

3.2. Correlations results

This section presents a matrix of correlation coefficients to reveal the presence and direction of associations between macroeconomic factors and financial stability measured by ROA. Correlation analysis illustrates the extent and direction of linear relationships between pairs of variables. The variables under consideration include ROA against GDP, CPI, IR, and ER as shown in Table 9.

Table 9. Correlation tests

Variable	CFlow	ROI	Vanalysis	CCompIn	NRP
AwCCs	0.1035	−0.0295	−0.0692	0.1468	0.1507
	0.1669	0.6938	0.3560	0.0493	0.0435
AssCio	0.2023	−0.0787	−0.0277	0.1445	0.1324
	0.0065	0.2934	0.7116	0.0529	0.0763
Competitive	0.2369	−0.0794	−0.0457	0.0542	0.1825
	0.0014	0.2896	0.5420	0.4701	0.0142
ProbIdent	0.1050	−0.0552	−0.0103	0.0561	0.1322
	0.1607	0.4616	0.8907	0.4545	0.0769
HFinRep	0.1524	−0.0414	−0.0042	0.0503	0.1742
	0.0411	0.5810	0.9551	0.5028	0.0194
DevBusStrat	0.1866	−0.0137	−0.0498	0.0289	0.0923
	0.0121	0.8552	0.5064	0.7005	0.2178

Table 9 shows that the correlation analysis indicates that the adoption of customer complaint assessment (CCompIn) and the evaluation of the number of returned products (NRP) demonstrate a positive relationship with assisting in controlling costs (AwCCs), with significance levels of 0.0493 and 0.0435, respectively. Furthermore, it is noteworthy that NRP shows a significant and positive association with enhancing company competitiveness and improving financial reporting (HFinRep), with significance levels of 0.0142 and 0.0194, respectively. Adopting cash flow analysis (CFlow) methodology demonstrates a positive and noteworthy impact on various facets of company operations. Specifically, it significantly contributes to enhancing competitiveness, identifying optimal investment opportunities (AssCio), refining financial reporting (HFinRep), and crafting effective business strategies (DevBusStrat) with significance levels of 0.0065, 0.0014, 0.0411, and 0.0121, respectively.

H0: No cointegration.

Ha: All panels are cointegrated.

The results indicate that most variables have p-values of 0.0000 for various versions of the Dickey-Fuller tests; Dickey-Fuller t, Unadjusted modified Dickey-Fuller t, Unadjusted Dickey-Fuller t. Given these results, they suggest strong evidence against the presence of a unit root in the variables. In other words, the data appear to be stationary. A stationary time series has properties that are constant over time, such as mean and variance, making it suitable for many statistical modeling techniques. Stationary data are often a prerequisite for time series forecasting models like ARIMA (AutoRegressive Integrated Moving Average).

By concluding that the data are stationary, the study confidently proceeded with further time series analysis and modeling using the principal component analysis (PCA), which is suitable for addressing multicollinearity in a dataset.

The overall mass, or variance explained by the principal component, across the variables in Table 9 is approximately 0.005. This low value signifies that these variables may not be the dominant or primary factors explaining the observed variability in the data. However, the

Table 10. Kao test for cointegration

Model	CFLow p-value	ROI p-value	V/Analysis p-value	CComplain p-value	NRP p-value
Modified Dickey-Fuller t	0.0000	0.2301	0.0000	0.0000	0.0348
Dickey-Fuller t	0.0000	0.0018	0.0000	–	0.0000
Augmented Dickey-Fuller t	0.0000	0.2555	0.0004	–	0.0959
Unadjusted modified Dickey-Fuller t	0.0000	0.0000	0.0000	0.0000	0.0000
Unadjusted Dickey-Fuller t	0.0000	0.0000	0.0000	0.0000	0.0000

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Table 11. Principal component analysis (PCA)

Categories		Overall			Dimesion_1			Dimension_2		
		Mass	Quality	%inert	Coord	Sqcorr	Contrib	Coord	Sqcorr	Contrib
AwCCs	1	0.005	0.982	0.110	6.034	0.963	0.169	1.116	0.019	0.006
	2	0.021	1.034	0.036	0.080	0.002	0.000	–2.222	1.032	0.105
	3	0.141	1.031	0.008	–0.211	0.479	0.006	0.299	0.552	0.013
AssCio	1	0.005	0.979	0.111	6.074	0.966	0.171	0.927	0.013	0.004
	2	0.019	1.004	0.046	0.202	0.011	0.001	–2.572	0.993	0.129
	3	0.143	1.001	0.010	–0.225	0.463	0.007	0.321	0.538	0.015
Competitive	1	0.005	0.982	0.110	6.035	0.963	0.169	1.112	0.019	0.006
	2	0.022	0.993	0.052	0.199	0.011	0.001	–2.536	0.982	0.143
	3	0.140	0.998	0.011	–0.231	0.411	0.007	0.366	0.587	0.019
ProbIden	1	0.005	0.979	0.112	6.114	0.974	0.173	0.588	0.005	0.002
	2	0.023	0.961	0.057	0.202	0.010	0.001	–2.565	0.951	0.152
	3	0.139	0.960	0.014	–0.238	0.358	0.008	0.408	0.602	0.023
HFinRep	1	0.005	1.031	0.075	5.066	0.997	0.119	1.233	0.034	0.007
	2	0.020	0.942	0.069	0.605	0.068	0.007	–2.871	0.874	0.168
	3	0.142	0.961	0.013	–0.25	0.429	0.009	0.373	0.532	0.020
DevBusStrat	1	0.004	1.011	0.090	6.149	0.975	0.149	1.566	0.036	0.009
	2	0.019	0.953	0.065	0.512	0.47	0.005	–2.978	0.906	0.164

quality of representation, indicated by the eigenvalue associated with the principal component, is close to 1. This suggests high quality and implies that the principal component effectively captures the underlying structure in the data.

%inert indicates how much the principal component (PC) accounts for in the total variance in the data, with AwCCS, AssCio, Competitive, and ProbIdent showing the highest contribution at approximately 11%. The first dimension displays values of close to 6.000, indicating a strong positive association with the variables analyzed. This is supported by sqcorr values of approximately 0.960, suggesting a high degree of correlation and indicating that the variables are well represented by this dimension. Contrib has a value near to 0.160, meaning that Dimension 1 contributes approximately 16% to the total explained variances.

The findings show that the ROI and V/Analysis as SMA practices are not determined by control variables for the adoption of SMA.

Table 12 confirmed the hypotheses of the study.

Table 12. Vector autoregression (Var) tests

Variable		Coefficient	St. err.	t	P > t	[95% conf.	Interval
AwCCs	CFLow	.2457829	.0519309	4.73	0.000	.1432913	.3482744
	ROI	.0539834	.069831	0.77	0.441	–.0838359	.1918027
	VAnalysis	.0521436	.0723466	0.72	0.472	–.0906405	.1949277
	CCompain	.3305232	.0430917	7.67	0.000	.2454769	.4155694
	NRP	.0779705	.0374822	2.08	0.039	.0039952	.1519459
AssCio	CFLow	.2925636	.0500094	5.85	0.000	.1938644	.3912627
	ROI	–.0345416	.0672471	–0.51	0.608	–.1672613	.0981781
	VAnalysis	.1174303	.0696696	1.69	0.094	–.0200705	.2549311
	CCompain	.3234285	.0414972	7.79	0.000	.2415292	.4053278
	NRP	.0573264	.0360953	1.59	0.114	–.0139117	.1285645

Table 12 (cont.). Vector autoregression (Var) tests

Variable		Coefficient	St. err.	t	P > t	[95% conf.	Interval
Competitive	CFLow	.3260069	.0512781	6.36	0.000	.2248038	.42721
	ROI	–.0087198	.0689531	–0.13	0.900	–.1448065	.127367
	VAnalysis	.0857826	.0714371	1.20	0.231	–.0552066	.2267717
	CCompain	.2663747	.0425499	6.26	0.000	.1823976	.3503518
	NRP	.0868612	.037011	2.35	0.020	.0138158	.1599066
ProbIdent	CFLow	.2561909	.053772	4.76	0.000	.1500657	.3623161
	ROI	–.017735	.0723067	–0.18	0.860	–.1554789	.1299319
	VAnalysis	.1335726	.0749115	1.78	0.076	–.0142736	.2814188
	CCompain	.3062041	.0446194	6.86	0.000	.2181427	.3942654
	NRP	.0859759	.0388111	2.22	0.028	.0093779	.1625739
HFinRep	CFLow	.2726901	.0522955	5.21	5.21	.1694792	.3759011
	ROI	.0005813	.0703212	0.01	0.01	–.1382054	.139368
	VAnalysis	.1203676	.0728544	1.65	1.65	–.0234187	.264154
	CCompain	.2852258	.0433941	6.57	6.57	.1995826	.370869
	NRP	.0982655	.0377453	2.60	2.60	.0237708	.1727601
DevBusStrat	CfFLow	.3193572	.0514197	6.21	0.000	.2178746	.4208398
	ROI	.064301	.0691435	0.93	0.354	–.0721616	.2007636
	VAnalysi	.0380711	.0716344	0.53	0.596	–.1033074	.1794496
	CCompain	.2874392	.0426675	6.74	0.000	.2032302	.3716482
	NRP	.0622209	.0371132	1.68	0.095	–.0110262	.135468

H1: CFLows as an SMA practice demonstrates a positive and significant relationship with AwCCs, AssCio, Competitive, ProbIdent, HFinRep, and DevBusStrat, all at a significance level of 0.000, well below the conventional threshold of 0.05. These results substantiate the hypothesis that the adoption of SMA depends on its capability to effectively manage cash, thereby confirming the hypothesis.

H2: VAnalysis has not shown a significant relationship with assisting with control costs, Assists in choosing the best investment opportunities, Yield an advantage over competitors, For problem identification, Helps in financial reporting, and Development of business strategy.

H3: There is a positive and significant relationship between the return on investment management as an SMA practice and helping in financial reporting.

H4: CComplain as an SMA practice is also positively and significantly related to AwCCs, AssCio, Competitive, ProbIdent, HFinRep, and DevBusStrat, all at a significance level of 0.000, which is well below the conventional threshold of 0.05. These results validate the hypothesis that the adoption of SMA is influenced by its effectiveness in handling customer complaints, thus confirming the hypothesis.

H5: NRP shows a positive and significant association with AwCC at a significance level of 0.039, Competitive at 0.020, ProbIdent at 0.028, and HFinRep at 0.010. These findings provide evidence supporting the hypothesis that NRP, as an SMA practice, is influenced by these control variables.

4. DISCUSSIONS

The robust coefficient tests for CFlow and AwCCs reveal a significant relationship at 0.0000. The results align with some authors' findings (Alsharari, 2024; Cinquini & Tenucci, 2010) that SMA practices address costing issues leading to improved business performance. This suggests that an SMA practice to assist with control costs serves as a determining factor for

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small businesses to adopt strategic management accounting tools such as CFlow, CompIn, and NRP. AssCio demonstrates a significant association with CFlow and complaint techniques at levels of 0.0000 and 0.0000, respectively. The results are in line with authors (El-Baz et al., 2013; Aduvaga, 2020) who state that the SMA techniques are useful in tackling the investment decisions. This indicates that the adoption of cash flow as an SMA practice and having a strategy for handling customers' complaints, and its ability to help select the best investment opportunities are significantly related. Competitive demonstrates a positive correlation with CFlow and NRP at levels of 0.0000 and 0.0020, respectively. These results confirm the findings of Alsharari (2024) and Cinquini and Tenucci (2010), who implicitly argue that remaining competitive in the marketplace requires a strategic approach, leading to improved performance both financially and otherwise. These findings indicate that the greater the integration of SMA techniques, such as cash flow analysis and implementing measures to mitigate product returns, the greater the competitive advantage. Therefore, such practices are more likely to be embraced within the business.

Problem identification is associated with CFlow, Complain, and NRP, with significance levels of 0.0000, 0.0000, and 0.0028, respectively. This suggests that adopting CFlow, Complain, and NRP as strategic management accounting tools is acceptable, provided they assist in identifying financial areas of concern that require improvement. Improving financial reporting is associated with CFlow, Complain, and NRP, with significance levels of 0.0000, 0.0000, and 0.0010, respectively. The findings align with Alsharari (2024), indicating that SMA practices, such as enhancing financial reporting, help improve a company's cash flows and customer service. This implies that the adoption of CFlow, Complain, and NRP can be justified, provided they contribute to enhancing financial reporting by providing value-adding information. Developing business strategy is associated with CFlow and Complain at levels of 0.0000 and 0.0000, respectively. These findings align with Nik Abdullah et al. (2020), who state that SMA encompasses a range of techniques and approaches to formulate effective business strategies. This implies that the adoption of CFlow and Complain hinges on their ability to support the development of a business strategy.

CONCLUSION

This study aimed to investigate the factors influencing the adoption of SMA by small enterprises in South Africa, using KwaZulu-Natal as a case study. A quantitative research design utilizing a questionnaire was administered to SEs owners. The findings have shown that adopting SMA is driven by the belief that it enhances both financial elements, such as cash flows, return on investment, and variance analysis, as well as non-financial elements, like customer service. These findings show the crucial role of SMA for small enterprises in South Africa, emphasizing its importance for their success and sustainability. These results emphasize the strategic value of integrating SMA into SEs operations to achieve competitive advantage and overall business success in the KwaZulu-Natal. The findings also align with the contingency theory used in the study, which suggests that the successful adoption of SMA is contingent upon the specific contextual factors within the small enterprises from KwaZulu-Natal Province. The positive impact on both financial aspects and non-financial aspects highlights the importance of tailoring SMA practices to fit the unique environment and strategic needs of the enterprise. This alignment with contingency theory highlights that there is no one-size-fits-all approach; instead, the effectiveness of SMA depends on how well it is integrated and adapted to the particular circumstances and challenges the business faces.

The study recommends that SEs offer training programs and workshops that indicate the financial and non-financial benefits of SMA. This can help managers understand the value of SMA in improving the management of cash flows, applying strategies on return on investment when making investment decisions, improve variance analysis, and customer services. SEs should develop tailored SMA implementation plans to create strategies that align with their unique business contexts and strategic goals.

It is important to provide frameworks that allow for flexibility and adapting SMA practices to diverse business environments, acknowledging that a one-size-fits-all approach is ineffective. SEs are also encouraged to adopt cost-effective and user-friendly SMA software solutions to manage and analyze their financial and non-financial data efficiently. Using Excel as an initial tool can be beneficial in this regard. Additionally, universities and colleges are crucial in training SEs in technology use, ensuring they can effectively leverage technological tools. Furthermore, government incentives, grants, and subsidies can assist SEs in covering the initial costs of implementing SMA systems. It is also recommended that SEs establish clear performance metrics to monitor the impact of SMA on both financial and non-financial aspects of their business and ensure that SMA practices are integrated into the overall strategic planning and decision-making processes of the enterprise. This alignment will help in leveraging SMA to achieve competitive advantage and long-term sustainability.

AUTHOR CONTRIBUTIONS

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