

## Effect of foreign exchange transaction risk management on financial performance of dominant flower firms in Timau Meru County, Kenya

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### Abstract

Kenya's flower industry is a vital sector that contributes significantly to the nation's income generation through exports, but it has faced a gradual decline over the past five years, affecting its performance. Previous studies examining the impact of managing foreign exchange risk on company performance have identified several gaps that need to be addressed. Therefore, this current study aims to assess how the management of foreign exchange transaction risk affects the financial performance of dominant flower firms in Timau Meru County, Kenya. The research was guided by the Theory of Rational Expectations. The investigation sought to achieve its aims by utilizing an explanatory research approach, focusing on the leading flower enterprises in Timau for a duration of three years (2020 – 2022). Primary data was gathered through surveys comprising both open and closed-ended questions, while secondary data was collected via structured tables. The study targeted 158 managers from five well-known firms: P.J Dave Rising Sun Timau Farm, Batian Flowers, Upendo Flowers, Tambuzi, and Uhuru Flowers. This management group consisted of accountants, export managers, and operational managers, all of whom play a crucial role in the creation, selling, and exporting of their flower products. Given the relatively compact size of the study group, a complete census of all 158 participants was conducted. Upon data collection, SPSS software version 27 facilitated the extraction of descriptive statistics and the execution of multiple linear regression analyses to assess the research hypotheses. Descriptive statistics were used to calculate mean values and standard deviations, and multiple linear regression analysis was employed for hypothesis testing. Subsequently, the findings were compiled into summaries, reports, and frequency distribution tables. The analysis of multiple regression indicated that the R<sup>2</sup> value stood at 0.727, suggesting that the variables related to managing risks from foreign exchange accounted for 72.7% of the changes in the financial outcomes of the floriculture businesses in Timau Meru county. The research further indicated that effective handling of transaction risk associated with foreign currency significantly impacted the financial results of these businesses in Timau Meru County.

**Keywords;** Foreign exchange; Risk management; Financial performance

### 1. Introduction

The principal objective of corporate governance is to enhance the wealth of stakeholders, which is conventionally denoted in fiscal terms (Ahmad & Hussanie, 2018). Businesses use financial performance as a barometer to gauge how effectively they are harnessing their resources to yield revenue in their day-to-day operations (Mangesti, 2019). As a result, leaders must quantify their initiatives and practices in fiscal terms to evaluate if they have the potential to meet their liabilities. While conducting business, firms often encounter uncertainties that may disrupt operations and lead to a deterioration in financial performance (Grellmann et al., 2022). These uncertainties often culminate in risks that, if left unidentified, assessed, and managed, could potentially trigger financial setbacks (Reason, 2016).

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The Kenyan economy relies heavily on agriculture as its primary propeller. This sector stimulates economic expansion and progression through its contribution to the Gross Domestic Product (GDP). A 2019 report by the Food and Agriculture Organization stated that agriculture directly accounted for approximately 26% of Kenya's GDP, with an indirect contribution of 27% through the reciprocal ties with other economic sectors such as the service industry.

The agricultural industry, which includes horticulture as one of its six sectors, contributes significantly to economic growth and poverty alleviation. This is achieved through foreign exchange earnings, job creation, and roughly 60% of total export earnings (Food and Agriculture Organization, 2019). The Kenya Flower Council (2017) ranks it as the third most significant foreign exchange earner after tea and tourism. Hence, it is crucial to evaluate the performance of the horticulture sector in Kenya.

In Kenya, the horticulture industry predominantly consists of the production of fruits, vegetables, and cut flowers. These exports contribute roughly 1.44% to Kenya's overall GDP (FAO, 2019). Among these, cut flower exports account for about 1% of the GDP (Kenya Flower Council, 2019). According to the Horticultural Crops Directorate Authority (2018), the Kenyan flower industry has seen substantial growth over the past twenty years. The country maintains a leading stance in exporting flowers to the European Union (EU), securing a market share of about 38%. Roughly half of Kenyan cut flower exports are transacted through Dutch Auctions, with the rest secured through direct sales (Kenya Flower Council, 2019).

In 2022, the export of Kenyan horticulture saw a 10% increase, reaching 166.76 billion shillings (approximately 1.23 billion USD) compared to 1.1 billion dollars in 2021. The export volume of flowers escalated by 21.5 percent, from 129,052.2 metric tonnes in 2021 to 159,466 metric tonnes in 2022. The overall value of the horticulture industry witnessed a surge of 9.7 percent, reaching Ksh.120, 820.17 million in 2022 from Ksh.103, 538.9 million in 2021 (Horticultural crops directorate, 2023). But the falling shilling has had a negative effect on the profitability of horticultural businesses, as seen by the decline in export value relative to volume. If the local currency had been more robust or reliable, they would have received more money. Export sectors are integral to a nation's growth due to the influx of foreign currency they facilitate (Greve & Were, 2019). This is evidently clear in Kenya's cut flower sub-sector, a significant source of foreign cash.

According to the Central Bank of Kenya's annual report for 2022, horticulture is the third-most lucrative agricultural sub-sector in Kenya after tourism and tea in terms of foreign currency profits. Risks that might cause changes in currency and income must be managed because of the sector's importance to the Kenyan economy. When a payment is made in a currency other than the organization's base currency, the risk of loss due to fluctuations in exchange rates is known as "foreign exchange risk." As of April 2024, Kenya has over 123 flower firms with a range of flowers that serve the local and international market as of Kenya flower Council (KFC). KFC was formed in 1996 by Kenyan growers and exporters of cut-flowers, Kenya Flower Council is a business membership organization that advocates for interests and represents 80% of the flower industry in Kenya. The role of KFC is offer advocacy and partnerships, compliance, data management, trade facilitation, innovation for sustainability and promoting Kenya flower brand (KFC, 2024).

According to the definition provided by Parlak and Ihan (2016), foreign exchange rate risk is the financial hazard that results from unforeseen movements in the exchange values of different currencies. According to Brealey et al., (2011), the exchange rate of a currency is one of the most important factors in determining how an economy strikes a balance between the production and spending of local and foreign goods. The volatility of foreign exchange rates notably influences the short-term performance of organizations with international interests, and also bears significant impact on long-term corporate strategies, such as decisions regarding manufacturing sites (Takatoshi et al., 2013).

The concept of foreign exchange risk management pertains to the deployment of specific tactics to minimize potential financial losses that might stem from conducting monetary transactions in a currency other than the company's native currency (Hernawaty et al., 2020). To manage risk and exposure in foreign currency transactions, businesses leverage both financial and operational strategies. The degree to which currency fluctuations affect a multinational company involved in foreign-currency operations is contingent upon the varieties and extents of risks the company confronts (Choi et al., 2021). Historically, diversification of operations and usage of forward contracts have been the standard methods for managing foreign exchange risk. Multinational corporations have adopted futures contracts, options, and other risk management strategies, nevertheless, as a result of the expansion of exchange markets (OECD, 2019). Transaction risk, economic risk, and translation risk are three major categories into which these hazards might be placed.

Gupta (2016) suggests that transaction risk is centered around the potential influence on cash flows due to variations in currency exchange rates. This risk is specifically tied to the susceptibility of transactional accounts like import

contracts (payables) and export contracts (receivables) to currency shifts. Any variation in the foreign currency tied to a financial agreement directly exposes the company to transaction exchange rate risk (Ogunranti et al., 2021). To manage concerns related to foreign currency, the floriculture sector employs various techniques to handle transaction risk, including futures contracts and forward contracts. The application of these contracts aids in efficiently managing foreign transaction risk. Futures contracts, as defined by Islam and Chakraborti (2015), are legal agreements between two parties, obligating them to buy or sell a predetermined quantity of a foreign currency or financial instrument at a specific price at a future date. These financial futures are binding contracts that fix the exchange rate and amount for both the buyer and seller, leaving no room for backing out (Gregory, 2020).

Upon entering a futures contract, a firm is required to make an upfront payment, often referred to as a margin, to the futures exchange's clearinghouse. Typically, this margin represents one to three percent of the contract's overall value (David & Adekunle, 2020).

Given the potential for fluctuations in currency exchange rates and interest rates encapsulated in futures contracts, the company's margin account is regularly adjusted. Credits or debits are applied based on whether the contract's terms favor the firm. This variability reflects the inherent risk associated with futures contracts, particularly those involving foreign currency transactions (Gregory, 2020).

Conversely, Kadioglu et al. (2016) define a forward contract as an agreement to exchange one asset for another at a predetermined future date and price. It's essentially a contract made in the present for the future delivery of a resource at a set price. No money is exchanged until the contract's maturity date. A futures contract, a specific type of agreement, includes predetermined delivery dates and quantities and facilitates exchange trading (Majeed, & Zainab, 2021). Forward contracts can be classified into two types: Forward Exchange Contracts (FECs) and Forward Rate Agreements (FRAs). FECs enable businesses to fix the future exchange rate to be used for an upcoming purchase of a specific amount of foreign currency. These contracts are typically established through commercial banks and are legally non-transferable agreements. FRAs, on the other hand, allow firms to secure a specific deposit rate or borrowing rate in the future for a set period, based on a notional principal amount (Mimmakka, 2018).

Economic risk refers to the possibility that fluctuations in exchange rates could decrease the future operational cash flows of a company. This risk primarily affects the present value of cash flows for both overseas subsidiaries and the parent company, potentially having a negative impact on their financial outlook (Tiwary, 2019). Cut flower firms also employ economic risk management techniques to mitigate the effects of foreign exchange fluctuations. These techniques include diversifying their operations and carefully selecting plant locations to improve their overall financial performance (Kuiper & Gemählich, 2017).

One way to mitigate the impact of currency rate risk on a business's cash flows is to diversify its operations in a way that neutralizes the exposure to exchange rate fluctuations when considering the organization as a whole. For example, integrating manufacturing and exporting with an import operation that procures competitive consumer products from overseas manufacturers can serve as a natural operational hedge. This approach helps to ensure that cash flows remain stable even when faced with actual changes in exchange rates. While this strategy offers several advantages, it also comes with a few disadvantages. Firstly, diversification may lead the firm to enter into areas where it lacks a competitive advantage, resulting in the wastage of resources. Additionally, adopting this strategy may cause an organization to treat different operations as complementary without thoroughly analyzing the economic viability of each operation individually, potentially leading to long-term losses and increased risks (Carpenter & Dunung, 2012).

An apparent strategy for taking advantage of relative cost changes caused by actual currency fluctuations is to have production expenses denominated in multiple currencies and to establish manufacturing capacity in different countries. The straightforward approach is to relocate manufacturing to a market where competitors are located. This way, any cost advantage gained from exchange rate fluctuations benefits the firm as well. Alternatively, establishing a plant in a country that offers an abundance of certain factors of production, such as raw materials and labor, can provide access to those resources with reduced exchange rate risk. However, it is crucial to consider the relationship between the exchange rate of that country and those of competing countries to determine the effectiveness of such a move as a hedge (Iheanachor, & Ozegbe, 2021). The primary advantage of having foreign plant locations in terms of risk management lies in the company's flexibility to shift production across facilities in response to actual changes in exchange rates. This enables a corporation with international factories to operate at maximum capacity in low-cost locations while meeting growing demand in gradually higher-cost places. Such an approach is often employed for managing operational exposure over the long term, considering that establishing plants takes several years to complete (Mandigma, 2021).

Currency translation involves converting the functional currency used in the annual financial reports of a foreign entity into the currency used in the financial statements of the reporting business. Businesses face translation or consolidation risk when their liabilities and assets are denominated in foreign currencies (Savić et al., 2019). When combining the accounts of a foreign subsidiary into group accounts, the accounts are adjusted using a foreign exchange rate. According to Gray (2017) there are various types of translation rates, including non-monetary/monetary, non-current/current, closing or current rate, and temporal rates. Under the temporal approach, inventory is usually translated at a historical rate, but it can be converted at replacement costs or the current rate if recorded at market rates. Financial liabilities and assets are generally translated using current exchange rates, while owners' equity, non-financial liabilities, and non-financial assets are translated using historical exchange rates (Gray, 2017). The choice of translation technique depends on the functional currency of the subsidiary and the items in the financial statement being translated. Exchange rates are used at the balance sheet date to convert monetary assets and liabilities, and the gains and losses from foreign currency translation are included in net profits. The current rate technique converts all liabilities and assets at the current rate, while the historical exchange rate method is used to convert existing equity accounts, resulting in potential translation risk due to currency rate fluctuations (Ahmed, 2015). To mitigate this volatility, gains and losses from translation are not reported in the consolidated net income account but recorded in a reserve account, stabilizing consolidated incomes. This also helps stakeholders analyze the business, as the effects of currency translation are excluded from consolidated earnings accounting. In the balance sheet, the cumulative translation adjustment (CTA), representing the gain or loss from currency translation, is recorded as an unrealized gain or loss using the current rate method (Perez & Howell, 2019).

Exports play a crucial role in the economic advancement and progress of a nation, primarily driven by production, economies of scale resulting from international markets, and job creation, especially in developing countries. Kenya has experienced significant growth in the global flower industry over the past decade. Its presence in export markets has consistently expanded, with a 38% market share in the European Union (EU) market, making it one of the leading exporters (Horticultural Crops Directorate, 2018). According to Hale and Opande (2005), the majority of cut flowers exported to the EU are typically auctioned or sold to wholesalers, with the Netherlands serving as the primary market for flowers. However, Kenya's position as a major flower producer worldwide has been subject to fluctuations due to changing and unpredictable climatic conditions.

Kenya boasts a rich and diverse floral industry, cultivating a variety of cut flowers such as gypsophila, alstroemeria, eryngiums, hypericum, statice, lilies, and roses. As per the data from the Horticultural crop's directorate, it stands as the third-largest producer and exporter of flowers globally, falling behind the Netherlands and Ecuador but leading ahead of Ethiopia, Tanzania, Uganda, Zimbabwe, and Rwanda. Its floral exports have reached numerous corners of the globe, predominantly making their way to the European Union, Australia, Japan, the United Kingdom, and the Middle East. In total, Kenyan flowers are exported to 60 different countries (Kenya Flower Council [KFC], 2018).

The Kenya National Bureau of Statistics (2017) reports that there was a significant growth in horticultural export volumes by nearly 23%, amounting to 323,800 tonnes in the year 2017. The earnings from these exports experienced a jump, reaching Sh.84.1 billion (\$925.1m), which is approximately Sh.700 million (\$7.7m) more than the earnings in 2016. This increase was largely fueled by a 12.5% surge in revenues from fruit exports, which amounted to Sh.5.4 billion (\$59.4m). The return on capital employed (ROCE) for the sector was observed to be 21.6% (Gregory, 2020).

Despite the substantial growth in 2017, the horticulture sector experienced a decline in export revenues by 11.6% year-on-year during 2018 and 2019. Earnings from vegetable exports also saw a dip of nearly 8% to Sh.18.8 billion (\$206.8m) in 2019, despite an increase in the volume of exports (David & Adekunle, 2020). This downtrend also resulted in a reduction in the ROCE to 19.6% in 2018 and 19.2% in 2019. This points to the fact that the increase in export volumes does not directly correlate with export values, thus impacting the overall revenue and profitability of the sector. Over the mentioned period, the sector has seen a reducing trend in ROCE (Mimmakka, 2018).

Despite the industry's consistent efforts to improve quality control, it still faces significant challenges due to currency volatility, as pointed out by the Oxford Business Group (2016). This fluctuation in currency exchange rates affects the stability of the sector, causing a continuous change in the value of export revenues and profitability, thereby directly influencing the industry's financial performance.

On the northern slopes of Mount Kenya is Timau in Meru County, is where the dominant flower firms are found in the region. Timau situated at an elevation of 2,600 meters above sea level. Their rose collection encompasses a special selection of fragrant varieties. In terms of sales, flower firms in Timau distribute their products both through the Dutch Flower Auctions and directly to customers such as supermarkets and wholesalers. The primary markets for the

company are found in the EU (including Sweden, the UK, the Netherlands, Germany, France, and Italy), the USA, Dubai, Australia, Russia, and Ukraine.

Over time, as flower firms in Timau have expanded, its workforce has become more diverse. The firms acknowledge the value of this diverse workforce in unlocking its full potential. By incorporating individuals from various backgrounds, the firms has broadened its knowledge base, skills, and cross-cultural understanding. Consequently, the firms have developed the ability to comprehend, connect with, and cater to the diverse and evolving customer base worldwide. The exceptional performance of this diverse and accomplished workforce has consistently upheld the firm's reputation. This drive for innovation and excellence has resulted in flower firms in Timau being recognized as being the leading flower firms' exporters in Kenya (Beutler, 2020).

Samuel (2022) highlighted the profound implications of foreign exchange rate fluctuations on international trade, focusing on the situation in Ghana. His study underscores that for countries heavily dependent on foreign currency exports, unexpected changes in cash flow due to exchange rate variations can adversely impact the profitability and production of their exported goods. For nations like Kenya, which heavily rely on exporting agricultural products like horticulture, tea, and coffee, these exchange rate variations can be particularly worrisome. Given this reliance, Kenya's export earnings are directly exposed to the volatility of exchange rates, making the country highly susceptible to such external shocks (Olasehinde&Olanipekun, 2022).

Moreover, a multitude of external factors can influence an exporting firm's financial performance. These factors can include the government's foreign exchange policies, international competition, and the broader political environment. All these aspects can substantially impact the profitability and financial viability of a company involved in international trade (Chen et al, 2021).

Consequently, businesses with global operations have always found the volatility of foreign exchange rates to be a significant concern. This is primarily because such fluctuations can directly affect future cash flows and, subsequently, the overall valuation of these businesses. With the constant risk of exchange rate fluctuation, these businesses must grapple with an additional layer of financial uncertainty and risk in their operations. Hence, the importance of effective foreign exchange risk management strategies cannot be overstated in the context of global business operations.

The cut flower industry in Kenya has displayed a consistent vitality over the past two decades, significantly contributing to the country's economy. It has led to job creation, poverty reduction, and increased foreign exchange earnings, among other advantages. Presently, Kenya holds a dominant position in exporting flowers to the European Union. A significant majority, over 90%, of the flowers produced in Kenya find their way to EU markets, while the remainder is distributed within domestic and regional markets. Properly structured and managed, this industry could be a major contributor to Kenya's economic growth (Geda&Kebret, 2007).

However, the steady decline in the financial performance of flower firms can be attributed to numerous factors, notably foreign exchange rate fluctuations (Chirchir et al., 2015). Ahmed (2015) pointed out that changes in exchange rates cause fluctuations in both the balance sheet and income statement items, thereby affecting profitability. Tyce (2020) observed a drop in the Return On Capital Employed (ROCE) from 21.6% in 2017 to 19.2% in 2019 in the horticulture sector, highlighting that the ROCE can be severely impacted by foreign currency fluctuations. These variations can give rise to several types of risk, including translation, transaction, and economic risk. Together, these risks can significantly impact the net asset value of firms, as well as their overall returns.

In a bid to boost their sales, companies have expanded to international markets, thereby exposing themselves to foreign currency transactions. Kenya's cut flower subsector, a major contributor to the country's foreign exchange earnings, is exposed to considerable risk due to the export nature of its business. Such risk could potentially undermine profitability and the deployment of capital in this sector. However, it's unfortunate that a large number of Kenyan horticulture exporters have not fully employed foreign exchange risk management methods, thereby leaving themselves exposed to potential hazards tied to foreign exchange dealings (Maina, 2015).

Foreign currency risk management has been the subject of several academic inquiries into its possible effects on bottom line growth. Numerous local studies, like those by Muiru et al. (2018), NziokaandMaseki (2017), Ogada&Achoki (2016), and Muriuki (2011), have investigated this question, although they have generally concentrated on specific industries. International studies, such as the one conducted by Ahmed et al. (2014), analyzed the effect of hedging with financial derivatives on organizational profitability and firm value. However, these studies were conducted in different economic contexts and did not exhaustively focus on the cut flower subsector. Therefore, there was a gap in the research,

motivating this study which aims to assess the impact of foreign exchange risk management on the financial performance of flower firms, located in Timau Meru County, Kenya.

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## **2. Literature Review**

### **2.1. Theoretical Literature**

Sargent (1961) introduced the concept of rational expectations and the theory of efficient financial markets. Rational expectations theory suggests that individuals in the economy base their decisions on available market information and learn from past trends. While this theory acknowledges the possibility of occasional incorrect predictions, it also recognizes that individuals can make accurate ones. Consequently, achieving consistent success in speculating on foreign currency markets is deemed implausible.

Erdoğan and Balseven (2006) argued that engaging in destabilizing speculation is impractical and only offers temporary advantages, whereas engaging in stabilizing speculation can be advantageous in achieving balanced prices and combating disruptive speculators. They predicted that exchange rates would eventually find stability and fundamental factors would take effect, aligning with the opinions of other proponents of flexible exchange rates at that time. However, this prediction ultimately turned out to be a substantial error.

According to Taylor (2011) forecasts are unbiased and rely on comprehensive information, indicating that individuals make impartial predictions. Another contentious assumption is that individuals utilize all available information and economic theory when making decisions, implying their understanding of how the economy operates and how government policies impact macroeconomic factors such as the price level, employment levels, and aggregate output (Sargent, 2013). Rational expectations further suggest that the government cannot deceive the public with consistent economic policies. Sargent (2010) argues that while the theory acknowledges that people sometimes make forecasting errors, it contends that these errors are not consistently repeated. Since people base their decisions on available information and past experiences, their choices are generally accurate. Correct decisions result in the same future expectations, while incorrect one's prompt adjustments based on past mistakes (Sargent, 2010).

Considering the extensive and dynamic nature of currency trading, which extends beyond risk-free arbitrage, it becomes evident that open foreign exchange markets can be characterized as highly inefficient markets (Pedersen, 2019). The relevance of this theory to the research lies in its ability to determine whether exchange rates in the Kenyan context can be predicted using relevant information, and how the adverse impact of speculated exchange rates can be minimized. Achieving this objective would lead to a reduction in exchange rate volatility within the economy, ultimately enhancing financial performance of the firms involved in export business such as flower firms in Timau, Meru County.

### **2.2. Foreign Exchange Transaction Risk Management and Financial Performance**

The dynamics of foreign exchange transaction risk management, as outlined by Jeevanandam (2020), encompass the identification, evaluation, and mitigation of risks connected with international business transactions executed in diverse currencies. These processes leverage several tactics and strategies by entities and individuals to shield themselves from detrimental currency exchange rate fluctuations, which can influence the value of their dealings and financial positions.

In their investigation, Ahmed et al. (2014) analyzed the influence of financial derivatives used for hedging on the performance and valuation of corporations enlisted on the London Stock Exchange. Between 2005 and 2012, they studied data from the FTSE-All share index, which included 288 non-financial companies. Utilizing regression analysis and descriptive statistics to process the gathered data, the study unveiled considerable discrepancies in risk management strategy effectiveness, which depended on the specific derivatives used for hedging and the type of financial risk involved. The investigation showed a positive and statistically significant correlation between comprehensive foreign currency risk hedging (including all derivatives) and the financial performance and valuation of the companies. However, this research was confined to managing transaction risk exposure in a distinct economic environment, neglecting translation and economic foreign currency risks (Ahmed et al., 2014).

Additionally, Parlak and Ihan (2016) investigated the scale of open foreign exchange holdings held by Turkish firms engaged in manufacturing and the provision of services. The research, which analyzed 30 companies from the third quarter of 2012 through the second quarter of 2015, found that foreign currency position duration was positively correlated with operational profit. Nevertheless, the ANOVA test demonstrated that companies with short foreign exchange positions could elevate their overall profitability to match those with long positions during periods of local currency overvaluation, but they suffered severe losses during times of local currency devaluation. The study was

centered on manufacturing and service sectors, thus failing to consider flower firms, and it presented a contextual gap, having been conducted in Turkey, whereas the present study is based in Kenya (Parlak&İlhan, 2016).

In a study by Pradita and Geraldina (2019), the potential effect of currency price-related risks on the operational outcomes of banks in Indonesia was explored. The research stretched over duration of 5 years, from 2014 to 2018, utilizing panel data analysis. The impact of transaction risk, as a measure of currency risk, was found to be significant on the financial performance of commercial banks in Indonesia, while translation risk had an insignificant effect. However, the study did not elaborate on how the banking sector manages the transaction risk and was conducted in a different sector from the current study which will be conducted in the agricultural sector focusing on cut flower firms in Kenya (Pradita&Geraldina, 2019).

An investigation by Mugi and Okiro (2021) aimed at understanding the effect of various foreign currency risk management methods on the profitability of commercial banks in Kenya. Spanning from 2009 to 2014, the study focused on the 43 commercial banks operating in Kenya, using a descriptive research methodology. The study found a strong positive correlation between the rate of return and options, displaying the strongest association (Mugi&Okiro, 2021).

Research by Muiru et al. (2018) scrutinized the financial performance of publicly traded firms on the NSE in Kenya, considering strategies to mitigate foreign currency risks. The research, however, solely focused on publicly traded firms in different sectors from the agricultural sector, which presents a contextual gap that the present study intends to cover. The study also didn't employ return on capital employed as the performance measure which the current study plans to utilize (Muiru et al. 2018).

Maitha (2020) assessed the effect of managing foreign exchange risk on the financial performance of manufacturing firms in Kenya. The research, covering the period from 2015 to 2019, focused on 85 leading manufacturing firms in Kenya. It showed a strong positive correlation between the return on assets (ROA) and the utilization of forward exchange contracts, as well as leads and lags. However, the study was based on manufacturing firms in Kenya, a context different from the cut flower farming that largely depends on the export market (Maitha, 2020). These studies demonstrate the importance and impact of foreign exchange risk management, but they also reveal the need for further research in other sectors and economic contexts.

This review of previous studies indicates the need for further research in the context of the flower farming sector, particularly given its heavy reliance on foreign exchange. This is important because the volatility of exchange rates can greatly impact the profitability of these firms, as well as the overall health of the sector and the economies that depend on it. Understanding how these firms manage foreign exchange risk and how effective these strategies are can contribute to the development of better risk management practices and policies, potentially leading to improved financial performance and economic stability.

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### **3. Materials and Methods**

#### **3.1. The materials**

For this study, an explanatory research design was utilized, as it offered a clear account of the what, when, and how of the phenomena being investigated. The goal of the explanatory research design was to identify or characterize a topic by developing a profile of individuals, events, or a collection of issues. Meanwhile, a cross-sectional study involved a single encounter (snapshot) with the units under investigation (Kumar, 2018). The rationale for adopting the explanatory research design was that it enabled the researcher to concurrently compare the relationship between study variables. Horticulture businesses were analyzed simultaneously (cross-sectional) to evaluate the management of foreign currency risk and financial performance.

This study targeted a population of 158 management staff from the five dominant flower firms namely P.J Dave Rising Sun Timau Farm, Batian Flowers, Upendo Flowers, Tambuzi and Uhuru flowers. According to the website of the Fresh Produce Exporters Association of Kenya (FPEAK), The choice of the management team was informed by the fact that they are assumed to be directly involved in the production and sales planning of their produce.

**Table 1** Target Population

No	Flower Firm	Managerial Staff (Accountants, Export managers and Operational Managers)
1	P.J Dave Rising Sun	30
2	Batian Flowers	25
3	Upendo Flowers	20
4	Tambuzi	20
5	Uhuru flowers	63
	<b>Total</b>	<b>158</b>

### 3.2. Methods

During the data analysis phase, various procedures were undertaken to prepare the collected data for examination. This involved cleaning, coding, processing, and tabulating the data. Once prepared, the data was entered into SPSS version 28 software for detailed analysis. The investigation of the data employed both inferential and descriptive statistical methods. Descriptive statistics, including frequencies, means, percentages, and standard deviations, were used to summarize and present the data in a manner that was easy to understand. This provided a comprehensive overview of the data collected.

On the other hand, based on the sample data, inferential statistics were used to make generalizations about a broader population. In order to comprehend the link between the independent and dependent variables, multiple linear regression analysis was used.

The study further conducted a series of diagnostic tests to ensure the suitability and reliability of the data. These tests, which included checks for normality, linearity, multicollinearity, and correlation, ensured that the data conformed to the necessary requirements for the applied statistical analysis.

Additionally, inferential statistics like model summary, ANOVA, and regression coefficients were utilized to ascertain the degree of influence of the independent variables on the dependent variable, to address the study's hypothesis, and to define the regression model with its respective coefficients. This comprehensive analysis approach ensured that meaningful and valid insights were drawn from the collected data. The following multiple linear regression model was adopted.;

$$Y = \beta_0 + b_1X_1 + \varepsilon$$

Where:

Y is the dependent variable financial performance through return on capital employed

X1 is management of foreign exchange transaction risk

b is the coefficient for the variable X1

$\beta_0$  is the regression constant

$\varepsilon$  is the error term

From the above regression equation, a significance value of 5 percent i.e. 0.05 was applied to assess the impact of the predictor variables on change in return on capital employed.

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## 4. Results and Discussion

### 4.1. Response Rate

The study administered questionnaires to 158 Managerial Staff who included Accountants, Export managers and Operational Managers from the selected flower firms in Timau Meru County, Kenya. The results of the research showed that a significant majority, 88.6%, of those surveyed consented to join the study, whereas a small portion, 11.4%, opted not to participate. The rate of participation was found to be sufficient for conducting the analysis. It is acknowledged that a response rate exceeding 50% is generally deemed adequate for comprehensive analysis.



#### 4.2. Transaction Risk Management

The study sought to determine the effect of foreign exchange transaction risk management on financial performance of dominant flower firms in Timau Meru County, Kenya. The participants gave their opinions regarding statements on foreign exchange transaction risk management in relation to financial performance.

**Table 2** Analysis of Transaction Risk Management

Statements	N	Min	Max	Mean	Std. Deviation
The organization engages in future contract usage	140	1.00	5.00	3.69	1.201
The organization engages in forward contract usage to manage transaction risk	140	1.00	5.00	3.54	0.925
The organization likes transacting mostly in local currency to manage transaction risk	140	1.00	5.00	3.12	1.231
The outflows in its transaction	140	1.00	5.00	2.86	1.133
Valid N (listwise)	140				

The results presented in Table 2 reveal that the surveyed individuals concur with the notion that their companies actively participate in future contracts, evidenced by an average score of 3.69 along with a standard deviation of 1.201. Additionally, there is a consensus among participants that forward contracts are utilized by firms as a tool for managing transaction risk, as reflected by an average score of 3.54 and a relatively low standard deviation of 0.925, which suggests a limited variation in responses. Conversely, the respondents expressed a neutral stance regarding the preference for conducting transactions primarily in the local currency as a risk management strategy, as well as the approach of matching foreign currency receipts with expenditures, with mean scores of 3.2 and 2.86, respectively.

These findings underscore the prevalent use of future and forward contracts among firms as strategic measures for mitigating transaction risk. This practice is indicative of companies leveraging financial instruments to safeguard against the unpredictability of financial markets. A notable observation is the level of consensus among respondents on the utilization of forward contracts, suggesting a possibly widespread acknowledgment of their benefit in transaction risk management. The utilization of future and forward contracts as risk management tools aligns with the findings by Mugi and Okiro (2021), which asserts that transaction risk management policies are essential in stabilizing financial operations amid market volatilities. This agreement between the current study findings and existing literature affirms the critical role of futures and forwards in contemporary risk management strategies within firms.

#### 4.3 Correlation Results of Study Variables

The analysis on correlation aimed to investigate the relationship between independent variable (transaction risk management) and the dependent variable (financial performance). Pearson's correlation coefficient ( $r$ ) was used to determine the direction and strength of the association. A correlation coefficient ( $r$ ) of +0.7 indicates a very strong association, +0.5 to 0.69 signifies a strong association, 0.3 to 0.49 reflects a moderate association, and less than 0.29 indicates a weak association. A correlation coefficient of 0 indicates no association. The results of the analysis are presented in Table 3 (Danacica, 2017).

**Table 3** Correlation

		Transaction risk mgt	Financial Performance
Transaction risk mgt	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	140	
Financial Performance	Pearson Correlation	0.587*	1
	Sig. (2-tailed)	0.007	

	N	140	140
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The results in Table 3 indicated a strong and positive correlation between transaction risk management and financial performance ( $r=0.587$ ,  $p=0.007$ ). The p-value of 0.007, which is less than 0.05, suggests that the relationship between transaction risk management and financial performance is statistically significant. This suggests that effective foreign exchange transaction risk management can enhance financial performance. The study's null hypothesis, which proposed that foreign exchange transaction risk management has no significant impact on the financial performance of the leading flower firms in Timau Meru County, Kenya, was rejected. The p-value being less than 0.05 confirms a significant relationship between foreign exchange transaction risk management and financial performance.

According to a study by Dae and Wamugo (2022), effective management of transaction risk, especially in foreign exchange, has been shown to positively influence the financial performance of firms. Furthermore, research by Setiawanta et al., (2020) found similar results, suggesting that companies that actively manage transaction risk tend to have better financial performance compared to those that do not. These findings align with the results presented in the study, indicating that effective foreign exchange transaction risk management can indeed enhance financial performance.

### 4.3. Regression Analysis

A multiple linear regression model was built to determine the impact of economic, translation, and foreign exchange transaction risk management on the financial performance (return on capital employed) of flower firms. The independent variables were ordinal, and the dependent variable return on capital employed was a ratio scale. A mean of each of the two indicators of the independent variables was calculated and utilized as an input in the regression to provide a single measure for each independent variable. Table 4 displays the results of the fitted model.

**Table 4** Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.884 <sup>a</sup>	0.727	0.772	0.6347

a. Predictors: (Constant), Translation Risk Management

The analysis presented in Table 4 provides a comprehensive overview of the model's performance, highlighting key metrics such as R, R-squared ( $R^2$ ), and the adjusted R-squared alongside the standard error of the estimate. The multiple correlation coefficient, denoted by R, achieved a value of 0.884, indicating a strong positive relationship between the observed variables.  $R^2$ , which quantifies the proportion of variance in the dependent variable predictable from the independent variables, was recorded at 0.727. Furthermore, the adjusted  $R^2$ , a more refined metric adjusting for the number of predictors in the model, stood at 0.772, suggesting that the model's explanatory power remains robust even after adjustment. The standard error of the estimate was found to be 0.6347, illustrating the average distance that the observed values fall from the regression line.

Notably, the adjusted  $R^2$  demonstrates the effectiveness of foreign exchange risk management strategies in accounting for approximately 72.7% of the variance in financial performance among flower businesses in TimauMeru County. This high percentage underlines the importance of managing foreign exchange transaction risk, economic risk, translation risk, and exposure net management to enhance financial outcomes. The regression analysis employs a linear approach, confirming that a substantial 77.2% of the total variation observed in the model can be attributed directly to the four outlined predictor variables, proving their significant influence on the firms' financial performance.

**Table 5** ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.508	4	0.377	62.936	.000 <sup>b</sup>
	Residual	54.378	135	0.403		
	Total	55.886	139			

a. Dependent Variable: Financial Performance; b. Predictors: (Constant), Translation Risk Management

The ANOVA Table 5 above analyzed whether the developed regression model fitted the data well, and if the predictor variables adequately forecast the financial performance among flower firms in Timau Meru County. The calculated p-

value is compared to the standard level in testing to establish the statistical significance of the model. The F-test has two numbers for its degrees of freedom and from the table,  $F(4, 135) = 62.936$  and  $p$  value  $(0.000) < 0.05$ . This revealed that the model of the predictor variables is statistically significant in predicting the financial performance among flower firms in Timau Meru County. Table 6 illustrates the regression coefficients for each variable within the model, demonstrating the effect of each predictor on the outcome variable when all other predictors remain unchanged.

**Table 6** Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.015	0.305		11.524	0.023
	Translation Risk Management	0.314	0.044	0.269	1.009	0.085

a. Dependent Variable: Financial Performance

The hypothesized model can be translated as follows:

$$\text{Financial Performance} = -1.015 + 0.314(\text{Translation Risk Mgt})$$

The framework indicates that all independent variables, recorded on identical (Likert) scales, are significantly influential to the model, with the constant showcasing its relevance, thus justifying the use of unstandardized B-coefficients. The analysis revealed that transaction risk management possessed a significance level of 0.001 and a coefficient of 0.442, with the significance level of 0.001 falling below the common threshold of 0.05. This is an indication that a unit improvement on transaction risk management enhances financial performance by 0.442 units, also management of risks associated with foreign exchange transactions significantly impacts financial performance at a 95 percent confidence interval. This aligns with research conducted by Mbaka (2016), Banafa (2015), and Ahmed (2015), which identified a notable link and impact of foreign exchange transaction risk management on profitability. The concordance in findings across these studies might be attributed to a consensus on the influence of foreign exchange transaction risk management on financial performance.

## 5. Conclusion

The study findings assisted in making study conclusions that might help in implementation of policies with regards to the research objectives. Conclusions were therefore made based on the study findings. The study found that foreign exchange transaction risk management has an effect to a great effect using descriptive analysis while regression analysis indicated that at 95 percent confidence level, it has a significant effect on the return on capital employed of flower firms in Kenya. Conclusions made from the findings are that foreign exchange transaction risk management has an effect on financial performance of flower firms in Kenya. This might be because the variability in profit as a result of foreign exchange fluctuations does not directly affect the capital employed of the firms in many instances. The amount of profit reinvested in the companies are after redistribution are for specific capital requirements and therefore not proportionate to after-tax profit.

### *Recommendations*

The research suggests that flower businesses in Kenya, noticing that only a handful currently have risk management strategies, should adopt such policies. These strategies are essential for establishing a reliable framework to cope with significant foreign exchange rate variations. Furthermore, to mitigate the impact of currency transaction risks, horticultural companies are advised to use various methods to protect their operations. These methods include the adoption of suitable cost-accounting review processes and the consolidation of financial statements.

## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

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