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Elizabeth Masakhwe Emongor, Prof. Elizabeth Kalunda & Dr. Bwire Albert

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Process Innovation and Retail Investors' Participation in The Nairobi Securities Exchange

[1*]Elizabeth Masakhwe Emongor, [2]Prof. Elizabeth Kalunda & [3]Dr. Bwire Albert
[1]Postgraduate student, United States International University-Africa
[2&3]Lecturers, United States International University-Africa
***Email of the corresponding author: lemongor@yahoo.com**

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Abstract

Retail investor participation in capital markets is vital for market development, liquidity creation, and economic growth, but engagement levels vary significantly across regions. However, despite product innovations introduced by capital market intermediaries, retail investor participation in the Nairobi Securities Exchange has remained persistently low, with trading volumes declining from 0.95% in 2019 to 0.46% in 2024. This study examined the effect of process innovation on retail investor participation in the Nairobi Securities Exchange. The study was anchored on Schumpeterian theory of innovation. Theis study adopted a positivist philosophy and descriptive correlational design to examine the effect of process innovation by capital market intermediaries on retail investor participation at the Nairobi Securities ExchangeThe target population comprised 112 licensed capital market intermediaries registered with the Capital Markets Authority of Kenya, from which 336 respondents were targeted through a census approach. Data were collected using structured questionnaires, achieving a response rate of 97.33% with 292 usable responses from Chief Investment Officers, Heads of Marketing, and Heads of Innovation/Technology. The study found that process innovation by capital market intermediaries is positively and significantly related to retail investor participation (β=.761, $p<0.05$). The results implied that a unitary increase in process innovation by capital market intermediaries would increase retail investor participation in the Nairobi Securities Exchange by 0.761 units when other factors are held constant. The study concludes that process innovation by capital market intermediaries has a significant and positive effect on retail investor participation in the Nairobi Securities Exchange. The study recommends that capital market intermediaries should systematically adopt new technologies and automated processes to enhance retail accessibility at the Nairobi Securities Exchange. Intermediaries should implement end-to-end mobile trading platforms integrating M-PESA and other mobile money services, leveraging Kenya's mobile penetration to enable seamless funding, trading, and withdrawal without bank intermediation. Policymakers and regulators should ensure that process innovation cost savings by capital market intermediaries translate directly into enhanced retail investor participation rather than being captured as margin improvements.

Keywords: *Process innovation, retail investors' participation, Nairobi Securities Exchange, Kenya*

1.0 Background of the Study

Retail investor participation in capital markets represents a fundamental indicator of financial market development, economic inclusion, and wealth democratization. Globally, retail investors serve as critical contributors to market liquidity, price discovery mechanisms, and long-term market stability. The International Monetary Fund (2024) established that markets with robust retail participation demonstrate 37% faster recovery periods during institutional liquidity crises compared to institution-dominated markets, highlighting the systemic importance of retail investor engagement. World Bank's Capital Market Development Report (2024) documented that each 10% increase in retail participation correlates with a 0.8% increase in GDP growth across emerging economies. Despite this recognized importance, retail investor participation remains persistently low across many markets, with particularly acute challenges evident in emerging economies such as Kenya. Addressing this persistent gap requires a thorough examination of the innovative practices deployed by capital market intermediaries in facilitating retail engagement. Thus, the current study examined the effect of process innovation by capital market intermediaries on retail investor participation.

Process innovation refers to the introduction of new or significantly improved methods for delivering investment services or executing transactions, encompassing technological adoption, automation of procedures, and implementation of streamlined workflows that enhance efficiency, reduce costs, and improve user experience (Ndung'u & Thuo, 2022). In capital markets, process innovations are particularly significant because they directly address operational barriers that discourage retail investors from active participation. The Financial Technology Report (2024) documented that markets implementing end-to-end digital onboarding experienced a 67% increase in new retail account openings compared to those maintaining traditional paper processes. Similarly, the International Organization of Securities Commissions (2024) reported that reduced execution times through automated trading systems correlated with 24% higher transaction frequency among retail investors. These findings collectively suggest that process innovation directly influences retail participation by removing procedural inefficiencies and enhancing the overall investment experience across different market contexts.

Kenya's capital markets present a compelling context for examining process innovation's influence on retail investor participation. The Nairobi Securities Exchange (NSE) has recorded a significant decline in active retail participation, with trading volumes dropping from 0.95% in 2019 to 0.46% in 2023, despite a total of 1,477,959 registered retail investor accounts (NSE, 2024). This paradox of high registration but persistently low activity suggests that structural and operational barriers fundamentally constrain retail engagement. Kenya's high mobile technology penetration of 93.8% and world-leading mobile money adoption create substantial potential for process innovation to drive participation, yet most capital market intermediaries have been slow to leverage this infrastructure (Central Bank of Kenya, 2024). The disconnect between Kenya's technological capabilities and intermediaries' digital service delivery may partially explain the paradox of high financial inclusion combined with persistently low capital market participation across the country.

The relationship between process innovation and retail investor participation is multidimensional, operating through transaction cost reduction, information accessibility, and procedural simplification. Fan and Chatterjee (2020) demonstrated that robo-advisory services reduced transaction costs by an average of 47%, making smaller transactions economically viable for retail investors who previously found capital market participation prohibitively expensive. Mutuku and Kimani (2023) found that intermediaries adopting mobile verification

technologies reduced account opening times by 76%, significantly enhancing market accessibility within Kenya's context. Furthermore, Lee-Partridge and Ho (2023) established that simplified online account opening processes increased new retail account completions by 38% compared to traditional paper-based procedures. In Kenya, where the average transaction cost for equity trades remains at 2.1% versus 0.5% in developed markets (Kenya Stockbrokers Association, 2023), process innovations that reduce costs and simplify procedures could substantially and meaningfully impact retail investor participation levels.

Capital market intermediaries occupy a critical position as the primary interface between retail investors and capital market opportunities in Kenya. As of 2024, Kenya hosts 112 licensed capital market intermediaries, comprising 23 investment banks, 42 fund managers, 24 stockbrokers, 12 REIT managers, and 11 investment advisers, all licensed and regulated by the Capital Markets Authority (CMA Licensee Register, 2024). These entities shape the retail investor experience by determining investment products available, processes through which investment occurs, and organizational structures that prioritize retail investor needs. Despite their critical role, these intermediaries have historically focused predominantly on institutional clients and high-net-worth individuals, with limited strategic emphasis on retail investor segments (Transparency International Kenya, 2024). Understanding how these intermediaries implement process innovation, and the degree to which such innovation translates into enhanced retail participation, is therefore essential for advancing Kenya's capital market development agenda and achieving inclusive financial growth.

The study was anchored in the Schumpeterian theory of innovation, which positions innovation as the primary driver of economic transformation through creative destruction (Schumpeter, 1942). In the capital markets context, process innovations serve as the mechanisms through which traditional, often cumbersome investment procedures are replaced with more efficient, accessible, and user-friendly alternatives. Wang et al. (2023) demonstrated that broadband technology adoption increased household stock market participation by 4.5% through improved access to market information, underscoring the critical role of technological process upgrades in driving retail engagement. Lu et al. (2024) similarly found that digital platform adoption significantly promoted stock market participation in China through improvements in market accessibility. These international findings provide important benchmarks for evaluating how process innovation by Kenyan intermediaries may similarly unlock dormant retail investor accounts and stimulate broader capital market participation across different demographic segments.

1.1 Statement of the Problem

Optimal retail investor participation in capital markets serves as a cornerstone of inclusive economic development and market stability worldwide. Ideally, retail investors should actively engage in securities trading to contribute meaningful trading volume that enhances market liquidity, supports price discovery mechanisms, and creates wealth-building opportunities across diverse income levels. The World Bank (2024) establishes that robust retail participation correlates with stronger economic growth, with each 10% increase in participation contributing 0.8% to GDP growth in emerging economies. Despite this recognized importance, Kenya's capital markets face a critical and worsening challenge of declining retail investor participation. The Nairobi Securities Exchange (NSE, 2024) revealed that despite registered retail investor accounts reaching 1,477,959 by 2023, monthly active traders measured by trading volume dropped precipitously from 0.95% representing 11,283 investors in 2019 to merely 0.46% representing 6,843 investors in 2023, signaling a deepening structural crisis in retail market engagement.

Process innovation by capital market intermediaries has been widely proposed as a mechanism for reversing Kenya's declining retail participation, yet comprehensive empirical evidence examining its specific effectiveness remains absent. Wang et al. (2023) demonstrated that broadband technology adoption increased household stock market participation by 4.5% through improved information access, but their study was limited to broadband infrastructure without examining broader process automation strategies that could further enhance trading volume. Fan and Chatterjee (2020) showed that robo-advisory services reduced transaction costs by 47%, yet focused exclusively on developed markets where technological infrastructure and financial literacy differ fundamentally from Kenya's context. Lee-Partridge and Ho (2023) established that simplified online account opening increased retail account completions by 38%, but their Singapore-based findings cannot be directly applied to Kenya's unique mobile-centric ecosystem and regulatory framework, leaving a critical contextual gap in understanding process innovation's actual influence on NSE retail participation levels.

Methodological limitations in prior research further constrain understanding of how process innovation drives retail investor participation in Kenya's capital markets. Nair et al. (2022) studied mobile app adoption among retail investors in India but did not address how process innovations interact with other innovation dimensions to collectively influence trading volumes. Igwilo (2020) examined ICT adoption across eleven African stock exchanges yet focused on macro-level market capitalization outcomes rather than micro-level retail investor participation, missing individual behavioral mechanisms through which automation affects engagement. Furthermore, Mwakabumbe (2023) found that automation increased participation in Tanzania but acknowledged that inadequate investor education limited automation benefits, suggesting financial literacy moderates process innovation effectiveness in ways prior studies have not adequately examined. This study therefore addressed these gaps by empirically examining how process innovation by capital market intermediaries specifically influences retail investor participation at the Nairobi Securities Exchange.

1.2 Research Objective

To examine the effect of process innovation by capital market intermediaries on retail investor participation in the Nairobi Securities Exchange.

1.3 Hypothesis

H_0: There is no statistically significant effect of process innovation by capital market intermediaries on retail investor participation in the Nairobi Securities Exchange.

2.0 Literature Review

The literature review is presented in sections.

2.1 Theoretical Review

The Schumpeterian theory of innovation, proposed by Joseph Schumpeter (1942), provides the foundational theoretical lens for understanding how process innovation by capital market intermediaries drives retail investor participation in the Nairobi Securities Exchange. Schumpeter's concept of creative destruction explains how new production methods and delivery mechanisms displace inefficient existing processes, creating superior operational alternatives that expand market accessibility. In capital markets, this manifests when intermediaries replace manual, paper-based account registration with automated digital onboarding systems, substitute traditional order execution with algorithmic trading platforms, and deploy artificial intelligence-driven verification in place of conventional know-your-customer procedures. Each process substitution directly dismantles operational barriers that

historically excluded retail investors from active market participation. Wang et al. (2023) empirically validated this mechanism, demonstrating that technology-driven process upgrades increased household stock market participation by 4.5%, confirming that Schumpeterian process innovation translates into measurable retail engagement gains within capital market ecosystems.

Building on Schumpeter's foundational framework, Neo-Schumpeterian scholars have extended the theory to more precisely explain how process innovation diffuses through capital market intermediaries and shapes retail investor participation outcomes. Dosi and Nelson (2018) introduced technological path dependence, arguing that intermediaries' prior process investments create cumulative innovation trajectories that determine the speed and depth of subsequent digital adoption. This perspective explains why Kenyan intermediaries demonstrate uneven automation adoption despite uniform regulatory environments-early technology pathway choices constrain later process innovation capacity. Hekkert and Negro (2020) further developed technological innovation system frameworks, establishing that process innovations in financial markets succeed most effectively when networks of institutions, fintech partners, and mobile money providers co-develop and co-diffuse automated solutions. Fan and Chatterjee (2020) empirically demonstrated this collective mechanism, finding that robo-advisory process automation reduced retail transaction costs by 47%, directly stimulating participation by making smaller investment transactions economically viable for previously excluded investors.

2.2 Conceptual Framework

The conceptual framework was developed based on a comprehensive review of both theoretical and empirical literature. It establishes clear relationships between the study variables. Figure 1 presents the summary of the conceptual framework.

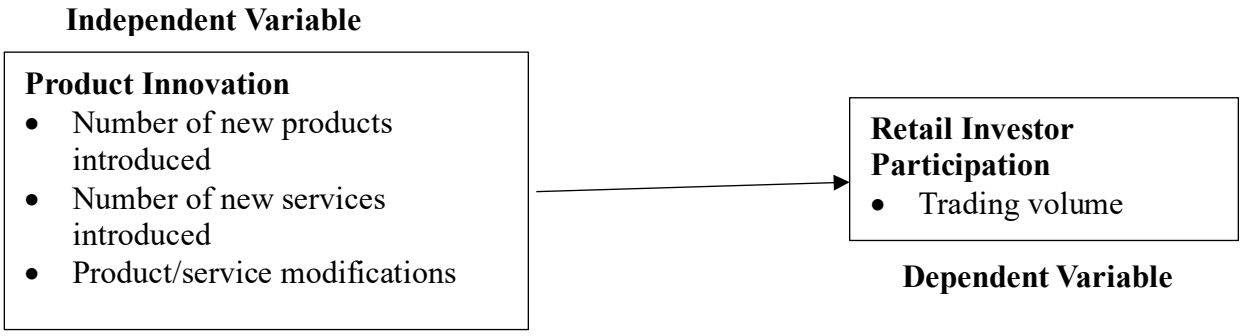

Figure 1: Conceptual Framework

2.3 Empirical Review

Wang et al. (2023) employed an instrumental variable approach on a Chinese national household dataset, finding that broadband adoption increased stock market participation by 4.5% through information cost reduction ($p<0.05$), particularly benefiting investors in less accessible areas. Lu et al. (2024) used regression analysis on Chinese household survey data, finding that digital platform adoption increased retail participation through market accessibility improvements ($p<0.05$) and financial literacy impact ($p=0.001$), with awareness acting as a mediating mechanism. Balaji and Sriram (2023) extended these insights through a mixed-methods study in developed markets, finding that mobile trading adoption ($p<0.05$), algorithmic trading ($p=0.001$), and social media influence ($p=0.002$) collectively lowered retail market entry barriers. However, all three studies present contextual gaps, as findings from

China and developed economies are not directly transferable to Kenya's mobile-centric NSE environment.

Fan (2021) used the Technology Acceptance Model with American retail investor survey data, finding that investment literacy ($p<0.05$), risk tolerance ($p=0.001$), and mobile familiarity ($p<0.05$) drove mobile app adoption, confirming that mobile technology reduces barriers when investors possess adequate capabilities. Nair et al. (2022) reinforced these findings using UTAUT and structural equation modeling in India, finding that effort expectancy ($p<0.05$), performance expectancy ($p=0.001$), and perceived return ($p=0.002$) were key mobile trading adoption determinants in lower-literacy emerging market contexts. Briere (2023), through a global empirical review, established that robo-advisors ($p<0.05$) and social media platforms ($p=0.001$) simplified investment decisions yet amplified behavioral biases ($p=0.002$) such as return chasing. These three studies share a conceptual gap: none examined how mobile process innovations interact with financial literacy moderation within Kenya's NSE context.

Fan and Chatterjee (2020) employed the diffusion of innovation framework with American investor survey data, finding that robo-advisor adoption reduced transaction costs by 47% ($p=0.001$), making smaller transactions economically viable and increasing retail market accessibility. Nair et al. (2022) using UTAUT and structural equation modeling in India found that ease of use ($p<0.05$) and performance expectancy ($p=0.001$) critically drove automation adoption, with automated platforms simplifying trading processes for retail investors. Ishwarlal (2023), through a quantitative survey in South Africa, found that fintech platform adoption ($p<0.05$), trading accessibility ($p=0.001$), and cost reduction ($p=0.002$) made investing more accessible to previously excluded retail investor segments. These studies share a contextual gap, having focused on developed or more mature markets without examining how automation functions within Kenya's NSE environment where literacy deficits constrain effective utilization.

Igwilo (2020) applied Bayesian and panel regression across eleven African stock exchanges, finding that ICT adoption ($p<0.05$) and trading automation ($p<0.05$) significantly increased listed companies and enhanced overall stock market performance. Sibanda and Mlambo (2022) employed a mixed-methods approach in South Africa, finding that automated trading systems and streamlined compliance processes significantly increased retail digital participation while improving market efficiency and investor confidence among previously inactive investors. Briere (2023) complemented these findings globally, establishing that digitalization simplified investment decisions yet simultaneously amplified behavioral biases among retail participants. These three studies share a conceptual gap: none adequately examined how financial literacy moderates sustained automated process adoption, which is critical for understanding how process innovations translate into durable retail participation gains at Kenya's NSE.

Lee-Partridge and Ho (2003) used structured questionnaires among Singaporean retail investors, finding that trading adoption was positively influenced ($p<0.05$) while security concerns ($p=0.001$) and trust ($p<0.05$) constrained adoption, demonstrating that implementation success depends on resolving investor security perceptions. Veluvali (2019) employed regression analysis with investor surveys in India's IPO context, finding that digital adoption ($p<0.05$), process speed ($p=0.001$), and accessibility ($p<0.05$) increased retail participation by simplifying subscription procedures and offering real-time updates. Mutuku and Kimani (2023) extended this to Kenya through a longitudinal study of 65 intermediaries and 567 investors, finding that process automation and mobile verification reduced account opening times by 76%, enhancing retail accessibility. However, Lee-Partridge and Ho (2003)

measured intentions rather than actual trading, creating measurement gaps addressed by the current study.

Mwakabumbe (2023) used a quantitative survey in Tanzania, finding that financial literacy ($p<0.05$), mobile platform usage ($p=0.001$), and automated service adoption ($p=0.002$) increased retail market participation, yet insufficient investor education significantly limited automation benefits, underscoring the need to align process innovations with literacy development. Sibanda and Mlambo (2022) using a mixed-methods approach in South Africa found that automated trading and streamlined compliance increased retail digital participation, yet did not examine whether financial literacy moderated sustained process adoption outcomes. Igwilo (2020) analyzing eleven African exchanges confirmed that ICT-driven automation enhanced market development ($p=0.001$) without disaggregating how gains reached individual retail investors. These studies share a methodological gap in omitting financial literacy's moderating role, which the current study empirically investigates at Kenya's Nairobi Securities Exchange.

3.0 Research Methodology

Thestudy adopted a positivist philosophy and descriptive correlational design to examine the effect of process innovation by capital market intermediaries on retail investor participation at the Nairobi Securities Exchange.The target population comprised all 112 licensed capital market intermediaries regulated by the Capital Markets Authority of Kenya, with a census approach targeting 336 senior management respondents-three executives per firm including Chief Investment Officers, Heads of Marketing, and Heads of Innovation and Technology. Data were collected using structured questionnaires with a 5-point Likert scale, administered electronically and physically, achieving a response rate of 97.33% with 292 usable responses. Process innovation's Cronbach's alpha coefficient was 0.859 confirming high internal consistency across all twelve items.Construct validity was established through Kaiser-Meyer-Olkin value of 0.728 and Bartlett's test of sphericity significance of 0.000, confirming sampling adequacy. Factor analysis revealed all twelve process innovation statements loaded above the 0.4 threshold, with factor loadings ranging from 0.524 for mobile trading applications to 0.860 for simplified trading mechanisms, retaining all items for final analysis. Regression analysis was employed to test the hypothesis that process innovation has no significant effect on retail investor participation, specified as;

$$Y = \beta_0 + \beta X + \varepsilon$$

Where Y represents retail investor participation and X represents process innovation.

4.0 Results And Findings

This chapter presents the results and findings of the study examining the effect of process innovation by capital market intermediaries on retail investor participation in the Nairobi Securities Exchange, organized systematically to address the specific research objective and hypothesis. The chapter begins with the response rate, followed by descriptive statistics of process innovation and retail investor participation, and simple linear regression analysis testing the null hypothesis that process innovation has no statistically significant effect on retail investor participation.

4.1 Response Rate

The sample size was 336, which included Chief Investment Officers, Heads of Marketing, and Heads of Innovation/Technology from 112 licensed capital market intermediaries. However, 36 respondents from 12 capital market intermediaries were used for pilot testing and

subsequently excluded from the final data collection to avoid bias and ensure the integrity of the main study results. Following the pilot testing, the actual data collection targeted 300 respondents from the remaining 100 capital market intermediaries. Data were collected using structured questionnaires administered through both electronic and physical means. Out of 300 targeted respondents, 292 questionnaires were duly completed and used for analysis. Table 1 presents the breakdown of responses by respondent category.

Table 1: Response Rate by Respondent Category

Respondent Category	Target Sample	Returned Questionnaires	Response Rate (%)
Chief Investment Officers	100	96	96.00
Heads of Marketing	100	98	98.00
Heads of Innovation/Technology	100	98	98.00
Total	**300**	**292**	**97.33**

Source: Research Data (2025)

The study achieved an overall response rate of 97.33%, with Chief Investment Officers recording 96.00%, Heads of Marketing 98.00%, and Heads of Innovation/Technology 98.00%. This exceptionally high response rate was attributed to several factors: the census approach that included all licensed intermediaries created a sense of inclusivity and importance; extensive follow-up procedures with multiple reminder emails and phone calls over the one-month data collection period; the researcher's professional networks within Kenya's capital markets facilitated access to senior management; the topic's relevance to current policy priorities of the Capital Markets Authority increased respondent motivation; and the combination of electronic and physical questionnaire administration provided flexibility for respondents. While such high response rates are uncommon in senior management surveys, they have been documented in contexts where research topics align with organizational priorities and when sustained follow-up efforts are employed. Ahmad and Halim (2017) state that response rates more than 60% are enough for analysis and drawing conclusions. Hendra and Hill (2019) state that response rates above 70% are sufficient for analysis and suggestions, however Freiman, Chalmers, Smith, and Kuebler (2019) observe that rates above 50% are satisfactory. The achieved response rate of 97.33% was therefore considered more than adequate for the study.

Comparison Across Capital Market Intermediary Categories

Given the heterogeneity of capital market intermediaries where different types (investment banks, fund managers, stockbrokers, REIT managers, and investment advisers) perform distinct functions, the study examined response patterns across these categories. Table 2 presents the response distribution by intermediary type.

Table 2: Response Rate by Intermediary Type

Intermediary Type	Number of Firms	Target Respondents	Actual Responses	Response Rate (%)
Investment Banks	19	57	56	98.25
Fund Managers	35	105	102	97.14
Stockbrokers	20	60	58	96.67
REIT Managers	10	30	29	96.67
Investment Advisers	16	48	47	97.92
Total	**100**	**300**	**292**	**97.33**

Source: Research Data (2025)

The response rates across different intermediary types were remarkably consistent, ranging from 96.67% to 98.25%, indicating no significant response bias related to intermediary category. This consistency suggests that the high response rate was not driven by any particular intermediary type but was uniform across all categories, enhancing the representativeness and reliability of the data collected. The relatively balanced distribution of responses across intermediary types ensured that the findings captured perspectives from all segments of Kenya's capital market ecosystem, thereby strengthening the study's external validity and generalizability to the broader population of capital market intermediaries.

4.2 Retail Investor Participation

The dependent variable in the study is retail investor participation in the Nairobi Securities Exchange. Table 3 presents the descriptive statistics of retail investor participation.

Table 3: Descriptive Statistics of Retail Investor Participation

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Our firm has recorded a steady rise in the total value of trades executed by retail clients on the NSE.	2.70%	7.20%	6.50%	55.80%	27.70%	3.99	0.94
Retail investor trading volumes through our firm tend to increase during market rallies on the NSE.	0.30%	4.50%	11.00%	67.80%	16.40%	3.96	0.69
The introduction of new investment tools has contributed to higher trading volumes among our retail clients.	5.80%	0.00%	6.80%	57.20%	30.10%	4.06	0.95
Retail clients at our firm actively respond to market news and updates by increasing their trading activity.	2.70%	5.10%	5.10%	41.10%	45.90%	4.22	0.96
Our firm has seen growth in day-to-day retail trading volumes on the NSE over the past financial year.	1.70%	10.60%	8.60%	38.40%	40.80%	4.06	1.04
Retail investors using our digital platforms contribute a significant portion of daily trading volume on the NSE.	2.40%	6.50%	9.20%	52.40%	29.50%	4.00	0.93
Promotions or incentives offered by our firm have led to spikes in trading volume among retail clients.	1.00%	6.20%	5.10%	48.60%	39.00%	4.18	0.87
There is a strong correlation between retail investor education efforts by our firm and increased trading volume.	0.30%	8.60%	5.80%	63.70%	21.60%	3.98	0.81
Retail clients trading with our firm are more likely to reinvest returns, leading to sustained trading volumes.	11.00%	6.80%	5.50%	47.60%	29.10%	3.77	1.25
Our firm monitors retail investor trading volumes as a key performance indicator for customer engagement.	0.70%	12.70%	4.80%	57.50%	24.30%	3.92	0.93
Real-time access to market data provided by our firm has helped drive up trading volumes among retail clients.	3.40%	5.10%	8.60%	38.40%	44.50%	4.15	1.01
Retail investor trading volumes have diversified across different sectors listed on the NSE.	5.50%	2.10%	2.10%	49.00%	41.40%	4.19	0.99
Average						4.04	0.95

The study results showed that respondents agreed their firms recorded steady rises in total trade values executed by retail clients (M=3.99, SD=0.94), with retail trading volumes tending to increase during market rallies (M=3.96, SD=0.69). The introduction of new investment tools contributed to higher trading volumes among retail clients (M=4.06, SD=0.95). Retail clients actively responded to market news and updates by increasing their trading activity (M=4.22, SD=0.96), representing the highest mean score in this dimension. Firms experienced growth in day-to-day retail trading volumes over the past financial year (M=4.06, SD=1.04), while retail investors using digital platforms contributed a significant portion of daily trading volume (M=4.00, SD=0.93). Promotions and incentives offered by firms led to spikes in trading volume among retail clients (M=4.18, SD=0.87), indicating effectiveness of marketing-driven participation strategies.

The study results further indicated a strong correlation between retail investor education efforts and increased trading volume (M=3.98, SD=0.81). Retail clients trading with firms were more likely to reinvest returns, leading to sustained trading volumes (M=3.77, SD=1.25), though this represented the lowest mean score with the highest standard deviation across all participation dimensions. Firms monitored retail investor trading volumes as a key performance indicator for customer engagement (M=3.92, SD=0.93). Real-time access to market data provided by firms helped drive up trading volumes among retail clients (M=4.15, SD=1.01). Retail investor trading volumes diversified across different sectors listed on the NSE (M=4.19, SD=0.99), indicating broader market engagement beyond concentrated sectors. The overall mean score for retail investor participation was 4.04 with a standard deviation of 0.95, demonstrating strong agreement across all participation dimensions.

The qualitative responses revealed that retail participation remains low in Kenya's capital markets, with less than 10% of NSE trading volume coming from retail investors. A new retail mobile platform was in development to improve access, while digital onboarding and mobile money integration were identified as priorities. Significant efforts aimed to onboard 9 million retail investors by 2029, with investor education increasingly emphasized to tackle low literacy levels. NSE bond trading had boomed, attracting retail interest, with technology adoption seen as key to boosting participation. Hybrid bond products were being introduced to diversify options, though many retail investors continued to choose bonds over equities. A high minimum share purchase requirement (100 shares) remained a barrier, while the corporate bond market remained weak due to investor loss of confidence.

The qualitative data further revealed that lack of trust and awareness remained key hurdles, with retail investor inactivity leaving the market illiquid. Payment integration with mobile money was planned to ease funding, while retail participation increased alongside overall returns. Investor roadshows targeted both domestic and diaspora retail audiences, though market liquidity suffered when retail investors remained inactive. Youth challenges and university programs aimed to engage young investors, while retail investors showed preference for simpler assets like Treasury bills and real estate. High inflation and cost of living reduced disposable income available for investment, with onboarding by banks and fintechs remaining limited. Despite consistently high mean scores (ranging from 3.77 to 4.22) indicating positive perceptions of participation trends, the qualitative findings highlighted substantial gaps between current participation levels (below 10% of trading volume) and desired market development outcomes, suggesting that while individual firm-level improvements were evident, systemic barriers required coordinated policy and industry interventions.

4.3 Effect of Process Innovation on Retail Investor Participation in the NSE

The second research objective of the study was to examine the effect of process innovation by capital market intermediaries on retail investor participation in the Nairobi Securities Exchange.

4.3.1 Descriptive Statistics of Process Innovation by Capital Market Intermediaries

The summary of the descriptive statistics is presented in Table 4.

Table 4: Descriptive Statistics of Process Innovation by Capital Market Intermediaries

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Our firm has implemented blockchain-based technologies that have increased the trading volume of retail investors by enhancing transaction security.	5.50%	7.50%	8.60%	35.30%	43.20%	4.03	1.15
Mobile trading applications developed by our firm have made it easier for retail investors to transact, resulting in increased trading volume on the NSE.	1.40%	4.80%	11.00%	43.80%	39.00%	4.14	0.89
Our firm's AI-powered analytics tools have improved investment recommendations, leading to higher trading volumes among our retail clients.	2.40%	7.50%	7.20%	67.80%	15.10%	3.86	0.85
New digital verification technologies implemented by our firm have expedited onboarding, leading to quicker participation and higher trading volumes by retail investors.	2.70%	5.10%	7.90%	43.50%	40.80%	4.14	0.96
The automated KYC processes at our firm have reduced onboarding time, resulting in faster account activation and increased retail trading volume.	0.30%	7.90%	2.70%	68.20%	20.90%	4.01	0.76
Our automated trading systems have lowered transaction costs, which has encouraged more frequent trading and greater trading volume by retail investors.	1.00%	15.10%	6.80%	36.60%	40.40%	4.00	1.08
The algorithmic trading solutions implemented by our firm have enabled cost-effective small-scale transactions, boosting trading volume among retail clients.	4.80%	12.30%	4.50%	17.50%	61.00%	3.72	1.25
Our firm’s automated compliance checks have enhanced account security and contributed to increased trading volume by boosting investor trust.	2.70%	7.90%	6.50%	36.30%	46.60%	4.16	1.03
Our streamlined account opening processes have enabled quicker access to trading platforms, increasing trading volume from new retail clients.	4.10%	4.80%	6.50%	50.30%	34.20%	4.06	0.98
The integration of mobile money transfer services by our firm has simplified trading, contributing to increased trading volumes among retail investors.	6.50%	20.20%	4.10%	35.30%	33.90%	3.70	1.30
Our firm's implementation of simplified trading mechanisms has resulted in higher trading volumes by making transactions more accessible to retail clients.	3.10%	14.40%	2.70%	21.60%	58.20%	4.17	1.20
The redesigned operational workflows at our firm have reduced response times, encouraging more frequent trading and higher retail trading volumes on the NSE.	1.00%	13.70%	6.80%	37.00%	41.40%	4.04	1.06
Average						**4.00**	**1.04**

The descriptive statistics revealed strong agreement among respondents regarding the adoption of new technologies and its impact on retail investor participation. Respondents agreed that their firms have implemented blockchain-based technologies that increased trading volume by enhancing transaction security (M=4.03, SD=1.15). Mobile trading applications made it easier for retail investors to transact, resulting in increased trading volume (M=4.14, SD=0.89). AI-powered analytics tools improved investment recommendations, leading to higher trading volumes among retail clients (M=3.86, SD=0.85). New digital verification technologies expedited onboarding, leading to quicker participation and higher trading volumes (M=4.14, SD=0.96). The results showed high agreement levels regarding the automation of processes. Respondents agreed that automated KYC processes reduced onboarding time, resulting in faster account activation and increased retail trading volume (M=4.01, SD=0.76). Automated trading systems lowered transaction costs, encouraging more frequent trading and greater trading volume (M=4.00, SD=1.08). Algorithmic trading solutions enabled cost-effective small-scale transactions, boosting trading volume among retail clients (M=3.72, SD=1.25). Automated compliance checks enhanced account security and contributed to increased trading volume by boosting investor trust (M=4.16, SD=1.03).

The findings indicated strong agreement on the effectiveness of implementing new processes. Respondents agreed that streamlined account opening processes enabled quicker access to trading platforms, increasing trading volume from new retail clients (M=4.06, SD=0.98). The integration of mobile money transfer services simplified trading, contributing to increased trading volumes (M=3.70, SD=1.30). Implementation of simplified trading mechanisms resulted in higher trading volumes by making transactions more accessible (M=4.17, SD=1.20). Redesigned operational workflows reduced response times, encouraging more frequent trading and higher retail trading volumes (M=4.04, SD=1.06). The overall assessment showed that the average mean score for all process innovation statements was 4.00 with a standard deviation of 1.04, indicating strong agreement among respondents. The consistently high mean scores across all twelve dimensions demonstrated positive perceptions regarding process innovation's impact on retail investor participation. The relatively low standard deviations indicated consensus among respondents about the positive effects of process innovation strategies. All standard deviations were below half of their respective mean scores, confirming low variability and strong agreement patterns across all process innovation dimensions measured in the study.

The qualitative responses revealed multiple dimensions through which process innovation influences retail investor participation in the NSE. Respondents indicated that process innovation increases operational efficiency, lowers production costs thereby improving profit margins, enhances stock valuation due to leaner operations, signals effective management to investors, and attracts long-term investors focused on efficiency. The responses highlighted that process innovation attracts investors looking for cost leadership strategies, builds trust through transparent and streamlined systems, encourages listing as firms formalize operations, encourages repeat investment due to efficiency gains, attracts ESG investors prioritizing sustainable operations, and drives automation appealing to tech-savvy investors. Respondents noted that process innovation reduces operational risks attracting cautious investors, strengthens competitive edge in listed sectors, enhances corporate governance and accountability, improves shareholder returns through margin expansion, promotes investor confidence in scalability of operations, and supports better compliance with NSE listing requirements. Additionally, respondents emphasized that process innovation builds investor confidence in future earnings, promotes revaluation of stock as costs fall, attracts socially responsible investors focused on impact, encourages transparency through digitized reporting,

simplifies due diligence for new investors, and strengthens resilience during market disruptions.

4.3.2 Regression Analysis

The model fitness results are presented in Table 5.

Table 5: Model Fitness of Process Innovation and Retail Investor Participation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.723a	0.522	0.521	0.250908

a Predictor: (Constant), Process Innovation

The results presented in Table 5 established that process innovation by capital market intermediaries is significant in determining retail investor participation in the Nairobi Securities Exchange. The coefficient of determination, also known as the R square, was found to be 0.522 (52.2%). This implied that process innovation by capital market intermediaries could explain 52.2% of the variations of retail investor participation in the Nairobi Securities Exchange. The results of the Analysis of Variance (ANOVA) are summarized in Table 6.

Table 6: Analysis of Variance (ANOVA) of Process Innovation and Retail Investor Participation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.974	1	19.974	317.269	.000b
	Residual	18.257	290	0.063		
	Total	38.231	291			

a Dependent Variable: Retail Investor Participation; b Predictors: (Constant), Process Innovation

The results in Table 6 indicate that the overall model is statistically significant. This is supported by an F statistic of 317.269 and a reported p-value<0.05, implying that the independent variable (process innovation by capital market intermediaries) is significant in predicting retail investor participation in the Nairobi Securities Exchange.

Table 7: Regression coefficients of Process Innovation and Retail Investor Participation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.025	0.174		5.884	0.000
	Process Innovation	0.761	0.043	0.723	17.812	0.000

a Dependent Variable: Retail Investor Participation

Based on the results, the regression model thus becomes; Y = 1.025+ 0.761X Where: - Y= Retail investor participation X = Process innovation by capital market intermediaries

The results in Table 7 show that process innovation by capital market intermediaries is positively and significantly related to retail investor participation (β=.761, p<0.05). This is supported by a calculated t-statistic of 17.812, which is larger than the critical t-statistic of 1.96. The results implied that a unitary increase in process innovation by capital market intermediaries would increase retail investor participation in the Nairobi Securities Exchange by 0.761 units when other factors are held constant. The null hypothesis is rejected since the p value (0.000) is less than 0.05. Hence, process innovation by capital market intermediaries has a significant influence on retail investor participation in the Nairobi Securities Exchange.

5.0 Conclusion

The study concludes that process innovation by capital market intermediaries has a significant and positive effect on retail investor participation in the Nairobi Securities Exchange. The correlation and regression analysis establish that the number of new technologies adopted, the number of automated processes, and the implementation of new processes collectively serve as fundamental enablers of retail investor engagement, addressing critical operational barriers that have historically limited retail participation. The study demonstrated that adopting blockchain-based technologies, mobile trading applications, and AI-powered analytics tools, combined with automated KYC processes and compliance checks, are essential components of effective process innovation strategies. Process innovation creates the technological infrastructure necessary for retail investors to access and navigate capital markets effectively through comprehensive automation and new process implementation. The evidence shows that implementing streamlined account opening processes, automated trading systems, and simplified trading mechanisms significantly reduces transaction costs and barriers to entry, making capital markets more accessible to individual investors. The study establishes that successful process innovation requires coordinated adoption of new technologies with systematic automation of processes and implementation of new operational workflows to achieve maximum effectiveness in driving retail investor participation.

6.0 Recommendations

The study recommends that capital market intermediaries should systematically adopt new technologies and automated processes to enhance retail accessibility at the Nairobi Securities Exchange. Intermediaries should implement end-to-end mobile trading platforms integrating M-PESA and other mobile money services, leveraging Kenya's mobile penetration to enable seamless funding, trading, and withdrawal without bank intermediation. Automated KYC processes incorporating biometric verification, digital identity validation, and AI-powered risk assessment should be deployed to reduce account opening times from the current five to seven days to twenty-four to forty-eight hours. Additionally, blockchain-based settlement systems should be prioritized to ensure transaction security, transparency, and cost reduction, while automated compliance monitoring protects investors from fraud. Smaller intermediaries lacking development capacity should pursue white-label technology solutions through KASIB, and all intermediaries should embed platform navigation literacy training directly within digital tools given financial literacy's critical moderating role. Policymakers and regulators ensure that process innovation cost savings by capital market intermediaries translate directly into enhanced retail investor participation rather than being captured as margin improvements.

The Capital Markets Authority should develop regulatory frameworks explicitly encouraging process-driven innovations while maintaining investor protection, requiring intermediaries to report retail participation metrics disaggregated by process innovation types for evidence-based policy assessment. Regulators should mandate maximum commission structures preventing intermediaries from retaining automation efficiency gains, and the NSE should implement maker-taker fee structures reducing effective trading costs for retail investors. The Capital Markets Authority should further require mandatory insurance covering technology failures, cyber breaches, and operational errors, ensuring retail investors bear minimal losses from process implementation failures. Transparent all-in fee disclosure requirements should eliminate hidden charges including platform, custody, and inactivity fees, which cumulatively undermine the accessibility benefits that process innovations are designed to deliver to retail investors at the NSE.

REFERENCES

Ahmad, H., & Halim, H. (2017). Determining sample size for research activities. *Selangor Business Review, 5*(2), 20–34.

Balaji, V. V., & Sriram, M. (2023). Case study on retail investors: Technological innovation and stock market dynamics. *Journal of Financial Technology and Innovation, 14*(2), 33–48.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Briere, M. (2023). The changing behavior of retail investors in response to technological advancements. *Journal of Financial Technology and Innovation, 6*(3), 38–41.

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Capital Markets Authority. (2024). *CMA licensee register 2024*. CMA Kenya. https://licensees.cma.or.ke/

Central Bank of Kenya. (2024). *Financial access survey 2024*. Central Bank of Kenya. https://www.centralbank.go.ke

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Dosi, G., & Nelson, R. R. (2018). Technological paradigms and technological trajectories: A suggested interpretation of the determinants of technical change. *Research Policy, 47*(9), 1637–1653.

Fan, L. (2021). Mobile investment technology adoption among investors. *International Journal of Bank Marketing, 40*(2), 104–124. https://doi.org/10.1108/IJBM-11-2020-0551

Fan, L., & Chatterjee, S. (2020). The utilization of robo-advisors by individual investors: An analysis using diffusion of innovation and information search frameworks. *Journal of Financial Counseling and Planning, 31*(1), 130–145. https://doi.org/10.1891/JFCP-18-00078

Financial Technology Report. (2024). *Global FinTech adoption index*. Ernst & Young Global Limited. https://www.ey.com

Freiman, J. A., Chalmers, T. C., Smith, H. A., & Kuebler, R. R. (2019). The importance of beta, the type II error, and sample size in the design and interpretation of the randomized controlled trial. In *Medical uses of statistics* (pp. 357–389). CRC Press. https://doi.org/10.1201/9780429187445-19

Hekkert, M. P., & Negro, S. O. (2020). Understanding technological innovation system transformation through functions and networks. *Research Policy, 49*(8), 104057. https://doi.org/10.1016/j.respol.2020.104057

Hendra, R., & Hill, A. (2019). Rethinking response rates: New evidence of little relationship between survey response rates and nonresponse bias. *Evaluation Review, 43*(5), 307–330. https://doi.org/10.1177/0193841X18807719

Igwilo, J. I. (2020). *The impact of information and communication technology adoption on stock market development in Africa* (Doctoral dissertation, University of South Africa).

International Monetary Fund. (2024). *Global financial stability report, April 2024: Navigating monetary tightening*. IMF. https://www.imf.org

International Organization of Securities Commissions. (2024). *Retail market conduct report*. IOSCO Publications. https://www.iosco.org

Ishwarlal, K. (2023). Fintech platform influence on retail investor participation in South Africa. *South African Journal of Economics, 91*(2), 45–62.

Kenya Stockbrokers Association. (2023). *Transaction cost comparison: Global markets analysis*. KSA Publications. https://www.ksa.or.ke

Lee-Partridge, J. E., & Ho, P. S. (2003). A retail investor's perspective on the acceptance of Internet stock trading. In *Proceedings of the 36th Annual Hawaii International Conference on System Sciences* (pp. 11–20). IEEE. https://doi.org/10.1109/HICSS.2003.1174437

Lu, Z., Wu, J., Li, H., & Galloway, B. (2024). Digital finance and stock market participation: The case of internet wealth management products in China. *Economic Systems, 48*(1), 101–114. https://doi.org/10.1016/j.ecosys.2023.101148

Mutuku, J., & Kimani, D. (2023). Evolution of investment service delivery in Kenya's capital markets: Impact on retail investor participation. *East African Journal of Business Management, 5*(2), 112–128.

Mwakabumbe, C. A. (2023). *Determinants of stock market participation among individual investors in Tanzania* (Doctoral dissertation, Moshi Co-Operative University).

Nair, P. S., Shiva, A., Yadav, N., & Tandon, P. (2022). Determinants of mobile apps adoption by retail investors for online trading in emerging financial markets. *Benchmarking: An International Journal, 30*(1), 24–40. https://doi.org/10.1108/BIJ-01-2022-0019

Nairobi Securities Exchange. (2024). *Market performance and shareholder insights: Annual general meeting highlights*. NSE PLC. https://www.nse.co.ke

Ndung'u, D. T., & Thuo, J. N. (2022). Influence of investor awareness on performance of real estate investment trusts in Kenya. *Journal of Business Economics and Finance, 11*(3), 122–129. https://doi.org/10.17261/Pressacademia.2022.1632

Saunders, M. N. K., Lewis, P., & Thornhill, A. (2019). *Research methods for business students* (8th ed.). Pearson Education.

Schumpeter, J. A. (1942). *Capitalism, socialism and democracy*. Harper & Brothers.

Sibanda, M., & Mlambo, T. (2022). Enhancing retail investor participation through process innovation in South Africa. *Johannesburg Journal of Economics, 25*(2), 89–105.

Transparency International Kenya. (2024). *Capital market intermediaries and retail investors*. TI Kenya.

Veluvali, P. (2019). Retail investor participation and protection in the context of IPOs: A review of extant literature. *Advances in Theory and Practice of Emerging Markets, 10*(1), 15–31. https://doi.org/10.1007/978-3-030-12756-5_2

Wang, Y., Niu, G., Zhou, Y., & Lu, W. (2023). Broadband internet and stock market participation. *International Review of Financial Analysis, 85*, 102–117. https://doi.org/10.1016/j.irfa.2022.102473

World Bank. (2024). *Capital market development report: Building resilient markets*. World Bank Group. https://www.worldbank.org