

MOSHI CO-OPERATIVE UNIVERSITY

**DETERMINANTS OF STOCK MARKET PARTICIPATION AMONG
INDIVIDUAL INVESTORS IN TANZANIA**

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INDIVIDUAL INVESTORS IN TANZANIA**

By


CHRISTINA ALFRED MWAKABUMBE

**A THESIS SUBMITTED IN FULFILMENT OF THE REQUIREMENTS FOR
THE AWARD OF DOCTOR OF PHILOSOPHY OF
MOSHI CO-OPERATIVE UNIVERSITY**

NOVEMBER, 2023

DECLARATION AND COPYRIGHT

I, Christina Alfred Mwakabumbe, hereby declare that this thesis is my original work and will not be presented to any other higher learning institution for a similar or any other academic degree award.

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by Moshi Co-operative University the thesis titled; "**Determinants of Stock Market Participation among Individual Investors in Tanzania**" in fulfilment of the requirements for the award of a degree of Doctor of Philosophy of Moshi Co-operative University.

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DEDICATION

I dedicate this thesis to my parents, the late Prof. Alfred Andrew Mwakabumbe and my mother Rosemary Kajange, for their academic guidance, love and prayers throughout my life. This work is also dedicated to my husband, Mpoki Mwangalaba, and my daughters, Karen, Malaika and Naomi, for their love, understanding, prayers, support, and patience throughout the study. I further dedicate this work to my brothers Michael, Francis, James, Peter, Beatus, Dr. Yona, Emmanuel and sisters Adeline, Irene, and Tumaini for their love and support throughout my PhD studies.

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LIST OF ABBREVIATIONS AND ACRONYMS

ACF	:	Autocorrelation Function
AIC	:	Akaike Information Criterion
ARMA	:	Autoregressive Moving Average
ARMAX	:	Autoregressive Moving Average with Exogenous variables
BIC	:	Bayesian Information Criterion
BLR	:	Binary Logistic Regression
CMSA	:	Capital Market and Securities Authority
CSDR	:	Central Securities Depositories Regulation(s)
DMC	:	Domestic Market Capitalisation
DSE	:	Dar es Salaam Stock Exchange
DSEI	:	Dar es Salaam Stock Exchange All Share Index
EGM	:	Enterprise Growth Market
GDP	:	Gross Domestic Product
IBC	:	Improved Business Climate
IPO	:	Initial Public Offering
KII	:	Key Informant Interview
LIC	:	Local Investment Climate
MLR	:	Multinomial Logistic Regression
NBS	:	Tanzania National Bureau of Statistics
NEPAC	:	Northeast Purdue Agricultural Center
OECD	:	Organisation for Economic Cooperative and Development
PACF	:	Partial Autocorrelation Function
PERP	:	Perceived Risk Premium
SACMA	:	Saudi Arabia Capital Market Authority
SDG	:	Sustainable Development Goals
SMEs	:	Small and Medium Enterprise Companies
TIC	:	Tanzania Investment Centre
TZS	:	Tanzania Shilling
UNDP	:	United Nations Development Programme
URT	:	United Republic of Tanzania
VICOBA	:	Village Community Banking

EXTENDED ABSTRACT

Tanzania has introduced different policies to strengthen institutions' investment performance and public participation in the stock market. With increased investment, it was expected to enhance capital financing of firms and individual attainment of positive returns through participation and growth in the stock market, which could accelerate individuals' economic development. In Tanzania, individual participation in the stock market is low. This study, therefore, assessed the factors influencing individual investors' participation in the Dar es Salaam Stock Exchange (DSE). Specifically, it examined individual investors' awareness and its influence on participation in the DSE using self-awareness theory. Then, it determined the influence of socioeconomic factors on individual investors' participation based on the socioeconomic theory. The study further established a link between individual investors' risk behaviour and share trading frequency using prospect and behavioural finance theories. Finally, the study analysed the impact of the market indicators' trends on the capitalisation of DSE, based on the Dow theory and the Box-Jenkins model. A cross-section research design with a mixed methods research approach was used in the study. Convenience sampling was used to select 200 non-participants, while exponential non-discriminative snowball sampling was applied to select 200 stock market participants, and purposive sampling was used to select six (6) key informants considered experts in the stock market. Quantitative data were analysed using descriptive statistics (cross-tabulation, means, medians, and standard deviations). Chi-square tests, binary logistic regression (BLR), and multinomial logistic regression (MLR) were used for inferential analysis. On the other hand, Box-Jenkins' autoregressive moving average (ARMA) and autoregressive moving averages with exogenous variables (ARMAX) analysed the time series data. Qualitative data were analysed using thematic analysis and were meant to support quantitative data.

The findings revealed that individual participation in DSE was significantly influenced by awareness of DSE, access to media, and training. Socioeconomic factors, including social interaction, family participation, access to internet technologies, income and investment preference, influenced individual investors' participation in the DSE. While the individuals' investment amounts, experience, and

share prices significantly influenced share trading frequency, the individuals' risk perception had no influence. Additionally, stock market indicators; individual participation, share turnover, DSE All Share Index (DSEI), and increased share turnover; significantly influenced domestic market capitalisation, while share volume was found to have no influence on domestic market capitalisation. It is thus concluded that individual investors' participation rate can be enhanced by increased awareness via channels such as physical/virtual training, leveraging technologies, and social media. An increase in sales/share turnover leads to increased domestic market capitalisation. Thus, the study recommends that DSE, Capital Markets and Securities Authority (CMSA) raise awareness to the public and ensure compliance with guidelines related to disclosing firms' information to shareholders to reduce information asymmetry risk. Also, they should encourage individual investors to acquire a larger volume of shares to increase market turnover. The study is among the few studies that analysed individuals' share trading behaviour and the trend of individual participation. It included social groups, family participation and social interaction factors that have the potential to influence participation in the stock market, which literature has scantily addressed in Tanzania. To theories, the study adds that the inclusion of awareness creation seminars and access to internet technologies enhance the participation of individuals in the stock market.

CHAPTER ONE

1.0 Introduction

1.1 Background Information

The stock market plays a crucial role in bringing together traders of securities, whereby companies raise funds by offering shares and bonds to the public. Investors, through share acquisition, seek capital gain generated from the price change or earn a dividend (Kapadia, 2021). Firms or companies facing limited access to funds may limit their operations and growth (Bui, 2021). Therefore, stock markets facilitate fund accessibility. In Africa, stock exchange markets provide capital to more than 1,400 listed companies (Raubenheimer, 2019). In Tanzania, the Dar es Salaam Stock Exchange (DSE) facilitates capital accumulation to 28 listed companies, consisting of 556,121 individual participants who have accessed the investment opportunity (DSE, 2022). Access to investment by individuals in stock markets enables industries and governments to meet medium and long-term capital requirements (Ikeobi, 2015). Furthermore, stock markets facilitate the fastest growth of industries, banks and companies, thereby increasing capital through the issuance of shares as public savings flow into productive economic investment (Iddrisu and Abdu-Malik, 2017; Thomas, 2017; Abiad *et al.*, 2015; Khyareh and Oskou, 2015).

Participation in stock markets involves ownership and co-ownership of assets and benefits in financial returns as a payment from assets owned (Radtke *et al.*, 2018). As one of the emerging capital markets, DSE plays a vital role in enabling individual and institutional participants to mobilise long-term capital to the private sector. Apart from providing capital to firms through equity, bonds, and debentures, DSE also provides an opportunity for individuals in society to acquire equity capital through share ownership in key sectors of the economy (DSE, 2016). By the end of 2021, DSE trade included equity shares of 28 domestic and cross-listed companies (DSE 2021), thus facilitating reaching out, among others, individual participants. In addition, the DSE trades more than eight (8) types of government bonds and five (4) corporate bonds (DSE, 2020).

An increased number of individual and institutional participants in DSE facilitates the financial liquidity of firms and the market (Massele *et al.*, 2013). Individuals are motivated to invest in liquid companies because they expect returns through dividends

and capital gain generated by being company owners through share acquisition (Radtke *et al.*, 2018; Grimbeek, 2016). Studies (Sarkar and Sahu, 2018; Ma *et al.*, 2017) show that as individuals invest, it can affect stock market indicators such as the volume of shares, traded price and turnover of firms. For example, in China, Ma *et al.* (2017) reported a change in share price by 1.38% and in the volume of shares traded by 8.62%, linked with individual investors holding up to 86% of traded shares, and the changes were due to policy changes and reforms. Apart from changes in market indicators, the Dow theory also suggests that public/individual participation also contributes to the capital and liquidity of the market, as supported by Blume and Keim (2012). Furthermore, individual participants are identified as the backbone of the Indian capital market as they create the country's capital stock (Sarkar and Sahu, 2018).

Despite the reported contribution of individuals' participation in the stock markets and their influence on other stock market indicators, such participation is still low in China and Egypt due to its low potential to attract investors (Zhang, 2020; Mosalamy and Metawie, 2018). The low individual participation worldwide is denoted as a stock market participation puzzle (Nyakurukwa and Seetharam, 2022). In the US, individual participation decreased from 80% in the 1980s to 20% in 2020 due to economic changes and increased institutional investors (Fichtner, 2020). Conversely, in the Asian continent, Singapore has one-third of the working population investing in the equity market. Malaysia had 26% individual investors, while China had 14.6% (Wazal and Sharma, 2017). In Colombo, retail investors form up to 20% of market capitalisation (World Federation of Exchange, 2017). The low participation of individuals has also been identified in Nigeria, where the percentage of domestic individual investors is 6% (Andow and David, 2016). In the Kenya Stock Exchange, the individual investors' participation rate decreased from 27% in 2008 to 4% in 2019 (Langat and Rop, 2019).

The DSE is no exception to capital markets facing low participation of individual investors in financing firms. Since the commencement of its activities in 1998, DSE has had 28 listed companies with a total market capitalisation of TZS 15,809 billion (DSE, 2021), enabling companies to raise long-term funds. However, individual participation is still low; according to DSE statistics, individual investors are only 556,121, which is 8.29% of the total shareholders (CSDR, 2018) and less than 1% of the entire country's population (NBS, 2022). Previous studies on the limited participation of individual

investors in DSE have associated it with personal/demographic factors and the firm's economic performance (Mwamtambulo, 2021; Gowela, 2020).

The participation change among individual investors around the world, based on empirical review and theories (behavioural finance, socioeconomic, prospect and self-awareness theory), is associated with parameters such as technological change, return, liquidity of the market, security (safety), economic growth of the country, and knowledge and awareness of individual investors (Brown *et al.*, 2017; Cheng *et al.*, 2018). Other factors identified to hinder or facilitate participation, based on theories and empirical literature, include general knowledge of stock trading, income, risks associated with share business, and potential to attract investors (Gumbo and Sandada, 2018; Cheng, 2019; Mishra, 2018). Mosalamy and Metawie (2018) add that investors' attitudes and subjective norms affect stock market participation.

The government of Tanzania has implemented numerous efforts to encourage investors locally and internationally to trade at DSE, for example, the National Investment Policy of 2021, the Zanzibar Investment Policy of 2014 and the Tanzania Investment Act No.10 of 2022 enabling local investment and income flow, leading to economic growth. Apart from that, regional integration and globalisation of the Dar es Salaam Stock Exchange aimed at attracting foreign capital and efficient utilisation of capital was implemented. The increase in foreign participation was expected to encourage domestic participation in the capital market (Amunkete, 2023; Rashid, 2014). However, individual participation, especially local participation, still needs to grow. CMSA and DSE are known for their effectiveness in promoting good corporate governance, such as promoting the protection of investors, transparency and financial disclosure (DSE, 2021). For instance, DSE has introduced a fidelity fund to protect investors against loss associated with a default of a licenced dealing member, aiming at increasing trust for investors and attracting participation (DSE, 2021); nevertheless, participation is still low.

Furthermore, the government of Tanzania has introduced different policies and regulations aiming at finding ways to increase individuals' participation in DSE, such as Bilateral Investment Treaties (BITs) and the development of the Investment centre (TIC, 2023). Additionally, the Finance Act of 2016 was developed from the Finance

Bill No. 21 (URT, 2017). The Bill required telecommunication companies to issue 25% of their outstanding share to the local public. As a result, by 2016, new companies had been listed and issued shares through Initial Public Offering (IPO) to the public. For example, Vodacom Tanzania issued to the public 25% of its authorised share capital in 2017; Mwalimu Commercial Bank issued shares to public school teachers in 2015; and DSE issued shares and became a publicly owned company. Furthermore, policy changes led to the inclusion of small and medium enterprise companies (SMEs) in DSE listing (Kamazima and Omurwa, 2018).

In implementing different policies established in Tanzania to increase participation, DSE, in support of CMSA, established the Enterprise Growth Market (EGM) as a market segment which creates entry to capital markets for Small and Medium Enterprises (SMEs) which had no access to capital market opportunities (Mwenda, 2021; CMSA, 2013). Impliedly, EGM is an equity market supporting start-ups and small companies to access capital through listing at DSE. According to DSE (2023), EGM provides visibility of companies through DSE and raises capital from retail (individuals) and institutional investors, domestic and foreign. There are 6 listed companies under EGM, which include Mwalimu Commercial Bank, Maendeleo Bank, Mkombozi Commercial Bank, Yetu Microfinance Plc, MUCCOBA Bank Plc and Jatu Plc, which enabled the public to acquire shares through an Initial Public Offer (IPO).

Despite the policies and strategies, individuals' participation in the stock market is still low (Epaphra and Kiwia, 2021). Therefore, factors determining individual participation in DSE are crucial to enhance individual participation and share trading for firms, markets and individuals' economic return. Individual participants are important because a limited number of participants can contribute to the market's illiquidity (Massele *et al.*, 2013). Scholars have highlighted issues that need to be addressed to increase participation in DSE, such as the availability of information and firm performance (Mwamtambulo, 2021; Epaphra and Kiwia, 2021). Moreover, Kasoga (2021) and Gowela (2020) have noted economic factors and general awareness as key issues to be addressed to improve participation. However, due to limited empirical research, factors that influence individual investors' participation have not yet been comprehensively studied.

Even though there are limited studies, some of the existing studies differ in findings; for example, Gowela (2020) indicated neutral and accounting information influences investment decisions. He added that price change, firm image, past trends, and advocate recommendations influence investment decisions. However, Clavery (2018) noted knowledge of the market and trust to influence participation. Kasoga (2021) noted risk tolerance and financial literacy influence investment decisions, which differs from Noel (2013), who found minor influence of financial literacy in participation. Thus, this study sought to generate new evidence and address factors affecting individual stock market participation, including socioeconomic, awareness and risk factors. Furthermore, the study analysed the trend of individual participation since the establishment of DSE and attempted to provide a future individual investors' participation forecast.

CMSA and DSE focus more on motivating companies and institutional investors than individual investors, affecting government efforts to reduce income inequality and make individuals financially self-sufficient as per SDGs 2030 (UNDP, 2015). Apart from that, DSE can moderate the financial costs and trading restrictions to reduce risks for individual investors because individuals have less/no influence on the market compared to institutional investors. Moreover, ignoring individual shareholders' rights may limit the role of DSE in ensuring effective and adequate protection for individual investors. This is because the development of investors' protection regulations contributes to the development of the stock market (Abuselidze, 2018). Hence, addressing the determinants of individuals' participation in the stock market is necessary.

1.2 Statement of the Problem

The main aims of the stock market are to increase capital for listed companies, provide an opportunity for individuals to invest for future returns, contribute to the market's liquidity, and facilitate the allocation of surplus resources to deficit areas (Radtke *et al.*, 2018; Kamazima and Omurwa, 2018; Grimbeek, 2016; Abiad *et al.*, 2015). Therefore, high individual participation fosters economic growth for individuals, industries, banks, and companies worldwide (Iddrisu and Abdu-Malik, 2017; Abiad *et al.*, 2015; Khyareh and Oskou, 2015). Additionally, Grimbeek (2016) noted that high individual ownership of company shares could also result in individuals' income growth through dividends and capital gain, enhancing family well-being. In Tanzania, individual participation in the stock market through groups can improve funding in the agriculture business in the

Kyela and Rungwe Districts (Molela, 2017). Similarly, the DSE's size and depth, through primary share offerings (equity capital), have been acknowledged to boost economic growth (Kapaya, 2020).

Despite the widely recognized contribution, individuals' participation in DSE has remained stagnant from 2017 to 2020, whereby individual participants are about 556,121 (DSE, 2021), equivalent to less than 1% of the total current population, different from Kenya, which is 4%, Nigeria 6% and South Africa 10% (Langat and Rop, 2019; Thomas, 2017; Andow and David, 2016). Similarly, under-subscription of shares and market illiquidity have been observed (Vodacom, 2017; Massele *et al.*, 2013). The persistent low participation of individuals threatens the contribution of the public participants in market capitalisation and general economic growth. Omodero (2019) noted that market capitalisation is formed by price and outstanding shares owned by institutions and individual investors. Therefore, individual participation is crucial for capital formation and liquidity of firms and the market. In that regard, DSE has a limited contribution to the economic growth of the country, a phenomenon demonstrated by the market's illiquidity, which is attributed to the limited number of market participants (Abbas *et al.*, 2016; Massele *et al.*, 2013).

There are limited empirical studies in Tanzania with contradictory and different results explaining the low participation. Clavery (2018) indicated that knowledge of share ownership influences the investment decision of an individual. However, Mwamtambulo (2021) indicated that firm performance and broker friends/advice influence participation, while Epaphra and Kiwia (2021) indicate financial literacy affects participation. Apart from different results, some studies are contradictory in findings; for example, Epaphra and Kiwia (2021) found that financial literacy is a key factor influencing individuals' decision to invest, while Noel (2013) found it to have a negligible impact on participation decisions. Apart from that, Werema (2020) indicated that crisis and risk affect stock trading at DSE, while Kasoga (2021) noted that risk tolerance can be moderated by the over-confidence of investors in investment decision-making.

Theoretically, modern portfolio and classical finance theory indicate portfolio allocation focusing on economic return and risk as reasons behind investment decisions, as used

by Mwamtambulo (2021) and Gowela (2020). However, the decision to invest by individuals may be linked to self-awareness of an individual, family participation, social interaction, and economic and risk factors. Thus, the study included individual self-awareness, behavioural finance, socioeconomic, Dow, and prospect theories to get a broader picture of why there is low individual investors' participation at DSE. Using different theories indicates different factors which can facilitate or hinder an individual's decision to invest in the stock market. The investment decision can be due to social, economic, awareness, risk or behavioural factors, which are captured by the study differently from other studies.

Therefore, the study aimed to investigate the factors facilitating and hindering individual participation in the stock market. The study focuses on individuals because they contribute to increased turnover, capital and liquidity of the firm and the market Ma *et al.* (2017): Blume and Keim (2012). It included social factors such as social interaction, access to internet technologies, and family participation. The study also included economic factors such as income level, investment preferences, and risk. The behavioural factors such as experience, amount invested and trading frequency of individuals were also included. Furthermore, the study analysed and forecasted trends of equity volume, turnover, Dar es Salaam All share Index, and individual participation in DSE.

1.3 Objectives of the Study

1.3.1 Main objective

The main objective of the research was to establish an understanding of the determinants of individual investors' participation in the Dar es Salaam Stock Market (DSE).

1.3.2 Specific objectives

Specifically, the study aimed to:

- i. Examine individual investors' awareness factors and their influence on participation at DSE.
- ii. Determine the influence of socioeconomic factors on individual investors' stock market participation.

- iii. Evaluate the effect of individual investors' risk behaviour on share trading frequency at DSE.
- iv. Analyse the effect of stock market indicators' trends on the domestic market capitalisation of DSE.

1.4 Research Questions

- i. Which awareness factors influence individual investors' participation decisions in DSE?
- ii. What are the socioeconomic factors that influence individual investors' stock market participation?
- iii. How does individual investors' risk behaviour affect share trading frequency at DSE?
- iv. What is the effect of stock market indicators' trends on the domestic market capitalisation of DSE?

1.5 Justification of the Study

Individual investors' participation in the stock market contributes to increased market capitalisation and liquidity, facilitating the country's economic development. However, the participation of individual investors in DSE is low, and the reasons behind the low participation are partially addressed. While some reasons for this phenomenon are known, a holistic and theoretically grounded analysis is limited. The knowledge gap about individual investors' participation in DSE was bridged by conducting an in-depth exploration of the determinants of low individual investors' participation in the stock market, shedding light on both familiar and previously unexplored factors. By doing so, the study offers practical insights and recommendations that can effectively support the growth of individual shareholders at the Dar es Salaam Stock Exchange (DSE). While certain factors may already be recognised, the research sought to provide a more nuanced and comprehensive understanding of these dynamics, which can guide policymakers, market participants, and investors towards more informed and effective strategies for increasing individuals' participation in the stock market.

This study has the potential to help DSE and Tanzania at large progress towards achieving Sustainable Development Goal number 8, which focuses on decent work and economic growth to be attained by 2030. Furthermore, participation reduces income inequality and makes individuals financially self-sufficient per SDGs 2030 (UNDP,

2015). Therefore, the results on factors and motives for individual participation and the trend and forecast of individual participation in the stock market would provide helpful information to policymakers and government authorities in planning and implementing SDGs and investment policies and programmes.

Additionally, this study contributes to the achievement of Aspiration One (1) of the African 2063 Agenda, which focuses on inclusive growth and sustainable development (AUC, 2015). One of the key targets to attain this aspiration is mobilising domestic resources and promoting increased savings and investments. Furthermore, it aims to strengthen financial institutions and markets to facilitate trade and integration. Gaining a deeper understanding of the determinants of individual participation enhances strategies that promote domestic resource mobilisation through saving and investment. Increased participation fosters job creation, improving access to necessities, raising the standard of living, and reducing income inequality.

Henceforth, the National Investment Policy was reviewed in 2011 and documented in 2014, along with the National Investment Promotion Policy of 2021 and the Tanzania Investment Act No. 10 of 2022. Assessing factors influencing individuals' participation in the stock market would add value to improving the existing policies. Foreign investment regulation and any special benefits for domestic investors are limited, documented in policies, and dispersed over several laws and regulations instead of being combined in a single body of legislation (OECD, 2013). Therefore, programmes like Improved Business Climate (IBC), including Local Investment Climate (LIC), which mainly focus on large investors, international investors and other sectors of economies, should incorporate the benefits of domestic individual investment in DSE. Thus, the study would add value to strategies for improving local individuals' participation in the stock market, enhancing group ownership of shares as per DSE policy and enhancing efficiency, fairness, and transparency per investment policy.

The study's utilisation of self-awareness and socioeconomic theory expands the existing body of knowledge. Moreover, the study's findings, which include social interaction, family participation, access to internet technologies, investment preference, and market awareness, added to the theories by explaining their applicability and relevance of these theories. The study findings contribute new knowledge to the theories by identifying

that awareness of the stock market, awareness creation seminars, and access to internet technologies increase the self-awareness of an individual. The findings further reveal the influence of behavioural factors such as experience and trading frequency, confirming the importance of the behavioural theory in explaining individuals trading in DSE. Furthermore, the study used the prospect theory to help understand the relationship between risk and trading, which expands the knowledge of risk and capital gain. Hence, the study contributes to the theory by addressing the gap that individuals trading are not only influenced by price and risk but also by behavioural factors.

Empirically, the study contributes to the body of knowledge by explaining key determinants of individual participation in the stock market, namely demographic, social, economic and behavioural factors. The study further examined the trend of individuals' participation in DSE and analysed its contribution to domestic market capitalisation.

1.6 Literature Review

1.6.1 Operational definitions and variables review

The thesis used different terms with different meanings representing different variables. This section describes the key concepts used in the study to clarify the meanings to the readers.

1.6.1.1 Stock market

Wendo (2015) defines the stock market as a secondary market in which shares that have been issued publicly are traded. It plays a significant role in firms' capital formation and facilitates market liquidity (Khanam, 2017). The study adapts Wendo's (2015) definition and defines the stock market or security market as a market place where buyers and sellers of shares, bonds, treasury bills and other securities meet for an exchange. It provides liquidity by enabling the firm to raise funds through the sale of shares and allows the flow of funds from the surplus owners to the needy companies.

1.6.1.2 Individual investor

Nikiéma (2012) defines investors as being either natural persons (individuals) or legal persons (companies/businesses) who hold investments nationally or internationally. The term investor was derived from the word invest/investment, which is defined by the Saudi Arabia Capital Market Authority (SACMA, 2015) as the commitment of current

financial resources to achieve higher gains in the future. Therefore, an investor is a person or organisation committed to a specific activity like real estate, livestock, shares, bonds, mutual funds, and business establishment for future higher benefits. This study considers an investor as someone who commits their cash in shares of the listed company directly for future expected returns, as supported by SACMA (2015).

1.6.1.3 Individual investors in the stock market

For a stock exchange, an individual investor can be a person who buys and sells shares of any company expecting a return from a particular investment. Wazal and Sharma (2017) define active retail/individual investors as the ones who invest in the equity market through the primary market (the new issue market of IPOs/FPOs) and secondary market (Trading on Stock Exchanges) directly. An individual investor is also defined as a person who buys shares in small amounts for himself/herself, unlike an institutional investor who buys in large quantities (Sarkar and Sahu, 2017; Wendo, 2015). Therefore, this study defines an individual investor as someone who invests his money directly in acquiring shares or bonds of a specific company in expectation of future return.

1.6.1.4 Individual participation

According to Radtke *et al.* (2018), participation in financial and economic aspects includes ownership and co-ownership of assets, benefit in financial returns from these assets, payments from assets owned, economic benefits for the community, or value added for the local economy. Mapuva and Muyengwa (2014) state that individual participation promotes dignity and self-sufficiency within the individual, triggers the individual's energies and resources and provides a source of special insight, information, knowledge, and experience. According to Arnstein (1971), as cited by Mapuva (2015), participation exists in three tiers: at the bottom of the ladder is non-participation, where decisions are made from the top and handed down to citizens; in the second tier, the quality of participation is through informing and consulting citizens; and the third tier consists of citizen involvement in the decision-making process. In this study, the definition of individual participation by Radtke *et al.* (2018) was adapted, meaning citizens who own shares and get returns from those assets.

1.6.1.5 Participation in the stock market

Participation in the stock market, the dependent variable in this study, is a situation whereby individual persons invest or participate in the stock market by buying or selling

shares. It is also explained by Sivaramakrishnan *et al.* (2017) that stock market participation measures whether the individual invests in the stock market or not. In the stock market, participation includes individuals and households who save and own mutual funds, stocks or shares (Nyakurukwa and Seetharam, 2022; Vestman, 2019).

Cogan and Sharpe (1986) view participation as an integral part of a planning process and focus on needs. Thus, participation must be legal, showing goals and objectives. Also, it should be an integral part of decision-making, and participants should receive adequate funding (Cogan and Sharpe, 1986). In this study, participation in the stock market means owning shares of any listed company under DSE and, therefore, being able to participate in decision-making through the annual general meetings, trading shares and receiving a dividend from it, as supported by Sivaramakrishnan *et al.* (2017). Consequently, a non-participant individual is a person who never held/bought shares or bonds directly from any of the listed companies in DSE.

1.6.1.6 Awareness factors

Clavery (2018) points out that stock market awareness means knowledge of share ownership. Similarly, Qureshi *et al.* (2014) argue that individual awareness measures investor exposure and information related to the industry, such as stock market activities. Awareness motivates individuals to participate as they increase their risk-taking skills, properly allocating their resources and growing trust (Wangmo *et al.*, 2018; Qureshi *et al.*, 2014). Awareness factors affecting individual participation in the stock market vary among authors. Some authors report that market awareness affects participation (Wangmo *et al.*, 2018; Acquah-Sam and Salami, 2013), while others identify financial awareness as a fundamental impediment to participation (Gowela, 2020; Arts, 2018; Gumbo and Sandada, 2018). For this study, awareness factors include knowledge of the Dar es Salaam Stock Exchange (DSE), its essential aspects and its operations related to the stock market. It was measured using indicators such as awareness of the existence of DSE and its activities, awareness of investors' rights, awareness creation seminars, and access to media and awareness of trading applications, as supported by Qureshi *et al.* (2014).

1.6.1.7 Socioeconomic factors

These factors focus on economic outcomes and consider individual investors' human and social lives. Hellmich (2015) views socioeconomic as a general science set up to

improve the conditions of human life. It is an adequate supplementation of economics with other social sciences and humanities. This study adopts variables from the literature (i.e. Arts, 2018; Barayandema and Ndizeye, 2018; Wazal and Sharma, 2017). The study measures economic factors with investment preference and income level, while social factors include social interaction, family participation, and access to internet technologies.

1.6.1.8 Risk behaviour

Risk behaviour indicates the willingness of an individual to take risks in making financial decisions (Svetlova and Thielmann, 2020; Walter and Maiké, 2015). As a result, it varies among individuals and firms depending on different factors such as return. Authors have considered risk among the key factors influencing individual investment decisions as they try to minimise risk and maximise return (Shehata *et al.*, 2021; Trang and Tho, 2017). However, Yuliani *et al.* (2017) argue otherwise that consideration and claim that psychological factors affect participation and are not necessarily risks. Risk behaviour must be examined for a decision to participate and trade in the stock market. The indicators for risk behaviour were established from the prospect theory and the behavioural finance theory. Therefore, risk behaviour in this study is defined as risk perception, the amount invested, years of trading (experience) and price consideration, which may affect individual trading.

1.6.1.9 Share trading frequency

Trade size and frequency are determined by the number of trades an individual or a firm has performed (Chong *et al.*, 2020). The frequency can be associated with an investor's target: a capital gain (buying shares at a low price and selling at a higher price) or buying and holding shares for a dividend. Hence, as measured by this study, trading frequency includes the frequency and speed of trading shares by investors, adopted from Du and Zhu (2017). Thus, share trading frequency in this study is defined by the number of times (frequency) an individual trades shares per annum, which includes often trading, rarely trading and holding for dividend and future returns as adapted from Du and Zhu (2017).

1.6.1.10 Stock market indicators

Stock market indicators measuring market liquidity have been identified to include the number of transactions, earnings per share, dividend yield, and price/earnings ratio

(Kuvshinov and Zimmermann, 2021; Abdel and Al-Afeef, 2020). Other studies have used share index and equity volume as crucial market performance indicators (Shah *et al.*, 2019). On the other hand, Idenyi *et al.* (2017) use stock market value, turnover, and share price indices as key market indicators. The current study used traded shares volume, turnover, DSE All Share Index (DSEI) and individual participants as indicators of DSE's domestic market capitalisation.

1.6.1.11 Domestic market capitalisation

Market capitalisation indicates the number of outstanding shares of the particular firm or market times the current share price (Omodero, 2019). Outstanding shares indicate shares held by individual investors (domestic and foreign investors), institutional investors, and shareholders without voting rights. Thus, individual participation involves the acquisition of shares from different companies, which results in increased firm and market capital. Hence, the current study measured DSE's domestic market capitalisation by outstanding shares from domestically listed companies, which involve institutional and individual investors multiplied by the share price as adapted from Omodero (2019).

1.6.2 Guiding theories

For proper assessment of factors influencing individual participation and responding to the study objectives, a single theory was found inadequate to explain the situation under study. Therefore, a combination of theories was used. The study was guided by the self-awareness theory (Duval and Wicklund, 1972), the socioeconomic theory (Granoveretter, 2005), the prospect theory (Kahneman and Tversky, 1979), the behavioural finance theory (Statman, 2008) and the Dow theory (Charles Dow 1900-1902). The study used the self-awareness theory to analyse objective one, which examines the influence of awareness on individual participation. Granoveretter's socioeconomic theory was used to evaluate the socioeconomic factors affecting individual participation, which could not be covered by the self-awareness theory. In contrast, the prospect and behavioural finance theories were employed to analyse the effect of risk behaviour on share trading frequency, as behavioural and risk factors could not be explained by previous theories. Moreover, the Dow theory was used to establish the link between the trend of stock market indicators and domestic market capitalisation.

1.6.2.1 Self-awareness theory

In examining the influence of awareness on participation, the study used the self-awareness theory proposed by Duval and Wicklund (1972). The theory states that ‘when we focus on ourselves, we evaluate and compare our current behaviour to our internal standards and values’. This is because individuals may focus on the self or may focus their attention on the environment. Williams (1985) notes that self-awareness increases self-knowledge and adherence to standards, long-standing morals and beliefs. Thus, decision quality could be enhanced by making individuals self-aware and providing an appropriate standard. This theory is relevant to the study because if individuals are self-aware, they know their investment choices and how they can respond to difficulties and make decisions through voting in invested companies. Also, self-awareness is expected to increase risk tolerance capacity and analytical capacity through financial awareness, self-discipline, and strength, as supported by Wright (2005).

On the other hand, Janis (1982) suggests that individuals have limited awareness of the stock market and investment decisions, which causes them to use group ideas in buying shares, leading to poor decision-making. Evdakov (2014) supports the idea and adds that stock market traders work on tips and information from different sources which suggest outstanding stock to acquire; thus, deciding to invest is not their own informed opinion. However, a self-aware individual is in a position to determine whether to invest in shares or pursue an alternative choice without relying on group influence, as supported by the theory. Hence, self-awareness is necessary for making meaningful choices (Dishon *et al.*, 2017). Thus, the decision made by an individual will be according to their standards, morals, and beliefs, and it might be a high-quality or poor-quality decision. Therefore, the theory adapted the self-awareness variables, awareness of shareholder rights, and awareness of the benefits of investing. It also included variables from literature (Qureshi *et al.*, 2014) and included awareness of DSE and awareness of DSEs’ general practices, but all can be attained with awareness creation seminars. However, the theory mainly focused on individual awareness only and not other factors that might impair the decision; therefore, it was necessary to include the socioeconomic theory.

1.6.2.2 The Socioeconomic Theory

The study used the socioeconomic theory in determining socioeconomic factors influencing individual participation in DSE. As propounded by Granoveretter (2005), the theory suggests socioeconomics as an intermix of economic and non-economic activities, whereby non-economic activities influence the costs and methods of economic activities. It assumes that economic interaction is mixed in the market's normative, cultural, structural and environmental contexts. When players (investors) seek economic gains through non-economic institutions such as social groups, they presumptively attain savings. Thus, social groups foster trust and accountability among members, encouraging friends and family members to lend a hand to one another. Granoveretter (2005) argues further that market prices become stable when small groups perform trades as opposed to larger groups for the stock exchange. Impliedly, share price volatility increases in larger groups than in smaller groups due to communication problems, trust, and social and economic forces that feed into one another.

The theory is appropriate for the study as it includes income-generating economic activities, security investments through groups and savings among group members. These economic activities must be embedded (intermixed) in social, cultural and environmental factors to attain economic goals. The social factors foster trust among individuals and facilitate the attainment of economic goals such as stock market investment. Social interactions shape individual preferences regarding making choices (Hellmich, 2015). As a result, trust can be developed in social groups and investment in information sharing, which can lead to stock market participation. Therefore, the theory was applied to select variables such as group participation, social interaction, investment preference, and income of individuals as an economic force, as indicated by Granoveretter (2005). However, the theory did not capture individuals' risk behaviour, leading to the introduction of the prospect theory.

1.6.2.3 The Prospect Theory

In explaining risk behaviour and trading frequency decisions among individuals, the study used the prospect theory, developed by Kahneman and Tversky (1979), and the behavioural finance theory, developed by Statman (2008). The prospect theory states that people decide based on the potential value of gains and losses. It adds that

outcomes obtained with certainty are overweight relative to uncertainty outcomes. It includes individuals' expectations, asset integration and loss aversion in making decisions. Barberis *et al.* (2019) argue that the prospect theory sheds light on asset price and investor behaviour and assigns value to gains and losses rather than to net final assets. Apart from individuals' risk-taking behaviour, traders focus on gain and loss caused by a change in price. The prospect theory is an appropriate measure of an individual's potential gains and losses in stockholding as it helps manage stock market anomalies.

The theory considers individual investors to be conscious of risks, focusing on potential gain and loss (Barberis *et al.*, 2019). It assumes that with an assurance of a positive outcome in trading, investors will choose to trade as the outcome exceeds its origin. On the contrary, a risk-averse investor will prefer holding a share with a low price (loss) and selling when the price increases (gain). Price consideration relates to arguments by Ebert and Strack (2018), who argue that an agent does not gamble any gamble, meaning that an investor cannot trade in unsure gain. According to Bilsen and Laeven (2020), the prospect theory suggests that people generally prefer a conservative portfolio strategy, which reflects a tendency to prioritise low-risk investments.

Contrary to the prospect theory, Statman (2008), who improved the behavioural finance theory, argues that investors are normal, not rational, and the market is inefficient; thus, the expected return is measured by factors more than risk. According to Prosad *et al.* (2015), behavioural finance considers investors' psychology which leads to behavioural biases, such as over-confidence and excess optimism, which are measured by past success experience and frequency of trading for an individual. Therefore, it is not only about risk and return (gains and losses) but also the human side of an investor (behaviour). Hence, the variables such as risk perception, experience, volume (amount) and frequency of trading were adopted from the theories. However, the theories do not explain the movement /trends of variables; thus, the introduction of the Dow theory was necessary.

1.6.2.4 The Dow theory

The Dow Theory was formulated by Charles Dow and presented in a series of editorials in the Wall Street Journal from 1900-1902 in analysing stock market indicators

influencing domestic market capitalisation. The theory propounds that the stock market has an up-and-downward trend such that when one of its averages (industrial) declines/advances above a previous critical high, then a similar decline/advancement in the other average (transportation) follows. The theory identified three cyclical trends or movements in the market, which Sheimo (1998) terms primary (bull or bear market), secondary, and minor (tertiary) movements. Furthermore, Thomsett (2019) applied the theory and added that it contains six tenets, including 1) Three market movements, such as primary trends, medium trends, and minor trends; 2) Phases of market dynamics, such as phases of accumulation, public participation, and distribution; 3) News that the market discounts as reflected in prices; 4) A trend which must be seen in the major average and confirmed in one of the others to recognise as new and in opposition to prior trends; 5) Trading volume serving as a reliable indicator of trend strength because it indicates the trend's general direction; and 6) Trends persisting until clear indications that they have come to an end.

The theory is appropriate for observing the trend of individual participation, volume, price, and turnover as they act as signals of domestic market capitalisation, mainly having primary and secondary movements as indicated in the Dow theory. Hence, the movement of market capitalisation is adopted and observed through a change in volume, turnover, price, and individual shareholding, and it assesses whether these indicators influence domestic market capitalisation. Contrary to Dow's theory, the random walk theory, developed by Burton Malkiel in 1973, expounds that the price change is random and, therefore, unpredictable. It can be 50/50 with positive or negative direction, caused by the poor quality of the information in the market. However, the reaction to the information by investors at DSE may not last long and, therefore, cannot affect the market movement. Apart from that, with well-interpreted facts (information), market movements, namely DSE market capitalisation and its indicators, can be predicted or forecast. The random walk theory also highly focuses on price and factors affecting price movement in the market. Therefore, the Dow theory is appropriate because the signals, such as a change in policy, change in leadership and introduction of new issues, are long-term; thus, they can trigger changes in market trends and make them predictable.

The five theories—self-awareness, socioeconomic, prospect, behavioural finance, and Dow theory—encompass various factors influencing an individual's decision to participate in the stock market. These factors include self-awareness, knowledge, social and economic conditions, risk, and behavioural tendencies. The impact of these factors on individual participation in the stock market is not uniform, leading to changes that affect the overall market, as indicated by the Dow theory. Based on these theories, we can deduce that awareness, socio-economic issues, behavioural factors, and risk assessment are crucial in shaping individuals' participation decisions. However, it is worth noting that cultural factors, such as familial influence and technological factors, such as media accessibility, are not adequately addressed by these theories despite their potential impact on market participation.

1.6.3 Empirical Review

The empirical literature review in this sub-section is discussed based on the specific research objectives. It covers the influence of awareness on participation, examines the socioeconomic factors and their influence on participation, determines risk behaviour affecting trading frequency, and analyses stock market indicators and domestic market capitalisation.

1.6.3.1 Level of awareness and individual participation

Individuals must be aware of different aspects related to share trading before investing, such as financial awareness, awareness of DSE and its activities, and awareness of investors' rights and the benefits of investing in DSE. Wangmo *et al.* (2018) studied awareness and challenges of the stock market in Bhutan, focusing on the public (non-participants), brokers and officials of the stock market. The study found that limited stock market awareness, trading activities and expected benefits affect participation. Similarly, Qureshi *et al.* (2014) examined the determinants of trust and level of awareness of retail investors in Pakistan using 140 respondents (investors, brokers and employees of the stock market). They found that awareness of the stock market is crucial for security market participation. Stock market awareness is necessary for an individual's decision to invest; however, other awareness factors should also be considered. On the other hand, Arts (2018) analysed financial awareness and stock market participation among 2000 Dutch households. At almost the same time, Sivaramakrishnan *et al.* (2016) studied attitudinal factors, financial literacy, and stock market participation among 506 investors in India. The above-mentioned empirical

studies found a positive relationship between financial literacy and stock market participation.

Abuselidze (2018), who assessed the functioning problems and development directions in association with the European Union in the Georgia capital market, found that awareness of investors' rights facilitates the protection of individuals by the firm and the security market. Hence, investors' awareness of their rights is crucial in individuals' investment decisions. However, the author mainly focused on individual shareholders' rights in only the companies they had invested in. However, in Tanzania, Clavery (2018) examined awareness of share ownership among 400 community members (18 participants and 382 non-participants) and noted that knowledge of the market and lack of trust affect participation. Concerning financial literacy, Noel (2013) analysed the determinants of the stock market among 250 individuals selected purposely from the recognised institutions in Tanzania. The findings contradict the ones of some previous authors (Arts, 2018; Sivaramakrishnan *et al.*, 2016) as it was identified that, in Tanzania, financial literacy has a negligible impact on individuals' participation in decision-making among academicians.

Therefore, empirical literature in Tanzania has mainly focused on general awareness and financial literacy in trading securities (Clavery, 2018; Noel, 2013). DSE is an emerging market; thus, basic awareness of individual investors is crucial, such as awareness of the existence of the DSE and its activities, benefits of investing, rights of investors, media deployment and technology applications for stock trading. Furthermore, the authors did not consider awareness-raising campaigns/efforts by the stock market through various media, seminars and training, which may enhance and improve individuals' self-awareness about stock market trading as supported by self-awareness theory.

1.6.3.2 Socio-economic factors and participation

For an individual to forego current consumption and invest in shares, assurance of future economic return is required, as suggested by the prospect theory. Barayandema and Ndizeye (2018) studied determinants of investment decisions in the Rwanda Stock Exchange. The study focused on 187 individual investors' social, economic, psychological and demographic factors. They found that economic factors such as

expected earnings and a company's ownership structure are the most influential factors in individuals' participation decisions. On the contrary, Ndiege (2012) examined factors influencing investment decisions in the equity market in Kisumu using 253 teachers. He used descriptive statistics and concluded that investment decision is influenced by economic, social, cultural and behavioural factors.

Similarly, Arts (2018), who examined financial literacy and participation among 2000 households, concluded that social factors affecting participation vary across countries, geographical locations or cultural practices (Arts, 2018). Hence, the studies argue that it is not only the economic but also social factors that affect an individual's decision to invest. However, these factors differ by cultural practices and location. Wazal and Sharma (2017) estimated the participation rate of retail investors in India using secondary data. They found that cultural savings are among the factors that may affect an individual's participation in the stock market. On the other hand, Liu *et al.* (2014) examined social interaction and participation among 17,000 residents in China using secondary data and noted that social interaction influences participation in the stock market. Similarly, Agyemang and Ansong (2016) examined 503 shareholders of Ghana and pointed out that family security (future protection of family members) and comfortable life (financial soundness and satisfaction) are known to play a significant role in individuals' participation in the stock market.

In Tanzania, due to cultural ways of saving, individuals prefer informal savings systems such as VICOBA and mobile phones. Studies show that about half (48.6%) of the Tanzanian population use mobile phone savings, 6.7 per cent use the informal system, and only 16.7 per cent use formal financial services, which include banks and financial markets (FinScope, 2017). Hence, studies (Wazal and Sharma, 2017; Liu *et al.*, 2014) focused on a few social factors and did not consider internet technologies and social media essential in accessing information and socialising. Moreover, they ignored other social factors such as family background, social background and access to the Internet, as supported by Hu *et al.* (2019). Thus, due to differences in market development and geographical locations, the study on which this thesis is based intended to fill in the gap by examining the socio-economic factors influencing participation in DSE. Therefore, as per socio-economic theory and reviewed literature (Sharma (2017), this study combined social, cultural and economic factors which may affect individuals'

participation in the stock market, such as family participation, social interaction, access to the internet, influence from family members, income level, and investment preferences.

1.6.3.3 Risk behaviour and trading frequency

Various people have different risk behaviours, as supported by the prospect and behavioural finance theories. According to Lee *et al.* (2015), some investors are risk-takers, while others are risk-averse. Risk behaviour is also indicated by the willingness to take risks in financial decision-making (Svetlova and Thielmann, 2020). Thus, willingness can be measured by individual risk perception of how much an individual is willing to invest in the stock market. Lee *et al.* (2015), in their study titled “Stock Market Expectations and Risk Aversion of Individual Investors”, used secondary data from 2000 households in Scotland who had invested in different assets (participants and non-participants). They found that high-risk aversion is associated with lower market expectations. Hence, investors who perceive high levels of uncertainty are more likely to refrain from investing in stock markets due to negative impressions (Bilsen and Laeven, 2020; Gumbo and Sandada, 2018; Sivaramakrishnan *et al.*, 2017). However, Trang and Tho (2017) examined perceived risk, investment performance and intention from 465 retail investors in Vietnam. The findings contradict previous results indicating that the higher investors perceive risk in investing, the more they intend to invest. The risk takers invest because they expect a high return to compensate for the risk incurred. The findings relate to ones by Brown *et al.* (2017) in their study, “Why Do Individuals do not Participate in the Stock Market in the Netherlands?” which used panel data of 2026 investors and non-investors of the Netherlands. They found a positive relationship between perceived risk premium (PERP) and stock market participation. Therefore, if individuals perceive a high-risk premium, they would be willing to invest no matter the risk associated with the shares.

Shares being too risky is also linked with price volatility in the stock market. The link is supported by Ozenbas *et al.* (2022) in their book “*Liquidity, Markets and Trading Action: An Interdisciplinary Perspective*”, which focuses on participants. Similarly, Huber (2019) observed whether investor risk perception drives asset price in the market using 800 tellers and focusing on participants. The results indicated that the market volatility caused by prices affects investors’ demand and supply decisions. On the

contrary, Ma *et al.* (2017) analysed the liquidity and trading in stock markets using secondary data from individual investors in China. The authors used listed stock and examined price, volume, share outstanding and return index. The results show that trading does not consider price alone as per the prospect theory but also the trading period. It can further be influenced by the experience of trading in the market (Malmendier *et al.*, 2020; Liivamägi, 2016), which is also supported by the behavioural finance theory. However, Malmendier (2021) indicates that the long-lasting experience triggers bias because individuals experiencing continuous loss in trading shares might not trade, compared to individuals who get profit from several trades. Thus, an individual with positive experience can trade any amount of equity after observing the market and expect a positive return. The amount invested by an individual in share trading indicates the risk behaviour of an investor because of volatility caused by price change (Ozenbas *et al.*, 2022). However, Yochim and Davis (2021) examined how the stock market worked and pointed out that, due to too much volatility, an individual should invest an affordable amount of money in losing and not exceeding 10% of an individual's portfolio.

For instance, the reviewed studies by Lee *et al.*(2015) and Gumbo and Sandada (2018) used secondary data and focused on brokers, managers and financial analysts, not individuals. The authors also measured the risk behaviour based on only one of the aforementioned variables, risk perception, using a Likert scale only (Kasoga, 2021). However, the study on which this thesis is based included other variables, such as price consideration, the amount invested, and trading experience in measuring an individual's risk behaviour, which was not captured by previous studies but is supported by prospect theory and behavioural finance theory. Besides that, the study used primary data collected from DSE direct individual investors participating in the exchange and who were involved in trading, which is different from Kasoga's (2021) and Gumbo and Sandada's (2018) approaches. Individual investors were considered in this study because they were involved in trading, and therefore, different risk factors might affect their trading as per prospect and behaviour finance theories.

1.6.3.4 Trend of stock market indicators and domestic market capitalisation

Trends indicate a general movement of the stock market over time, which can be upward or downward (Kempen, 2016). The market change is indicated by a change in

market capitalisation, which shows the growth and liquidity of the market. Omodero (2019) examined capital market determinants and market capitalisation using 20 years of data in Nigeria. The author found that market capitalisation is formed by multiplying outstanding shares with the share price. He further found that different indicators are reported to influence market capitalisation, including inflation, interest rate and exchange rate. Kuvshinov and Zimmermann (2021) analysed stock market capitalisation in the long run (1870-2016) for 146 years for 17 countries. The data were analysed using regression as well as trend analysis, and the findings indicated that equity price, net issuance, and market value determine market capitalisation. Similarly, Abdel and Al-Afeef (2020), using secondary data from 1978 to 2019, found that number of transactions, earnings per share, dividend yield, and price/earnings ratio influence the stock market capitalisation. However, the share price and the share index (S&P 500) with an upward trend in individual stocks can outperform the buy-and-hold strategy and increase the equity volume (Shah *et al.*, 2019). Implicitly, the shares index facilitates predictability of the stock market, and individual investors cannot buy and hold stocks but trade for capital gain.

On the other hand, Indrayana *et al.* (2020) evaluated the effect of net income, equity, cash dividend, average price and volume on corporate market capitalisation in Indonesia. The study used path analysis to analyse stocks for ten years and found that net income, average price, and volume indicators had a causal relationship with corporate market capitalisation. Idenyi *et al.* (2017) found that from 1986 to 2016, the value of stock traded and market capitalisation were key capital market indicators which contributed to economic growth in Nigeria. Similarly, Thalassinos *et al.* (2015) examined the financial crisis (2006-2009) and its impact on performance indicators in 10 countries. The authors identified turnover, share price indices, and market capitalisation as having causal relationships with the performance and growth of the market. Thus, different authors have used different indicators to examine their influence on market capitalisation. Although different factors are considered, the authors focused mainly on the overall firm's capitalisation. On the other hand, other authors have analysed the overall market capitalisation, not domestic market capitalisation. Domestic market capitalisation is formed by domestic companies listed at DSE. Therefore, as per the Dow Theory, the study used the volume of shares traded, share turnover, DSEI and the number of individual participants (public) as indicators of DSE domestic

capitalisation. Therefore, this study intended to analyse the trend of stock market indicators and their impact on domestic market capitalisation.

1.6.4 Individual participation in the stock market

Low individual participation in the stock market, known as the '*stock market participation puzzle*', has brought considerable attention among authors (Mauricas, 2017). In assessing different factors influencing individual participation in the stock market, different issues were noted; however, they differ depending on the advancement of the market. Brown *et al.* (2017) examined why individuals do not participate in the stock market using 2026 individuals who participated through a household survey (centERpanel) in the Netherlands. The study used participants and non-participants and found that financial literacy, knowledge and income influence the decision to invest. Similarly, Cheng *et al.* (2018), in analysing social capital and stock market participation, reviewed different articles. The findings indicated that technology change, the use of a highly technological platform, the internet and electronic trading increase participation in the stock market.

On the contrary, Giglio *et al.* (2020), in their study 'Inside the Mind of the Stock Market Crash', noted that the passive probability of stock market disaster during COVID-19 affected individual invested portfolio in equity because they did not expect a positive return and future economic growth. Therefore, the authors found that retail investors reduce their equity due to changes in their expectations associated with crises such as the COVID-19 pandemic, fearing future benefits. However, Zheng *et al.* (2022) examined why there were more household stock market participants during the COVID-19 pandemic among household investors in the US. Reports on the S&P & P500 index and household equity ownership in the Nasdaq and New York Stock Exchange indicated increased household/retail equity ownership, volume and domestic market capitalisation during the pandemic. Apart from that, Gepp *et al.* (2018) examined the use of big data in auditing based on online research and literature review. The author noted that using big data for individuals through networks and other social media increased individual investment and volume in the stock market and facilitated predictions of future stock market participation.

Langat and Rop (2019) analysed risk aversion and stock market participation decisions among secondary school teachers in Nairobi for developing markets. The study used

320 teachers of Nakuru county and analysed their information using regression and ANOVA tests, concluding that risk aversion behaviour is among the identified significant factors affecting participation. On the other hand, Barayandema and Ndizeye (2018) studied the determinants of investment decisions in the Rwanda Stock Exchange. They reported that economic factors such as expected earnings and a company's ownership structure are the most influential factors in individuals' stock acquisition decisions. Therefore, the investment return is crucial in an individual's investment decision. However, Gumbo and Sandada (2018) identified that awareness, transaction cost, cognitive skills and internet access influenced individuals' intentions to invest in Zimbabwe. Therefore, different factors influence individual participation depending on the market. In view of this study, the variables are crucial but generally expressed. About DSE as an emerging market, this study examined the basic awareness level of the stock market among individuals to see whether it impacts participation or not. Furthermore, the contradiction of determinants for individuals' participation in developed and developing markets attracts attention to be analysed from Tanzania's perspective. For example, Brown *et al.* (2017) found income and financial literacy to influence participation, and Cheng *et al.* (2018) found technological change as a key factor, while Langat and Rop (2019) indicated risk aversion to influence individual participation. Thus, the current study included social, economic, demographic, risk and awareness factors in assessing their influence on participation for proper recommendation to the market, regulators, individuals and policymakers.

1.6.5 Research Gap

Previous studies on determinants of individuals or retail participation in the stock market differ from the current study methodologically, in context and theoretically. Studies which tried to explain individual participation include the ones by Barayandema and Ndizeye (2018), Gumbo and Sandada (2018), as well as Chien and Moris (2017). However, the studies differ from the current study in context; for example, Gumbo and Sandada (2018) used managers, brokers, analysts and assets managers. They assessed trust, transaction cost, cognitive skills, perception and internet effect on participation in the stock market. On the other hand, Barayandema and Ndizeye (2018) focused on individual investors only and assessed earnings and ownership structure, psychological factors, income, education, gender and age. Despite social factors being important, they only addressed demographic factors, income and gender but not other social factors

such as social interaction, access to internet technologies, family participation, and involvement in social groups, which are addressed by this study. Other studies, such as one by Brown *et al.* (2017), focused on financial literacy and risk premium as economic factors determining stock market participation, but the current study focused on the type of investment preferred and income level.

In Tanzania, limited studies have highlighted the factors influencing participation in the stock market. Mwantambulo (2021) recently identified demographic factors, company performance, friends, and brokers' advice to play significant roles in individual participation. Conversely, Mboma and Reuben (2013) noted that personal decision factors influencing individuals' participation in the stock market include general awareness, age, sex, income, returns and earnings. The studies did not consider essential factors such as individual awareness about the stock market and awareness of DSE's trading activities. Awareness of the rights for shareholders and the influence of awareness creation seminars on individuals' participation were not included as they are crucial in enhancing participation, as supported by Mishra (2018) and Clavery (2018). Apart from awareness, the frequency of trading in the stock market by individuals for capital gain was not included in the previous studies as indicated by the behavioural finance theory to reflect individual investors' behaviour towards trading. Furthermore, the trend of individual participation since the establishment of DSE is yet to be analysed to show the performance of the equity market as suggested by the Dow theory. As a result, the current study intended to cover the gap.

Furthermore, contrary to previous studies, different theories and models were applied to the study. Integrating different theories in this study facilitated the evaluation of different awareness, social, economic and risk factors affecting individual participation, unlike previous studies, which mainly focused on a single theory. Apart from theories, previous studies (for example, by Mwantambulo, 2021; Barayandema and Ndizeye, 2018; Gumbo and Sandada, 2018) employed descriptive statistics and a single model for estimation. This thesis used various estimation models to generate more specific and realistic results from different angles using different statistical tools to get more comprehensive findings to enable the generalisability of the findings.

1.6.6 Conceptual Framework

The conceptual framework in Figure 1 shows the relationship between the dependent and independent variables, reflecting the study's specific objectives. The dependent variable, participation, has been defined based on the participation theory by Cogan and Sharpe (1986), and it includes participating through buying, holding and selling shares or not participating. Therefore, an individual can be a participant (acquiring shares) or a non-participant who does not invest in shares. The dependent variable further includes the frequency of trading or participating by individual investors. Individuals with different investment strategies may buy and sell frequently, trade a few times yearly, targeting capital gain, or buy and hold, targeting dividends. Additionally, individual share acquisition increases the volume of shares traded and turnover, affecting the market capitalisation. Henceforth, to broaden the perspective related to individual participation, an evaluation of how the outstanding shares acquired by individuals contribute to market capitalisation was also included, as per Omodero (2019), who argues that market capitalisation is formed by outstanding shares and price per share. Furthermore, share index, volume and turnover and their influence on domestic market capitalisation were included as used by Indrayana *et al.* (2020).

Independent variables were derived from the theoretical and empirical literature reviewed, such as Wangmo *et al.* (2018), Trong and Tho (2017), Omodero (2019) and Indrayana *et al.* (2020) who assessed factors that influence individuals' participation, including awareness, and socioeconomic variables access to media and internet technologies, risk behaviour factors and market indicators' trends. The market indicators' trend of individual participants, volume and turnover of shares associated with a price change (share index) may influence other individuals to participate. Thus, changes in individual participation, volume, turnover, and DSE All Share Index (DSEI) affect the DSE's domestic market capitalisation.

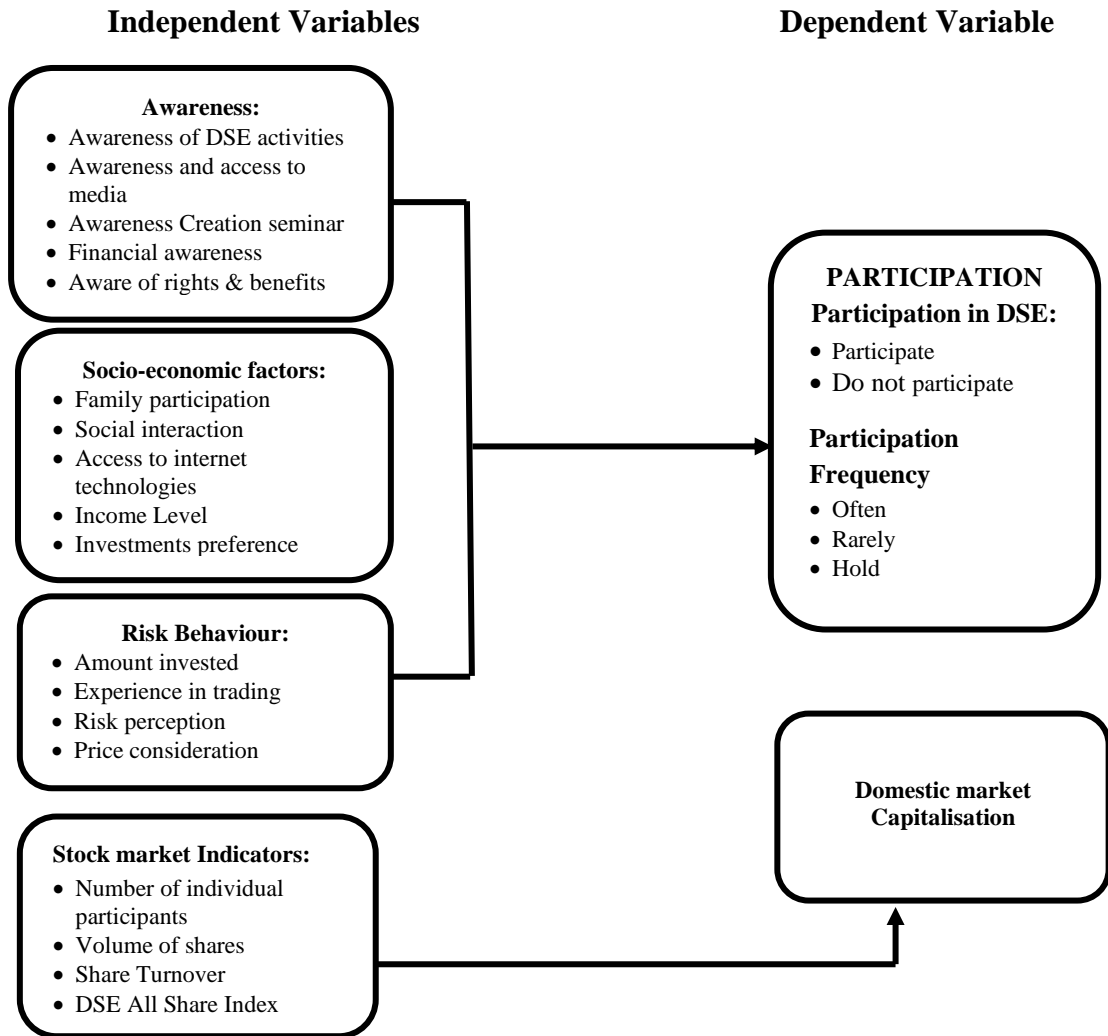


Figure 1.1: Conceptual Framework

1.7 General Research Methodology

1.7.1 Research philosophy

Research philosophy is the prime study of general and fundamental problems related to reality and knowledge standards of the world. It shows how the answers to problems are attained using scientific procedures (Kenaphoom, 2021). Thus, there are various research philosophies, such as positivism, interpretivism, realism, pragmatism, objectivism, subjectivism and constructivism (Saunders *et al.*, 2012). However, positivism and interpretivism are two major research philosophies identified in research science. Saunders *et al.* (2012) noted that positivism prefers natural reality observed from the viewpoint of objectives and expects the end product of the research to be a law. He added that the philosophy mainly uses scientific methods based on quantitative data for generalisation. Interpretivism insists that researchers focus on social science,

including humans, rather than objects and nature to generalise the phenomenon (Saunders *et al.*, 2012). Thus, interpretivism focuses on the human view for generalisation, while positivism insists on using scientific methods and quantitative data.

The pragmatic philosophy was adopted for this study because the fundamental process of problem-solving offers flexibility, speed, efficiency and accuracy (Rahman and Zakaria, 2008). Furthermore, it is considered realistic as it combines different philosophies (interpretivism and positivism) in answering the research questions. Therefore, a mixed methods approach was used to solve the research problem for sound and adequate decision-making (Burns and Burns, 2008; Saunders *et al.*, 2012). The positivist approach explains the causal relationship using quantitative data, but quantitative measurements are rigid, structured, fixed and predetermined to facilitate accurate measurement of information (Kumar, 2011). In contrast, the interpretivism approach explains the study context and the relationship between the variables in detail (Kumar, 2011). Thus, the pragmatism approach (Combination of positivism and interpretivism) was appropriate, whereby the study used different methods from data collection to analysis of the variables.

1.7.2 Research design

Research or study design is the process which indicates the protocol of the study for the precise methodology to be applied (Brus, 2017). The study adopted a cross-sectional research design in assessing the factors contributing to individual participation and its trend in DSE. The cross-sectional research design was selected because it simultaneously measures the exposure and outcome in the study population and facilitates studying the association between them (Setia, 2016). Hence, the design enabled the usage of different methods during data collection and statistical methods in data analysis. Therefore, the cross-sectional research design was selected because the study involved different strategies and used mixed methods.

Similarly, the current study used primary qualitative and quantitative data and secondary quantitative data (time series). Thus, the study combined primary, secondary, qualitative and quantitative data, enabling information (sensitive and limited) to be accessible and completed concurrently (Brus, 2017). Therefore, for this study, the

instruments were pre-tested, and qualitative and quantitative data were collected using a questionnaire for primary quantitative data, a DSE data service window (Checklist) for secondary data and a key informant interview guide for qualitative data to attain the validity and reliability of the data and instruments. Finally, data were analysed using different methods, including thematic analysis, chi-square test, logit regression and multiple regression, to integrate the results.

1.7.3 Study location and population

1.7.3.1 Study location

The research was conducted in Dar es Salaam Region which has an area of 1630 km² and five (5) administrative districts, namely Ilala, Kinondoni, Temeke, Ubungo and Kigamboni. Dar es Salaam is located on the coast of Tanzania, between latitudes 6° 45'S and 7° 25'S and longitudes 39°E and 39°55'E. It borders with the Indian Ocean to the east and the Coast Region to the north, west and south (URT, 2016). It is the country's commercial and manufacturing centre. Therefore, Dar es Salaam was chosen because it is the location of the DSE and had 15 brokers who facilitated shares and securities trading on behalf of different companies and individuals. Hence, the study area enabled easy access to information related to shareholders because DSE and brokers are the ones trading shares and bonds on behalf of individuals. Besides, non-participant individuals have the same access to services from DSE and brokers, but they choose not to invest; therefore, using the same location facilitated the determination of factors hindering their participation.

Dar es Salaam is also Tanzania's fastest-growing city and Africa's third-fastest urban corporate centre (UNDP, 2017). It is concentrated on commercial activities, contributing to approximately 90% of the country's tax revenues and 17% of the total GDP value (Haji and Cunningham, 2015). The city has a population of 5,383,728 with a GDP value of TZS 25,273.7 billion (NBS, 2022), which is the highest in the country, thus having people with high disposable income. Although investment can be made with individuals located in different parts of the country, the availability of disposable income may highly motivate stock market participation. Similarly, with DSE, brokers, and training conducted in Dar es Salaam, individual participants are more highly located in Dar es Salaam than in other places in Tanzania (DSE, 2020).

1.7.3.2 Study population

The study was conducted in Tanzania, focusing on the capital market, specifically on equity market participation by individuals. The capital market contributes to the capital formation of firms through issues of shares to the institution and the public. In evaluating factors influencing public participation in the stock market, participants and non-participant individuals were involved. Thus, the study population used was 3,599,412 individuals engaged in income-generating activities in Dar es Salaam (NBS, 2020). The population included participants totalling 556,121 as of June 2020 (DSE, 2020) and non-participants; however, in measuring risk behaviour and trading frequency, the study involved direct individual investors (556,121) in 22 domestically listed companies under DSE.

Individual investors of different companies in Dar es Salaam were selected for data collection using purposive and snowball sampling procedures. Combining investors from production, finance, communication, and service companies enabled assessing whether the type of industry facilitates individual participation in the stock market. Also, combining different companies makes it easy to generalise the influencing and hindering factors of participation in the stock market because the attractiveness of a specific industry may be the reason for participation, as per Mwamtambulo (2021). The study further included brokers and employees of DSE and CMSA to collect qualitative information related to factors for individual participation in DSE and efforts to increase participation.

1.7.4 Sampling and sample size

Sampling is the process of selecting a small number or group of cases from a large population to facilitate drawing a conclusion about all cases (Walliman, 2011). According to Kumar (2011), sampling for qualitative and quantitative data differs because quantitative research draws inferences about the group from which the sample was selected; in contrast, qualitative research seeks to gain an in-depth understanding of the situation. Pandey and Pandey (2015) identified that there are two sampling strategies; the first is probability sampling, where each element included has a probability of being selected. They noted that probability sampling contains random sampling, systematic, stratified, multistage, and cluster sampling. The second one is non-probability sampling, whereby the sample is selected non-randomly depending on

the techniques of the researcher and includes accidental, judgemental, purposive as well as quota sampling.

Thus, qualitative data involved key informants selected purposively from individuals engaged in income-generating activities in Dar es Salam Region (3,599,412). Therefore, the population included spokespersons of the key players of the stock market and experts to provide in-depth information relating to the stock market. The selected respondents were considered knowledgeable, experienced, experts and rich in information related to share trading at DSE. The key informants for the study included one spokesperson of CMSA as the regulator of the stock market, two (2) senior DSE officers as trader record keepers of different securities, one senior academician expert from a famous university and two brokers selected from the first registered brokerage firms who trade on behalf of participants (investors) and act as middlemen between investors and DSE. The information collected provided a detailed explanation of the low participation and trading among individuals in Tanzania.

The study employed an exponential non-discriminative snowball sampling procedure to access individual participants whereby every participant selected for research recruits another participant due to limited accessibility (Etikan, 2016). Furthermore, snowballing was appropriate because the individuals' physical locations were not identifiable from the DSE repository. Tanzania started introducing the GIS postal codes in 2021/2022, and the exercise was under development at the time of data collection. Convenience sampling was used to select non-participants whereby every working adult located in one of the districts, depending on willingness and accessibility, was selected to reach a required sample per district. Therefore, first, the study identified different economic activities from public and private (universities, hospitals, schools, investment centres and companies) and self-employed (farmers, company owners, school owners and *bodaboda* [motorcycle] riders) for each district. Secondly, from each economic activity, equal numbers of respondents were selected depending on their willingness and readiness to respond to the questions, leading to the required number of 200 non-participants. Henceforth, for both participants and non-participants, the total sample collected included 116 respondents from Ilala, 18 respondents from Kigamboni, 82 respondents from Kinondoni, 78 respondents from Ubungu, and 106 respondents from Temeke.

Saunders *et al.* (2012) proposed a method to identify sample size per group. They noted that for a population of 100,000 or more with a 95% confidence level, 383 respondents are the required size, but the more representative a sample can be, the more reliable the results are. Therefore, the study collected data from 400 respondents through a structured questionnaire, which was distributed directly to respondents by the researcher. The study arrived at the number using Cochran's (1977) sampling formula for the finite population as applied by Epaphras and Kiwia (2021). This is because the population and the number of prospective and existing individual shareholders per company were also known (Company's Annual Reports).

$$n = \frac{n_0}{1+(n_0-1)/N} \quad (1)$$

Where: N = Population Size (3 599 412 including 556,121 participants),

n_0 = Sample size as calculated by Cochran 1977 formula = 384,

n = Sample Size for a finite population,

The margin of error is 0.05 or 5%, and

Confidence level t = 1.96 at 95%.

Therefore, the finite population formula was used to determine the sample size:

$$n = \frac{384}{1+(384-1)/3\,599\,412} \quad \text{estimated sample size} = 384$$

Hence, the sample was estimated at 384, but the logistic model requires a big sample size (Epaphra and Kiwia, 2019). Apart from that, the study required participants and non-participants to be able to respond to the study objectives. In examining risk behaviour and trading frequency, the study required only participants of the stock market, and, according to Johnston *et al.* (2019), a sample of 200 respondents and above is acceptable for the regression model. Therefore, the sample was increased by 10% (Brus, 2017) to 422, but 400 questionnaire copies were collected, equivalent to a 94.8% response rate. The sample size was distributed between participants and non-participants at a ratio of 1:1 as per Etikan and Bala (2017), who suggest that to compare different strata, selecting an equal sample from each of the strata would be efficient even though the strata will be of different sizes. Therefore, to respond to objectives one and two, data were collected from 400 respondents whereby, 200 respondents were participants, and 200 were non-participants.

Risk behaviour and share trading frequency of individual investors focused mainly on participants only. The sample size for the individual participants was determined using Slovin's (1960) formula for finite populations because the population of participants was 556,121 participants (Equation 1).

$$n = N / (1 + Ne^2) \quad (1)$$

$$n = 556,121 / (1 + 556,121(0.07)^2) = 204 \text{ respondents}$$

By using snowballing sampling, a 95% Confidence interval (CI) is challenging to attain, and 90% is small for a given population. However, the range of < 0.10 error term or > 90% CI performs best (Dean and Pagano, 2015). As a result, 93% CI was applied, and data were collected from 200 respondents, equivalent to a 98% response rate.

1.7.5 Source and methods of data collection

The study used primary qualitative and quantitative data and secondary quantitative data to tackle the specific objectives. Thus, the study adopted a mixed methods approach, whereby qualitative and quantitative data were collected concurrently using a structured questionnaire and a key informant interview guide. The two methods enabled triangulation to confirm the results.

Primary qualitative data were collected from key informants through semi-structured interviews using a checklist of questions to collect information to meet objectives one to three (Appendix II). According to Pandey and Pandey (2015), an interview is a two-way process which facilitates an exchange of ideas and information between the interviewer and the interviewee. Hence, the study used a key informant interview guide to collect data from respondents. Each of the interviews took 45 minutes to 1.30 hours for in-depth insight into the research problem. The study used four phases of interviews, as adopted from Brus (2017). The first phase involved making an appointment with the interviewee. The second one involved the preparation of a data collection tool. The third phase involved conducting face-to-face interviews based on themes, and the fourth phase was finalising the interview by documenting the information.

Primary quantitative data were collected from participants located in different districts of Dar es Salaam. Primary data were essential to this study because knowledge of what affects individuals in their participation needs to be known from individuals. Since

participants were obtained through non-discriminative snowballing, the first respondents were randomly selected from the annual general meeting booklet of one of the listed companies. Few individual participants (respondents) were selected randomly from the booklets, which also provided contacts of multiple referral individual participants. In addition, a few investors at DSE created a social group (WhatsApp), which the researcher was referred to by one of the respondents, leading to the accessibility of other respondents.

Convenience sampling was used to collect primary quantitative data from non-participants, whereby every working adult was likely to be included in the sample. Therefore, among 200 non-participants, 58 respondents were selected from Ilala, nine (9) from Kigamboni, 41 from Kinondoni, 39 from Ubungo and 53 from Temeke to ensure inclusiveness of every district as per its population. Therefore, all economic activities were identified, and every individual who was of working age was involved in data collection. The accessibility and willingness of an individual to respond to the questionnaire were observed before collecting the data. Thus, farmers, government employees, doctors, entrepreneurs, *bodaboda* riders, lecturers, and others with no specific jobs were also included in the study.

Quantitative data were obtained from participants and non-participants using a questionnaire. According to Pandey and Pandey (2015), a questionnaire is a form prepared with a systematic compilation of questions and distributed to different respondents (located in various areas) to secure information from them. The questionnaire can have closed-format or open-format questions (Walliman, 2011); hence, the current study used a closed or structured questionnaire. The questionnaire was divided into three parts, as indicated in Appendix I. The first part was for all respondents (participants and non-participants), and it included general information with demographic descriptions, socio-economic factors, and level of awareness. The second part focused on DSE participants' information, such as awareness of their rights, risk perception and trading frequencies. The third part was for non-participants' information, examining hindering factors for their participation and future willingness to participate. The questionnaire included information about awareness issues, economic, social, risk perception, and investment preferences by respondents, which

were adapted from Arts (2018). It also included statements related to socialisation and the use of social media adapted and modified from Qureshi *et al.* (2014).

Secondary data are data that already exist but are extracted for a study (Kumar, 2011). The main sources are books, records, government and semi-government publications, earlier research and mass media. Secondary data for this study were collected from the Dar es Salaam Stock Exchange (DSE) through the exchange data service window. Data from June 2014 to June 2020 were accessed through the DSE mobile trading platform. The period was selected because DSE migrated to the new efficient Automated Trading System and central Depository System (DSE, 2023), and therefore, data collected from 2014 are of good quality and reliable. The study accessed data related to the volume of equity shares, turnover of equity shares, domestic market capitalisation (DMC) and DSE All Share Index (DSEI). On the other hand, the trend of individual participants was accessed from the Central Securities Depositories Regulation (CSDR). Similarly, a documentary review of investment policy, DSE rules, investor protection policy, dividend policy and regulations related to the stock market was done concurrently.

1.7.6 Data analysis

1.7.6.1 Analysis of qualitative data

Qualitative data were obtained from key informants who were considered to be experts in stock market trading to obtain a deep understanding of factors influencing participation. Thematic analysis was used for analysing the information from six (6) key informants. The procedure for performing thematic analysis was adapted to methods by Salleh *et al.* (2017) and Kumar (2011). The process of qualitative data analysis involved three phases. Phase one of data analysis started with reading the transcripts and interviews from key informants for self-familiarisation with the information provided and establishing patterns. The patterns should be consistent with the objectives, mutually exclusive, homogenous and also limited in number (Brus, 2017). Phase two of data analysis involved assigning codes to the main themes manually based on similarities, functions, and information provided. Phase three of data analysis involved sorting the coded data to get potential themes and sub-themes (horizontal analysis). Thus, most developed themes, minority themes, and recurring arguments were identified; determining association among them was based on relevance and relation to the theory and objectives of the study. Finally, data triangulation was done by

integrating themes and responses into the objectives to link with inferential statistics results on determinants of individuals' participation in DSE.

1.7.6.2 Analysis of primary quantitative data

The study applied different descriptive and inferential statistics to determine the relationship between different factors and how they influenced individual participation in DSE. Therefore, quantitative data analysis varied depending on the objectives and variables defining the particular objective. As a result, each analytical technique applied per objective is described in brief in the subsequent paragraphs.

Awareness and participation in the stock market

The study used descriptive and inferential statistics to examine the level of awareness regarding the stock market and how it influences participation. Therefore, frequencies and Pearson's chi-square were used to analyse the association between the demographic factors of respondents and awareness regarding the stock market. It further examined the level of awareness of DSE activities, financial awareness, awareness of the benefits of investing in DSE and awareness of investors' rights. The study used binary logistic regression, adopted from Berger (2017), to determine the relationship between participation and awareness variables. The model was used because the dependent variable was participation (P), which was dichotomous, with 1 for participants and 0 for non-participants (Msemo *et al.*, 2018). The model was specified as follows:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1, Age + \beta_2, Sex + \beta_3, edu + \beta_4, ms + \beta_5, dse + \beta_6, fl + \beta_7, ac + \beta_8, md + \dots \dots \dots \epsilon_i \quad (2)$$

Where: P = Likelihood of participation; β_0 = constant (y-intercept); $\beta_1 \dots \beta_n$, = coefficients of explanatory variables; β Coefficient (-1 or 1) ϵ_i = error term 0.05 (CI 95%). **Age** = Age of respondents, **Sex** = Sex of respondent, **ms** = Marital status of the respondent, **edu** = Education level, **dse** = Awareness of DSE, **fl** = Financial awareness, **ac** = Awareness creation seminars, and **md** = Awareness and access to media.

Socio-economic factors and participation in stock market

Data were analysed using descriptive and inferential statistics to determine the socio-economic factors influencing participation. The descriptive analysis included computation of frequencies, cross-tabulation and Pearson's chi-square test of association between socio-economic variables. Furthermore, the study included a binary logistic

regression model because the measure of participation as the dependent variable (Participation) was dichotomous, with individuals participating (1) or not participating (0) (Radtke *et al.*, 2018; Arts, 2018). The measure was appropriate as the study examined different socio-economic variables and how they were likely to influence an individual to participate or not, as follows:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1, Age + \beta_2, Sex + \beta_3, Edu + \beta_4, Ms + \beta_5, Inv + \beta_6, Inc + \beta_8, Si + \beta_9, Fs + \beta_{10}, Int + \dots \varepsilon_i \quad (3)$$

Whereby: P = Likelihood of participation in DSE; β_0 = Constant coefficient; β_2 ---- β_k = coefficient of explanatory variables; and ε = Error term = 0.05. **Age** = Age of respondents, **Sex** = Sex of respondents, **Edu** = Education level of respondents, **Ms** = marital status of respondents, **Inc** = Annual income, **Inv** = Type of investment preferred, **Si** = Social interaction, **Fs** = Family participation in DSE, and **Int** = Access to internet technologies.

Risk behaviour and trading frequency of individual investors

Multinomial Logistic Regression was used to analyse risk behaviour and how it affects the share trading frequency of individual investors. The study also used descriptive statistics such as the Likert scale, mean and standard deviations in examining other risk behaviour variables such as the amount invested and experience that affect trading behaviour. The Multinomial Logistic Regression model (MLR) was selected because (i) the dependent variables had more than one outcome (often trade, rarely trade and not trade); (ii) variables had no order in the outcome; and (iii) independent variables that predicted the outcome were both categorical and continuous (Ari, 2016). The model was preferred because share trading includes buying shares, holding for dividends or selling shares for capital gain. Hence, the following model was developed:

$$\frac{P(Y_i = j)}{P(Y_i = J)} = \exp [\alpha_j + \beta_{j1}Amo + \beta_{j2}Yrs + \beta_{j3}Rpe + \beta_{j4}Pri] \quad (4)$$

Where: P = Probability of trading shares in DSE: $j = 3$ for often trade, $j = 2$ for rarely trade, and $j = 1$ for holding. β_{js} = are estimated, 1 for each explanatory variable.

Explanatory variables included: **Amo** = Amount Invested, **Yrs** = Experienced in trading, **Rpe** = Risk perception, and **Pri** = Price Consideration.

1.7.6.3 Analysis of quantitative secondary data

The quantitative data that were collected were sorted and corrected to remove errors and inconsistency (data cleaning) before being analysed because individual participation data were from June 2014 to July 2020. The period was because in 2013, DSE changed to the new efficient Automated Trading System (DSE, 2023). Other data for volume, turnover, domestic market capitalisation and DSEI were from January 2014 to December 2020. Therefore, data were rearranged to ensure uniformity among them before data analysis. However, the rearrangement was done cautiously to ensure the meaning was not distorted. Therefore, the Box-Jenkins (1976) Autoregressive (AR) Moving Average (ARMA) mathematical model was used to predict time series data. The model was used because the data were time series, and the trends of previous data of the stock market indicators were considered for forecasting future values. On the other hand, the ARMAX model linked the dependent variable (Domestic Market Capitalisation) and independent variables (volume, turnover, individual participation, and DSEI). The ARMAX model was used because the study analysed the relationship between time series dependent variables and time series independent variables, which are more than one (1).

The Box-Jenkins approach to time series (ARMA and ARMAX models) consists of four (4) phases: identification, parameter estimates of the model, and diagnostic testing, which leads to forecasting. According to Young (1977), the model identification examined data fitness in the model and stationarity and seasonality of the data using the autocorrelation function (ACF) and partial autocorrelation function (PACF). The second phase included estimating the best fit ARMA for all the variables using the normalised Bayesian information criterion (BIC) and Akaike information criterion (AIC). Thus, the five models with the highest p-values (higher than 0.05) and lowest BIC were chosen. The third phase involved a diagnostic test to see if the model fits the data appropriately by examining the model residuals for all variables using the ACF, PACF, normal probability plot, and white noise test. Finally, the data were forecasted, and the relationship between variables was analysed.

Analytical model of time series data

Since the study required showing the relationship between domestic market capitalisation and stock market indicators (volume, turnover, DSEI and individual

participation), the ARMAX model was found appropriate. Autoregressive Moving Average with exogenous variables (ARMAX), as adapted from Hamilton (2013), was used to analyse the causal relationship between domestic market capitalisation and stock market indicators. The model was selected because the analysis involved more than one independent variable in determining market capitalisation. It involved the number of individual participants, share turnover, the volume of traded shares, and the DSE All-Share Index.

$$y_t = \beta_0 + \beta_1 TS_{1, t-1} + \beta_2 IP_{2, t-1} + \beta_3 VS_{3, t-1} + \beta_4 DSEI_{4, t-1} + \mu_t \quad (5)$$

Where: y_t = Domestic Market Capitalisation (DMC) at time t , and it is a function of lag-1 and lag-2 values of predictor variables TS, IP, VS, and DSEI, and disturbance μ_t

The predictor variables included **TS** = share turnover; **IP** = numbers of individual participants; **VS** = volume of shares traded; and **DSEI** = DSE All Share Index.

1.7.7 Reliability and validity of data

1.7.7.1 Reliability of data

For a study to attain consistent findings related to the determinants of individual participation in the DSE, a test for the reliability of data collection tools is necessary. According to Livingston (2018), reliability tells us how consistently the test scores measure something. This study tested reliability using Cronbach's Alpha coefficient because it is mostly used in social science studies and provides better results than generalisability theory as it is based on the average correlation between all variables, and it is easier to use (Tavakol and Dennick, 2011). Thus, the study conducted a pilot study involving 30 respondents (15 participants and 15 non-participants) who were not part of the main study. In that regard, some ambiguous items were removed to improve the tool. Then, Cronbach's Alpha coefficient was performed on 14 items. The results indicated an internal consistency score of 0.806, higher than 0.70; hence, the variables used were reliable (*Appendix III-vi*). Livingston (2018) and Kadariya (2012) note that a reliability of 0.7 and above is considered an acceptable and good indication of construct reliability.

1.7.7.2 Validity of data

Validity tells whether the test scores used in a questionnaire measure the right things (Livingston, 2018). Validity for the research instrument was established by content

validity, which requires questions to have a logical link with the study's objectives (Kumar, 2011). Therefore, sufficient literature was reviewed to establish the accurate content of the instrument and ensure accurate indicators were used to measure respective variables. The pilot study also pre-tested the questionnaire before using it in the actual data collection. Suggestions, recommendations, and observations from pre-testing, which improve questions that respondents could misunderstand, were incorporated into the final questionnaire before the final process of data collection. Furthermore, experts, including the supervisors of the research, proofread the instrument, and their comments were incorporated into it for validity. Apart from improving the instrument, research assistants were also trained to collect data to ensure accurate information collection.

1.8 Ethical consideration

Ethical issues were observed from designing the research approach to data collection as the study involved human participants (Fleming and Zegwaard, 2018). Ethical issues, as guided by Moshi Co-operative University, were observed. Thus, clearance and an introduction letter for data collection were obtained from the University; they facilitated obtaining an introduction letter from the Dar es Salaam Regional Secretary. The letter from the regional office enabled getting the permit to collect data from the district offices (*See Appendix VII & VIII*). The permit was used at DSE and other offices to get secondary data and interview key informants. Ethical issues were also observed for respondents, whereby they were subjected to no harm, and the researcher obtained informed consent from participants before data collection. Data collection ensured the privacy, confidentiality and anonymity of research participants, as there was no disclosure of the names of the respondents. Furthermore, deceptions, exaggeration and plagiarism were avoided during the research process.

1.9 Organization of the Thesis

The thesis is organised into six chapters without considering preliminary pages and appendices. The preliminary pages include the title page, declaration, copyright, certification, dedication, acknowledgements, table of contents, list of tables, list of figures, abbreviations and acronyms, and extended abstract. Chapter One introduces the overall coverage of the study, covering the study's background, research problem, research objectives, research questions and hypotheses, justification, theoretical and empirical review, conceptual framework, and methodology. Chapters two, three, four

and five comprise published articles containing the findings of the first, second, third and fourth objectives. The chapters are prepared according to the university's postgraduate research guidelines. The last chapter (chapter six) summarises the findings of the research and gives conclusions and recommendations drawn from the findings.

REFERENCES

- Abbas, A. O., Pei, Y. X., & Rui, Z. (2016). Impact of Stock Market on Economic Growth Evidence: Dar es Salaam Stock Exchange - Tanzania. *Journal of Finance and Accounting*, 4 (6), 321-327.
- Abdel, M., & Al-Afeef, M. (2020). Factors Affecting Market Capitalisation: A Practical Study Ase 1978-2019. *International Journal of Scientific & Technology Research*, 9 (3), 7049-7053.
- Abiad, A., Furceri, D., & Topalova, P. (2015). *The Macroeconomic Effects of Public Investment: Evidence from Advanced Economies*, International Monetary Fund, 26pp.
- Abuselidze, G., (2018). Georgia's Capital Market: Functioning Problems and Development Directions in Association with European Union. *Journal of Applied Economic Sciences*, XIII, Winter, 7 (61): 1929 – 1938.
- Acquah-Sami, E., & Salami, K. (2013). Knowledge and Participation in Capital Market Activities: The Ghanaian Experience. *International Journal of Scientific Research in Education*, 6 (2) 189-203.
- Agarwal, V., Aslan, H., & Ren, H. (2018). Policy Uncertainty and Household Stock Market Participation. Working Paper, 80pp.
- Agyemang, O. S., & Ansong, A. (2016). Role of Personal Values in Investment Decisions Perspectives of Individual Ghanaian Shareholders. Ghana: *Management Research Review*, 39 (8), 940 - 964.
- Amunkete, T. (2023). *An examination of the role of stock market development in economic growth in SADC: A panel VAR approach*. Doctoral dissertation, University of Namibia, 118pp.
- Andow, H. A., & David, B. M. (2016). Ownership Structure and the Financial Performance of Listed Conglomerate Firms in Nigeria. *The Business and Management Review*, 7 (3), 231-240.

- Ari, E. (2016). Using Multinomial Logistic Regression to Examine the Relationship Between Children's Work Status and Demographic Characteristics. *Research Journal of Politics, Economics and Management*, 4 (1), 77–93.
- Arts, L. (2018). Financial awareness And Stock Market Participation: The Moderating Effect of Country-Specific Social Connectedness. Uppsala University and The University of Groningen. Sweden, 45pp.
- Athreya, K., Ionescu, F., & Neelakantan, U. (2021). Stock Market Participation: The Role of Human Capital. *Review of Economic Dynamics*, Working Paper No. 15-07R, 1-57.
- Barayandema, J. & Ndizeye, I. (2018). The Determinants of Investment Decisions in the Rwanda Stock Exchange. Rwanda: *East Africa Research Papers in Economics and Finance*, 28, 1-22.
- Barberis, N., Jin, L. and Wang, B. (2021). Prospect Theory and Stock Market Anomalies. *The Journal of Finance*, 76 (5), 2639-2689.
- Berger, D. (2017). Introduction to Binary Logistic Regression and Propensity Score Analysis. *Research Gate*, California. 1-30.
- Bilsen, S. and Laeven, R. (2020). Dynamic Consumption and Portfolio Choice Under Prospect Theory, *SSRN Electronic Journal*, 10, 1-40.
- Blume, M. E., & Keim, D. B. (2012). Institutional Investors and Stock Market Liquidity: Trend and Relationship. *FTSE World Investment Forum Jacobs Levy Equity Management Center for Quantitative Financial*. Philadelphia, 29pp.
- Brown, S., Veld, C., & Veld-Merkoulova, Y. (2017). Why Do Individuals Not Participate in The Stock Market? Monash University, Australia, 83pp.
- Brus, A. (2017). How to conduct a Qualitative/quantitative study? From planning to using Findings. Handicap International, Lyon, France. 248pp.
- Bui, A. T., Pham, L. C., & Ta, T. K. V. (2021). *Access to finance employment growth and firm performance of South Asia firms*. GLO Discussion Paper (No. 991). Global Labor Organisation, Essen, 17pp.
- Burns, R., & Burns, R. P. (2008). *Business Research Methods and Statistics Using SPSS: What, Why and How?* Sage Publication, United Kingdom. pp 560.
- Central Securities Depository and Registry Services (CSDR) (2018). Statistics of Individual Participants in Dar es Salaam Stock Exchange, Dar es Salaam.
- Cheng, Y.-F., Mutuc, E. B., Tsai, F.-S., Lu, K.-H., & Lin, C.-H. (2018). Social Capital and Stock Market Participation via Technologies: The Role of Households'

- Risk Attitude and Cognitive Ability. MDPI, *Sustainability*, Basel, Switzerland: 10(6),1904, 1-14.
- Chien, Y., & Morris, P. (2017). Household Participation in Stock Market Varies Widely by State. *The Regional Economist*,3, 4-5.
- Chong, T., Wu, Y. & Su, J. (2020). The Unusual Trading Volume and Earnings Surprises in China's Market. *Journal of Risk and Financial Management*, 13 (244), 1-17.
- Clavery, F. S. (2018). A Study on Awareness of Share Ownership Among the Community Members in Tanzania: A Case Study of Dar Es Salaam City. Dissertation for Award of MBA degree Mzumbe University, Tanzania, 87pp.
- CMSA. (2015). *A Guide to Enterprise Growth Market Segment in the Dar Es Salaam Stock Exchange*. Dar Es Salaam, Tanzania,12pp.
- Cochran, W. G. (1977). *Sampling Techniques* (3rd ed.). John Wiley & Sons, New York, 345pp.
- Czernichowski, K. (2013). Economic Integration within the EAC and the Identity of the East African. Maria Curie-Skłodowska University in Lublin, Poland, 11 pp.
- Dishon, N., Oldmeadow, J. A., Critchley, C. & Kaufman, J. (2017). The Effect of Trait Self-Awareness, Self-reflection, and Perceptions of Choice Meaningfulness on Indicators of Social Identity within a Decision-making Context. *Frontiers in Psychology*. 8, 1-11.
- DSE (2017). *Annual Report Financial Statements*, PDF, 12 pp.
- DSE (2018). *Tanzania Capital Markets*. Accessed from: [https://www.tanzaniainvest.com/finance/capital markets](https://www.tanzaniainvest.com/finance/capital%20markets).
- DSE. (2019). *Annual Report and Financial Statement Dar es Salaam, Tanzania*, 14 pp.
- DSE. (2020). *Annual Report and Financial Statement Dar es Salaam, Tanzania*, 72 pp.
- DSE. (2021). *Dar es Salaam Stock Exchange-Individual Participants Secondary Data* (Unpublished). Dar es Salaam, Tanzania.
- DSE. (2021). *Dar es Salaam Stock Exchange PLC Rules, 2022*. Dar es Salaam: Capital Market and Security Authority (CMSA), 256 pp.
- DSE (2023). Enterprise Growth Market Segment (EGMs), Dar es Salaam, Tanzania.
- Du, S., & Zhu, H. (2017). What is the Optimal Trading Frequency in Financial Markets? *Review of Economic Studies*, 84, 1606–1651.
- Duval, S., & Wicklund, R. A. (1972). *A Theory of Objective Self-Awareness*, Academic Press.

- Ebert, S. & Strack, P. (2018). Never Ever Getting Started: On Prospect Theory Without Commitment. Working paper, 20 pp. DOI: 10.2139/ssrn.2765550.
- Epaphra, M. & Kiwia, B. P. (2021). 'Financial Literacy and Participation in the Financial Markets in Tanzania: An application of logit regression Model,' *Journal of Economic and Financial Sciences*, 14 (1),1-13.
- Etikan, I., Alkassim, R., & Abubakar, S. (2016). Comparison of Snowball Sampling and Sequential Sampling Technique. *Biometrics and Biostatistics International Journal*, 3 (1), 55.
- Etikan, I. & Bala, K. (2017). Sampling and Sampling Methods, *Biometrics and Biostatistics International Journal*, 5 (6), 215-217.
- Evdakov, S. (2014). *How Groupthink Affects Your Stock Trading Decision*. Retrieved November 25, 2020, from <https://www.tradersfly.com>
- Fichtner, J. (2020). The Rise of Institutional Investors. In *the Routledge International Handbook of Financialisation Routledge*, 265-275.
- FinScope. (2017). *Insights that Drive Innovation*. Dar es Salaam, Tanzania, 68pp.
- Fleming, J., & Zegwaard, K. E. (2018). Methodologies, Methods and Ethical Considerations for Conducting Research in Work-integrated Learning. *International Journal of Work-Integrated Learning, Special Issues*, 19(3), 205-213.
- Gepp, A., Linnenluecke, M. K., O'Neill, T. J., & Smith, T. (2018). Big Data Techniques in Auditing Research and Practice: Current Trends and Future Opportunities. *Journal of Accounting Literature*, 40, 102-115.
- Giglio, S., Maggiori, M., Stroebel, J., & Utku, S. (2020). *Inside the Mind of a Stock Market Crash*. National Bureau of Economic Research, Cambridge, 23pp.
- Gowela, I. (2020). *Factors Influencing Individual Investors' Decision in Trading Shares: The Case of Dar es Salaam Stock Exchange*. Dissertation for Award of MSc Degree at Mzumbe University, Tanzania, 80 pp.
- Granoveretter, M. (2005). "The Impact of Social Structure on Economic Outcomes," *Journal of Economic Perspectives*, 19 (1), 33–50.
- Grimbeek, J. (2016). *Shareholder Protection in Closely Held Companies*. University of Johannesburg, Johannesburg, 34pp.
- Gumbo, M., & Sandada, M. (2018). *The Determinants of Stock Market Participation: Evidence from Individual Investors in Zimbabwe*. *ACTA Universitatis Danubius*, 14 (4), 642-654.

- Hamilton, L. C. (2013). *Statistics with STATA*, 8th Ed. Engage Learning, Boston, USA. 488 pp.
- Hellmich, S. N. (2015). What is Socioeconomics? An Overview of Theories, Methods, and Themes in the Field Forum for Social Economics, *Taylor & Francis Journals*, 46 (1), 3-25.
- Huber, J., Palan, S. and Zeisberger, S. (2019). Does Investor Risk Perception Drive Assets Prices in Markets? Experimental Evidence. *Journal of Banking and Finance*, 108, 1-17.
- Iddrisu, S. & Abdu-Malik, A. (2017). Economic Growth and Stock Market Developments: Evidence in Africa. *UDS International Journal of Development*, 4 (2), 47-58.
- Idenyi, O. S., Ifeyinwa, A. C., & Samuel, O. O. (2017). Capital Market Indicators and Economic Growth in Nigeria; An Autoregressive Distributed Lag (ARDL) Model. *Asian Journal of Economics, Business and Accounting (AJEBA)*, 2(3), 1-16.
- Ikeobi, R. N. (2015). Challenges Faced by Individual Investors in the Nigerian Capital Markets. *European Journal of Business and Management*, 7 (23), 36-43.
- Indrayana, K., Hamzah, D., & Aswan, A. (2020). The Effect of Net Income, Equity, Cash Dividend, Average Price and Volume on Corporate Market Capitalization. *Hasanuddin Journal of Applied Business and Entrepreneurship (HJABE)*, 3 (4), 117-135.
- Janis, I. L. (1991). *Victims of Groupthink*. *Political Psychology*, 12(2), 247-278.
- Johnston, K.M., Lakzadeh, P., Donato, B.M.K., Szabo, S.M. (2019). Methods of Sample Size Calculation in Descriptive Retrospective Burden of Illness Studies. *BMC Medical Research Methodology*, 19(1), 1-7.
- Kadariya, S., Subedi, P. P., Joshi, B., & Nyaupane, R. P. (2012). Investor Awareness and Investment on Equity in Nepalese Capital Market. *Banking Journal*, 2, 1-15.
- Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Journal of the Econometric Society (Econometrica)*, 47(2), 263-291.
- Kamazima, B. K., & Omurwa, J. K. (2018). The Determinants of Emerging Financial Markets Development: A Case Study of the Dar es Salaam Stock Exchange, Tanzania. *European Journal of Business and Management*, 10 (17), 92-108.

- Kapadia, Sunil. (2021). Investments (Planning, Process, Concepts, Avenues, and Risk-return in modern times). SSRN Electronic Journal. 10.2139/ssrn.3855270, 27pp.
- Kapaya, S. M. (2020). Stock market development and economic growth in Tanzania: an ARDL and bound testing approach. *Review of Economics and Political Science*, 5(3), 187-206. <https://doi.org/10.1108/REPS-11-2019-0150>.
- Kasoga, P. S. (2021). Heuristic Biases and Investment Decisions: Multiple Mediation Mechanisms of Risk Tolerance and Financial Literacy — A Survey at The Tanzania Stock Market. *Journal of Money and Business*, 1 (2), 102-116. doi:10.1108/JMB-10-2021-0037.
- Kempen, R. (2016). Fibonacci Are Human (Made). *IFTA Journal*, 16, 4-9.
- Kenaphoom, S. (2021). Introduction to Research Philosophy. *Journal of Anthropological and Archaeological Sciences*, 5(4), 657-663. DOI: 10.32474/JAAS.2021.05.000217.
- Khanam, Z. (2017). The Impact of Demographic Factors on the Decisions of Investors during Dividend Declaration: A Study on Dhaka Stock Exchange, Bangladesh. *IOSR Journal of Business and Management (IOSR-JBM)*, 19 (8), IV, 01-07.
- Khyareh, M. M. & Oskou, V. (2015). The Effect of Stock Market on Economic Growth: The Case of Iran. *International Journal of Academic Research in Economics and Management Science*, 4 (4), 52-62.
- Kumar, R. (2011). *Research Methodology; a Step by Step Guide for Beginners* (3rd Ed). SAGE Publications Ltd, London, 366 pp.
- Kuvshinov, D., & Zimmermann, K. (2021). The Big Bang: Stock Market Capitalization in the Long Run. *Journal of Financial Economics*, 2, 1-26.
- Langat, P. C. & Rop, W. C. (2019). Relationship Between Risk Aversion of Individual Investors and Stock Market Participation Decision among Secondary School Teachers from Nakuru County, Kenya, *International Journal of Scientific and Research Publications*, 9 (9), 477-485
- Lee, B., Rosenthal, L., Veld, C., & Merkoulova, Y. V. (2015). Stock Market Expectations and Risk Aversion of Individual Investors. *International Review of Financial Analysis*, 40, 122-131.
- Liivamägi, K. (2016). Investor Education and Training Activity on the Stock Market, *Baltic Journal of Economics*, 16 (2), 114-131.

- Liu, Z., Yang, X., & Zang, Z. (2014). Social Interaction and Stock Market Participation: Evidence from China. *Hindawi Publishing Corporation Mathematical Problems in Engineering*, 2014, 1–9.
- Livingston, S. A. (2018). Test Reliability—Basic Concepts. *Research Memorandum No. RM-18-01*. Educational Testing Service, Princeton, New Jersey, 8pp.
- Ma, R., Anderson, H. D., & Marshall, B. R. (2018). Stock Market Liquidity and Trading Activity: Is China Different? *International Review of Financial Analysis*, pp. 56, 32–51.
- Malmendier, U. (2021). Experience effects in finance: Foundations, applications, and future directions. *Review of Finance*, 25(5), 1339-1363.
- Malmendier, U., Pouzo, D. & Vanasco, V. (2020). Investor Experiences and Financial Market Dynamics. *Journal of Financial Economics*, 136, 597-622.
- Malkiel, B. (1973). *A Random Walk Down Wall Street*. WW Norton Inc. New York.
- Mapuva, J. & Muyengwa-Mapuva, L. (2014) The Citizen Participation/Democracy Dichotomy. *International Journal of Politics and Good Governance*. 5(5.2) 1-17.
- Massele, Darroux, Jonathan and Fengju (2013), Challenges Faced By Dar-Es-Salaam Stock Exchange Market In Tanzania, *Research Journal of Finance and Accounting*, 4 (15), 36-42.
- Mboma, L. M., & Reuben, J. (2013). Personal Decision Factors Influencing Investing In Capital Markets And Stock Exchange Performance In Tanzania: The Case Study Of Dar es Salaam Stock Exchange. COSTECH Integrated Repository, University of Dar es Salaam (UD), Dar es Salaam.
- Mishra, R. (2018). Financial Literacy, Risk Tolerance and Stock Market Participation. *Asian Economic and Financial Review*, 8(2), 1457–1471.
- Molela, G. F. (2017). Capital markets financing for agricultural business development in Tanzania; A case of cocoa farming in Kyela and Rungwe districts. *The Journal of Entrepreneurial Finance*, 18 (1), 1-23.
- Mosalamy, D. E., & Metawie, M. (2018). Predictors of Investors' Participation in the Egyptian Stock Market: Application of Theory of Planned Behavior. *Journal of Business and Management Sciences*, 6 (3), 118-125.
- Msemu, E., Sayi, S., & Kazuzuru, B. (2018). Barriers to Adoption of Sustainable Agriculture Practices Among Farmers in Tanzania, Case Study of Mbarali

- District. *Worldwide Journal of Multidisciplinary Research and Development*, 4 (6), 170-174.
- Mwamtambulo, D. J. (2021). Factors Influencing Individual Investor Participation in Stock Market. Springer Proceedings in Business and Economics, in: Krzysztof Jajuga & Hermann Locarek-Junge & Lucjan T. Orłowski & Karsten Staehr (ed.), *Contemporary Trends and Challenges in Finance*, Springer, 57-74.
- Mwenda, B., Ndiege, B. O., & Pastory, D. (2021). Impact of Listing on Performance of Firms Listed At Dar es Salaam Stock Exchange, Tanzania. *African Journal of Applied Research*, 7 (2), 13-29.
- NBS. (2020). *Informal Sector Survey, 2019-Analytical Report Dar es Salaam Region*. Dodoma, Tanzania: Ministry of Finance and Planning, pp131.
- Ndiege, C. O. (2012). *Factors Influencing Investment Decision in Equity Stocks at the Nairobi Securities Exchange among Teachers in Kisumu Municipality, Kenya*. School of Business, University of Nairobi. Nairobi (PhD Dissertation), Kenya 61 pp.
- Nikièma, S. H. (2012). *Best Practices: Definition of Investor*. International Institute for Sustainable Development.1-24.
- Noel, M. (2013). *Determinants of Stock Market Participation by Individuals: The Study of Dar-Es-Salaam Stock Exchange*.: Mzumbe University: Dar es Salaam. 75pp.
- Nyakurukwa, K. and Seetharam, Y. (2022). Household Stock Market Participation in South Africa: The Role of Financial Literacy and Social Interaction. *Review of Behavioral Finance*, 1940-5979, 1-4. <https://doi.org/10.1108/RBF-03-2022-0083>.
- OECD (2011). *"Shareholders' Rights" in Corporate Governance of Listed Companies in China: Self-Assessment by the China Securities Regulatory Commission*. OECD Publishing: Paris.
- OECD. (2021). *Investment Policy Reform in Tanzania*. Retrieved from OECD: <https://www.oecd.org>.
- Omodero, C. O. (2019). Capital Market Determinants and Market Capitalization in Nigeria. *International Journal of Financial Research*, 11 (1), 462-473.
- Ozenbas, D., Pagano, M., Schwartz, R. & Weber, R. (2022). *Liquidity, Markets and Trading in Action; An Interdisciplinary Perspective*. Springer Nature Switzerland AG, Switzerland. 111 pp. DOI: 10.1007/978-3-030-74817-3.

- Pandey, D. P., & Pandey, D. M. (2015). *Research Methodology: Tools and Techniques*. Bridge Center, Romania, 118 pp.
- Peng, C., She, P. W., & Lin, M. K. (2022). Financial Literacy and Portfolio Diversity in China. *Journal of Family and Economic Issues*, 43, 1-14.
- Prosad, J., Kapoor, S. & Sengupta, J. (2015). Behavioural Biases of India Investors: A Survey of Delhi-NCR region. *Qualitative Research in Financial Markets*, 7 (3), 230–263.
- Qureshi, H. A., Mehmood, S., & Sarwar, A. (2014). Determinants of Trust and Level of Awareness of Retail Investors in Stock Market of Pakistan. *Science Publications International, Lahore*, 2501-2507.
- Radtke, J., Holstenkamp, L., Barnes, J., & Renn, O. (2018). Concept, Format, and Methods of Participation: Theory and Practice. *Handbuch Energiewende und Partizipation*, 21-42.
- Rahman, S. A., & Zakaria, M. S. (2008). Pragmatic Approach as a Problem-Solving Framework. *Proceedings of Asia Pacific Industrial Engineering & Management System Conference. Malaysia*, 1117-1126.
- Raubenheimer, H. (Ed.). (2019). African capital markets: Challenges and opportunities. CFA Institute Research Foundation, 116pp.
- Rashid, M. (2014). Impact of Capital Market Performance on Economic Growth in Tanzania. MSc Dissertation of Mzumbe University, pp 56.
- Salleh, I. S., Ali, N. M., Mohd-Yusof, K. & Jamaluddin, H. (2017). *Analysing Qualitative Data Systematically using Thematic Analysis for Deodoriser Troubleshooting in Palm Oil Refining*. *Chemical Engineering Transaction - AIDIC*, 56, 1315-1320.
- Sarkar, A. K., & Sahu, D. N. (2017). Factors Influencing Behaviour of Individual Investor in Stock Market: A Case Study in West Bengal. *International Journal of Commerce and Management Research*, 5 (6), 33-39.
- Saudi Arabia Capital Market Authority (2015). *Investment, Kingdom of Saudi Arabia*.
- Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research Methods for Business Students*. Pearson Education Limited: England, 652 pp.
- Setia, M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *India Journal of Dermatology*, 61(3), 261–264.

- Shah, D., Shah, D., & Zulkernine, F. (2019). Stock Market Analysis: A Review and Taxonomy of Prediction Techniques. *International Journal of Financial Studies*, 7 (26), 1-22.
- Shehata, S. M., Abdeljawad, A. M., Mazouz, L. A., Aldossary, L. Y., Alsaeed, M. Y., & Sayed, M. N. (2021). The Moderating Role of Perceived Risks in the Relationship between Financial Knowledge and the Intention to Invest in the Saudi Arabian Stock Market. *International Journal of Financial Studies*, 9 (9), 1–16.
- Sheimo, M. D. (2020). *Cashing in on the Dow: using Dow Theory to Trade and Determine Trends in Today's Markets*. CRC Press, 70 pp.
- Sivaramakrishnan, S., Srivastava, M., and Rastogi, A. (2017). Attitudinal Factors, Financial Literacy, and Stock Market Participation. *International Journal of Bank Marketing*. 35. 10.1108/IJBM-01-2016-0012.
- Statman, M. (2008). *What is Behavioural Finance? Handbook of Finance (Vol. II)*. Inc. John Wiley & Sons: New Jersey (USA).
- Svetlova, E. & Thielmann, K. (2020). Financial Risk and Management. *International Encyclopedia of Human Geography*, 2nd Ed, 5, 139-145.
- Tansey, J. and O'riordan, T. (1999). Cultural theory and risk: a review. *Health, Risk & Society*, 1(1), 71-90.
- Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, 2, 53-55.
- Thalassinos, E., Pintea, M., & Ratiu, P. I. (2015). The recent financial crisis and its impact on the performance indicators of selected countries during the crisis period: A reply. *International Journal in Economics and Business Administration*, III (1), 3-20.
- Thomas, L. (2017). Ownership of JSE-listed companies, Research Report for National Treasury. *London School of Economics-Centre of Research in Economics and Finance*, South Africa.
- Thomsett, M. C. (2019). *The Theory of Trends: Dow, EMH, and RMH in Context*. In M. C. Thomsett, Chapter 1: Practical Trend Analysis: Applying Signals and Indicators to Improve Trade Timing, 2nd Ed. (pp. 1-24). De Gruyter, Berlin, Boston.
- TIC. (2023). *Monthly Investment Bulletin February 2023*. Investment Centre, Dar es Salaam: Tanzania.

- Trang, P. T. & Tho, N. H. (2017). Perceived Risk, Investment Performance and Intentions in Emerging Stock Markets. *International Journal of Economics and Financial Issues*, 7 (1), 269-278.
- UNDP, (2015). *Sustainable Development Goals 2030*. SDGs_Booklet accessed from <https://www.undp.org/content/dam/undp/library>.
- URT. (2016). *Dar es Salaam City Master Plan 2016-2036*, Vol. 1. Ministry of Land, Housing and Human Settlements Development, Dar es Salaam.
- URT. (2016). *The United Republic of Tanzania, The Finance Act, Bill Supplement No. 12*. Government Printers: Dar es Salaam.
- Vestman, R. (2019). Limited Stock Market Participation Among Renters and Homeowners, *The Review of Financial Studies*, 32 (4), 1494–1535, <https://doi.org/10.1093/rfs/hhy089>
- Vodacom Plc. (2017). *Announcement of the Results of Vodacom Tanzania PLC's Initial Public Offering of 560,000,100 Shares*. Retrieved August 19, 2019, from Vodacom Website: <https://www.vodacom.co.tz>
- Walter, H. & Maike, I. (2015). The Impact of Risk Attitudes on Financial Investments, IWH Discussion Papers, No. 10/2015, Leibniz-Institut für Wirtschaftsforschung Halle (IWH), Halle (Saale). 1-26.
- Wangmo, C., Choden, P., Daly, S., & Dorji, R. (2018). Awareness and Challenges of Stock Market in Bhutan. *International Journal of Economics and Financial Research*, 4 (9), 274-283.
- Wazal, D. M., & Sharma, S. K. (2017). Participation of Retail Investors in the Indian Equity Market. *IOSR Journal of Business and Management (IOSR-JBM)*, 78-80.
- Wendo, C. (2015). *Factors Influencing Individual Investors' Participation in The Nairobi Securities Market. A Case of Advocates in Nairobi County*, Nairobi, Kenya. United States International University Africa, 85 pp.
- WFE. (2013). *Statistics Definitions and Examples*. World Federation of Exchange.
- Williams, K. & Bradburn, M. (1985). "Self-Awareness Theory and Decision Theory: A Theoretical and Empirical Integration". *Retrospective Theses and Dissertations*, IOWA University, USA, 284pp.
- World Bank (2023). Tanzania Economic Update: The Efficiency and Effectiveness of Fiscal Policy in Tanzania. Tanzania Economic Update; Issue 19. Washington, DC.

- Wright, K. (2005). Personal Knowledge Management: Supporting Individual Knowledge Worker Performance. *Knowledge Management Research & Practice*, 3(3), 156-165.
- Yang, M., Mamun, A. A., Mohiuddin, M., Al-Shami, S. S. A., & Zainol, N. R. (2021). Predicting Stock Market Investment Intention and Behavior among Malaysian Working Adults Using Partial Least Squares Structural Equation Modeling. *Mathematics*, 9 (8), 873.
- Yochim, D. & Davis, C. (2021). *How Stock Trading Works*. Accessed from: <https://www.nerdwallet.com>. On February 2, 2022.
- Young, L. W (1977). The Box-Jenkins Approach to Time Series Analysis and Forecasting: Principles and Application. *Recherche Opérationnelle /Operations Research*, 11 (2), 129-143.
- Yuliani, Y., Isnurhadi, H. and Jei, F. (2017). Risk Perception and Psychological Behaviour of Investors in Emerging Market: Indonesian Stock Exchange. *Investment Management and Financial Innovations*, 14 (2-2), 347-358.
- Zhang, S. (2020). The stock market participation puzzle in China. *Universita' Degli Studi di Padova/ University of Padua*, pp 77.
- Zheng, W., Li, B., Huang, Z., & Chen, L. (2022). Why Was There More Household Stock Market Participation During the COVID-19 Pandemic? *Finance Research Letters* (46), 1-9.

CHAPTER TWO

2.0 Individual Investors' Awareness and Participation in the Dar es Salaam Stock Exchange

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2.1 Abstract

Direct individual participation in the stock market in Tanzania is less than 1% of the country's population, which is very low compared to other countries worldwide, such as the US and Nigeria. This paper aimed to determine individual investors' awareness level at the Dar es Salaam Stock Exchange (DSE). Furthermore, the study examined the relationship between individuals' awareness variables and participation in the stock market. Primary data collected from 200 participants and 200 non-participants were analysed using descriptive statistics and binary logistic regression (BLR). The findings revealed that 75% of non-participants and 40% of participants had low awareness of DSE and its activities, while only 13% of participants knew their rights in the invested companies. BLR results indicated that awareness of DSE, awareness creation campaigns and access to media were likely to influence individuals' participation decisions. However, financial awareness did not influence individuals' participation. The study concludes that the low awareness of the DSE and its activities among individuals affects their participation in the stock market. It is recommended that the DSE intensify public awareness among potential individual investors. DSE needs to explore innovative ways to reach out to a higher number of individual investors, including decentralising its activities to different parts of Tanzania.¹

Keywords: participation, individual, investors, awareness

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2.2 Introduction

Limited stock market participation through individual shareholding has been a major global challenge, termed the '*stockholding puzzle or stock market participation puzzle*' (Mauricas, 2017). Empirical studies (Kasoga, 2021; Wazal and Sharma, 2017; Barayandema and Ndizeye, 2018) show that wealth, stock price, age, entry cost, financial awareness, social factors and risk perception contribute to the reported low participation. On the other hand, Sarkar and Sahu (2017) reported that most investors in stock markets are aware of stock market activities because most of them are graduates with academic qualifications. However, other authors (Epaphra and Kiwia, 2021; Qureshi *et al.*, 2014) noted a low level of awareness caused by limited training of individual investors' trust; their decision to invest in the stock market is also affected.

Participation includes ownership and co-ownership of assets, benefits in financial returns, payments from assets owned, and economic benefits for the community (Radtke *et al.*, 2018). This paper defines individuals who own shares of any listed company at DSE for future returns as participants. There are several benefits associated with individual participation in a stock market, such as income growth, economic growth, and increased liquidity of the markets (Kapaya, 2020; Iddrisu and Abdu-Malik, 2017; Gimbeek, 2016). According to the World Federation of Exchange (2017) statistics, retail trade (volume of shares and participants) contributes up to 64% of the market capitalisation of Egypt's capital market and, in Colombo, up to 20% to market capitalisation. Ma *et al.* (2017) report that, in China, individual investors hold up to 86% of share trades, leading to a high contribution to market capital. Hence, individual participation in the stock market contributes to the firm's equity capital and the market's liquidity by saving through share acquisitions in different companies (Abiad *et al.*, 2015).

Although individual participation contributes to firms and capital markets, globally, there exists limited individual participation in stock markets, varying in the growth and development as per specific country. In countries like USA and Denmark, individual investors' participation rates are moderate at 20% and 22%, respectively. However, in other countries like Spain, only 6% of individuals participate in the stock market (Fichtner, 2020; Mauboussin *et al.*, 2017). In Asian countries like Singapore and

Thailand, individual investors' participation rate is still low, less than one per cent (Mookerjee, 2020).

Sub-Saharan Africa is no exception about direct individual investors' low participation in stock markets. Among high-performing stock markets in Africa, Nigeria has reported only 6% of the population being direct participants in the stock market (Andow and David, 2016). Similarly, the Nairobi Stock Exchange individuals' participation rate currently stands at 4% of total investors (Langat and Rop, 2019). However, the Johannesburg Stock Exchange (JSE) has an average individual participation rate of 10% of domestic investors, measured as black ownership under the Black Economic Empowerment (BEE) scheme (Thomas, 2017). In Tanzania, individual participation stands at less than one (1) per cent of the total population (TBS, 2023), although the establishment and maturity of the stock market vary per country. Studies have identified the causes for change in individual participation in Africa, including technological factors, social factors, limited growth of capital markets, and limited knowledge and awareness (Clavery, 2018; Andow and David, 2016).

Limited awareness in general share trading may be among the limiting factors to individual participation. Awareness among individuals of the stock market's existence, its operations and potential benefits motivates them to participate and, thus, facilitates individual informed investment decisions. Highly aware individuals play an important watchdog role (ensure the companies do not act illegally or irresponsibly), increase their skills to protect themselves, learn how to allocate resources appropriately, and become up-to-date, especially on the use of technology (Wangmo *et al.*, 2018; Acqual-Sam and Salami, 2013). Impliedly, an individual's awareness of share trading increases their basic knowledge about risks, returns, and protection methods before deciding to invest in the stock market. Limited awareness is reported as a significant impediment to individuals' participation; it denies them opportunities to exercise their rights. As a result, they cannot fully benefit from their investment.

Through the Capital Markets and Securities Authority (CMSA) and DSE, the Government of Tanzania has implemented different measures to ensure individuals are aware of and participate in the stock market. DSE continues to conduct different awareness programmes, such as the 'basic investment and security trading courses' to

investment advisors, accountants, lawyers, bankers, and security brokerage firms (DSE, 2020). In addition, through its guidelines, CMSA requires DSE to hold University challenges to instil stock market awareness among university students (DSE, 2021). The government introduced and implemented a policy requiring telecommunication companies to issue 25% of their outstanding shares to the Tanzanian public via the Finance Act (URT, 2016). In compliance with the policy, Vodacom Tanzania Company issued 25% of its authorised shares of capital to the public, but 40% of the issued shares were unsubscribed (Vodacom, 2017). However, due to introduced policies and issues of shares from DSE Plc. and Vodacom Plc., individuals' participation increased (DSE, 2016) and remained stagnant.

In examining the factors influencing individuals' participation, studies show that personal characteristics, limited knowledge of stock trading, financial literacy, and economic factors affect individuals' investment decisions (Gowela, 2020; Clavery, 2018). Mwamtambulo (2021) identifies that risk factors, friends, and brokers' advice significantly influence individuals' participation. Gumbo and Sandada (2018) posit that awareness is a significant predictor of individual investors' decision to participate in the stock market and that this can be because it concerns individuals' choices. The studies focused on different factors such as demographic, social, trust, perception, transaction costs and general awareness of the market. However, for awareness, they addressed general awareness of the Zimbabwe stock market, while the current study included awareness of DSE, awareness creation seminars, awareness of investors' rights, and financial awareness that may affect individuals' investment decisions. Furthermore, Gumbo and Sandada (2018) focused only on individuals' awareness of investment opportunities.

Unlike others, the study on which this paper is based is focused entirely on examining awareness factors influencing individual investors at DSE. It used self-awareness theory, which differs from those used in previous studies by other scholars. Using different theories led to identifying different variables such as awareness creation seminars and awareness and accessibility of media that broadens the perspective of the awareness level of individuals before making an investment decision. Additionally, minimal addressing of knowledge about DSE activities may hinder future individuals' participation in the DSE. This is because stockholding starts with information on what

shares to buy, what company, and expected future benefits. Moreover, ignoring factors such as awareness of shareholders' rights may limit the role of DSE in ensuring the effective and adequate protection of individual investors. This is because the development of investors' protection regulations contributes to the development of the stock market (Abuselidze, 2018).

Therefore, this paper examined the individual participants' awareness regarding DSE, namely investors' rights and share trading awareness. Additionally, non-participants' awareness of DSE existence, DSE activities and expected investment benefits were examined. With this information, individuals can decide whether to invest in shares (Wangmo *et al.*, 2018). Furthermore, the study examined how awareness through media and technology-enabled platforms such as DSE mobile applications influence individuals' investment decisions. Hence, the study aimed to establish baseline knowledge of national individual participants and non-participants on DSE operations and examine the influence of awareness factors on individuals' participation decisions.

2.3 Literature Review

The literature is divided into two parts: a theoretical review and an empirical review.

2.3.1 Theoretical review

The self-awareness theory proposed by Duval and Wicklund (1972) states that "when we focus on ourselves, we evaluate and compare our current behaviour to our internal standards and values". Williams (1985) noted that self-awareness increases self-knowledge and adherence to standards and long-standing morals and beliefs. The decision made by the individual is according to one's standards, morals, and beliefs, although it might be an effective or poor decision. Therefore, the self-awareness theory focuses mainly on individuals' factors influencing decisions. It excludes external factors such as training, awareness, and media accessibility, which may also affect individuals' decisions. Self-aware individuals know their investment choices; they can respond to difficulties and contribute to decision-making by casting their votes in the invested companies. Self-aware individuals have the capability to decide whether to invest in shares or pursue alternative options. Dishon *et al.* (2017) view an individual's self-awareness as a necessary ingredient for making meaningful choices.

On the contrary, Janis (1982) argues against the self-awareness theory by asserting that individuals make decisions based on group influence, leading to a low probability of success due to poor decision-making. The argument was supported by Evdakov (2014), who noted that stock market traders work on tips and information from different sources, suggesting a great stock or a stock which rises in price. As a result, other people might influence individuals' decisions on what to invest in rather than their own informed opinion. However, if an individual is self-aware, the group influence cannot affect an individual's decision-making. Therefore, an individual's decision needs to be enhanced by training and awareness seminars and continued provision of information through media. Thus, the current study adopted variables such as awareness of investors' rights and awareness of the stock market (DSE) from theory. Furthermore, external factors adapted from literature contributing to self-awareness, such as access to media and awareness creation seminars, were added.

2.3.2 Empirical review and hypotheses development

2.3.2.1 Level of awareness of the stock market and participation

Basic knowledge about the stock market, its activities of DSE, benefits of owning shares, and rights of shareholders are of critical importance for individuals before deciding to buy shares. Qureshi *et al.* (2014) examined the determinants of trust and level of awareness of retail investors in Pakistan using 140 respondents (investors, brokers and employees of the stock market). They found that the awareness level was higher among employee shareholders than the rest. Their analysis showed a positive relationship between awareness and individual investors' trust to invest in the stock market. Similarly, Wangmo *et al.* (2018) studied awareness and challenges of the stock market in Bhutan, focusing on the public (non-participants), brokers and stock market officials. They found that limited awareness about the stock market, trading activities, and benefits affected participation in the Royal Security Exchange of Bhutan. Hence, it is not only about financial awareness but trading and the benefits of trading.

On the other hand, Gumbo and Sandada (2018) examined the determinants of stock market participation in Zimbabwe. They collected data from 120 respondents, including managers, investment analysts, and brokers. The findings indicated that awareness of investment opportunities related to the stock market influences participation. Therefore, it is not general awareness but an awareness of investment opportunities. Acquah-Sam

and Salami (2013) analysed knowledge and participation in capital market activities from 304 Ghanaian working population. They concluded that not only knowledge of shares but also a low level of knowledge about the capital markets activities in Ghana affects security market participation. Thus, the authors (Gumbo and Sandada, 2018) focused on authorities rather than individual investors. Apart from that, different markets located in different geographical areas may differ on factors affecting participation. Limited knowledge about DSE (as an emerging market) among citizens may affect individuals' participation or lead to wrong investment decisions. Hence, the study assessed the level of awareness of individuals related to DSE and its influence on individuals' participation, leading to the establishment of the following hypothesis (H₀₁):

H₀₁: Individuals' awareness of the DSE does not influence participation in the stock market.

2.3.2.2 Financial awareness of individuals

Financial awareness enables an individual to predict the future return and progress of the company to invest in. Financial awareness may motivate one to participate, although others participate without being financially aware. Arts (2018) informs that there is a positive relationship between financial literacy and stock market participation. Similarly, Sivaramakrishnan *et al.* (2016) note that financial literacy significantly impacts the intention to invest in the Indian stock market. Implicitly, financial awareness contributes to investment decisions. Mishra (2018) identifies financial and investment awareness as key boundaries to participation. However, Noel (2013) delineates that financial literacy in Tanzania has a negligible impact on stock market participation among academicians.

Therefore, this paper explores whether financial awareness differs between individual and non-individual investors. Clarifying the contradiction of the findings among authors is necessary by examining different groups of individuals from different economic activities and awareness levels. Additionally, Arts (2018) focuses more on moderating the role of country-specific social connectedness in participation and financial literacy. Equally, Sivaramakrishnan *et al.* (2016) focus only on individual investors using the theory of planned behaviour. However, the current study focused on the financial awareness of both participants and non-participants of DSE and analysed their direct

relationship using binary regression and self-awareness theory. Therefore, this led to the establishment of the following hypothesis:

H₀₂: Financial awareness does not affect individuals' investment decisions in the stock market.

2.3.2.3 Awareness creation seminars and participation

The awareness of the capital market and its activities may contribute significantly to capital market participation. Vohra and Kaur (2017) agree that organised education and awareness camps can increase individuals' awareness and participation. Similarly, Mishra (2018) notes that financial education programmes enhance individuals' financial awareness, impacting their participation. These findings relate to Acquah-Sam and Salami (2013), who argue that teaching capital market courses in high schools, universities, and other institutions makes a significant part of the population aware of the role of the capital market. Hence, knowledge and awareness creation encourage individuals to invest in the stock market. Security Exchange Commission (SEC) (2012) in Sri Lanka noticed that many individuals who attend seminars/training courses are willing to invest in the share market.

Apart from general awareness, Clavery (2018) maintains that acquiring financial skills enhances the achievement of financial goals in share business and, therefore, increases participation. Similarly, Sivaramakrishnan *et al.* (2016) suggest implementing different programmes and developing modules to increase financial literacy and enhance participation. However, previous studies (Mishra, 2018; Sivaramakrishnan *et al.*, 2016) mainly focused on financial awareness creation and financial education programmes to enhance participation. The previous studies (Mishra, 2018; Vohra and Kaur, 2017) also suggest that awareness creation seminars and programmes improve participation. Nevertheless, none of them analysed the influence of awareness creation on individual participation in the stock market, which this paper examined, leading to the proposed null hypothesis (H₀₃):

H₀₃: There is no relationship between awareness creation seminars and participation in the stock market.

2.3.2.4 Access to media and participation

Individuals access information about investment opportunities through different means such as newspapers, radio, television and social media platforms. Choi and Robertson

(2020), in their study titled “What Matters to Individual Investors?”, examined how individuals make investment decisions. They maintain that advice accessed from media sources influences individual decisions to invest. Similarly, Hu *et al.* (2019) note that media highly induce individual investors with limited prior experience and awareness to participate in the stock market. Hence, television and other media increase awareness and familiarity for new investors, leading to increased participation (Leodegard, 2019). Hu *et al.* add that media reduce fixed psychological costs, which may restrict participation.

Tham (2018) on the contrary, argues that media easily transmit information about the stock market, but increasing individuals’ trust in media does not necessarily increase participation. Cheng *et al.* (2018) examined the use of technologies apart from television in China, which some other authors also examined. Their results showed that households which use the internet increase participation compared to non-users. The study further revealed that new (online) platforms reduce transaction costs and make interactions and learning easier. However, these studies were carried out in different markets with different advancement levels in the stock market.

The study by Hu *et al.* (2019) in Australia used only television channels to examine the effect of viewership on participation. Choi and Robertson (2020) used secondary panel data to examine how individuals make decisions, while Cheng *et al.* (2018) used descriptive analysis with no statistical inference to support the information. Thus, using a binary logistic regression model, the current study combined the variables and examined the influence of television, DSE mobile application and social media in individual participation. Hence, the null hypothesis H_{04} was formed as follows:

H₀₄: Access to media does not influence individual participation at DSE.

2.3.2.5 Investors’ awareness of their rights

Individuals’ decision to invest in the stock market presupposes the possession of knowledge and awareness of their rights, policies, and duties performed by investors. OECD (2011) identified shareholders’ rights to include the rights to participate in the company's decision-making, operations, management, supervision, and control. Sempeho (2013), in her study titled “Protecting Individual Investors at the Dar es Salaam Stock Exchange”, showed that individuals had limited knowledge about their

rights in the companies. Additionally, Abuselidze (2018) assessed whether capital market reforms in Georgia were in the right direction and whether it was possible to improve investors' rights. The author concluded that awareness of investors' rights facilitated the protection of individuals by the firm and the security market, leading to a liquid stock market.

Rights of an individual investor, as addressed by the Security and Exchange Board of India-SEBI (2017), include the rights to receive copies of the annual report, participate and vote in general meetings, receive dividends, inspect the statutory reports, and receive corporate benefits like rights, and bonuses. Awareness about these rights may facilitate sound investment decisions and active participation of individual investors, as supported by the self-awareness theory. However, Sempeho (2013) focused more on institutions (DSE and CMSA) in examining investors' protection and used only 80 individual investors, but the current study involved 200 participants. Abuselidze (2018) also emphasised organisation regulators and the National stock exchange other than individuals. Thus, the study on which the paper is based suggests that individuals in Tanzania, whether they are investors or not, could benefit from increased awareness of investors' rights in the DSE.

2.4 Methodology

The study used a mixed methods approach with both quantitative and qualitative approaches. The approach was appropriate because the study was exploratory. The qualitative approach was used to understand awareness variables and explain the quantitative results in detail. Quantitative research was conducted to determine an association between awareness and participation by empirically testing the data to get the results. The study area was Dar es Salaam because it is where DSE and its 15 brokers are located. Apart from that, Dar es Salaam is a concentration of commercial activities, contributing to approximately 90% of the country's tax revenues and 17% of the total GDP value (Haji and Cunningham, 2015), thus possessing a greater population with disposable income.

The population of the study comprised the working population, as defined by the National Bureau of Statistics (from aged 15 years to 60 years) of Dar es Salaam Region, and included participants and non-participants of DSE, totalling 3,599,412 (NBS, 2020),

located in Dar es Salaam. The study used random and purposive sampling techniques to select non-participants and participants. The sample size for the study was 400 respondents, determined using Cochran's formula (1977) as applied by Epaphras and Kiwia (2021). The formula is:

$$n = \frac{n_0}{1+(n_0-1)/N} \quad (1)$$

Where: N = Population Size (3 599 412 including 556,121 participants)

n_0 = Sample size, n = Sample size for a finite population

The margin of error is 0.05 or 5% at the Confidence level of 95% and $t = 1.96$.

$$n = \frac{384}{1+(384-1)/3\,599\,412} \quad \text{estimated sample size} = 384$$

Therefore, the formula led to 384 respondents, but the logistic model requires a significant sample size (Epaphra and Kiwia, 2019); therefore, the sample was increased by 10% (Brus, 2017) to 422. However, 400 questionnaire copies were collected, equivalent to a 94.8% response rate. Therefore, the sample was distributed to include 200 participants and 200 non-participants at a ratio of 1:1, as per Etikan and Bala (2017). Thus, 200 direct individual investors/participants of different listed companies in DSE were selected. Furthermore, 200 non-participants, selected randomly, were also included to examine their reasons behind limited participation. The data were collected using a structured questionnaire and a key informant interview guide for six key informants (See Appendix I & II). The key informants included experts in the stock market, two (2) DSE informants, a CMSA spokesperson, two (2) brokers and an academician who were experts in the stock market and investment. The questionnaire was pre-tested on 30 respondents, different from those involved in the main data collection. Pre-testing enabled measuring validity because challenges, difficulties and recommendations observed in responding to questions were improved for final data collection. Data collected were subjected to a reliability test, and the Cronbach's Alpha coefficient test indicated an internal consistency score of 0.806, acceptable, as Livingston (2018) supports; the minimum acceptable value is 0.7.

Qualitative data were analysed using thematic analysis as adopted and improved from Salleh *et al.* (2017). The process involved reading transcripts, interviews with key informants, and manual coding. Sorting coded information followed to get potential themes and sub-themes based on importance, relevance, and relation to the theory and

objectives of the study. Quantitative data were analysed using descriptive statistics, cross-tabulation, chi-square test, and binary logistic regression. Binary logistic regression showed the relationship between participation and awareness variables, as adopted by Berger (2017). Omnibus test of model coefficient had a p-value = 0.000, and Cox and Snell R Square (48%) and Nagelkerke R Square (67%), respectively, indicated good explanatory power of the model. Hosmer and Lemeshow tests were also performed, and the results were insignificant (p-value = 0.783), confirming that the model fitness was good.

The dependent variable (**P**) was participation, which was dichotomous, with 1 for participants and 0 for non-participants. The independent variables included age, sex, marital status (**ms**), education level (**edu**), awareness of DSE (**dse**), financial awareness (**fl**), training received (**tr**), and access to media (**md**) as defined in Table 2.1. The model used was as follows:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1, \mathbf{Age} + \beta_2, \mathbf{Sex} + \beta_3, \mathbf{edu} + \beta_4, \mathbf{ms} + \beta_5, \mathbf{dse} + \beta_6, \mathbf{fl} + \beta_7, \mathbf{tr} + \beta_8, \mathbf{md} + \dots \cdot \varepsilon_i \quad (2)$$

Where: P = Likelihood of participation; β_0 = constant (y-intercept); β_1, \dots, β_n are coefficients of explanatory variables; β Coefficient (-1 or 1) ε_i = error term at 0.05 (CI = 95%).

Table 2. 1: Variable Description and Measurements

Variables	Type	Variables Description and Measurements
P/P-1	DV	Participation in the Stock Market 1 = Participating in the stock market by having shares; 0 = Not participating
Age	CV	Age of respondents 2 = Elder >35 years; 1= Youth 18-35 years
Sex	CV	Sex of respondents 0 = Male; 1= Female
Ms	CV	Marital Status 0 = Married 1 = Otherwise
Edu	CV	Education Level of respondents 2 = High education level (Degree); 1 = Low education level
dse	IV	Awareness of DSE 0 = Aware of DSE 1= Un-aware of DSE
fl	IV	Financial Awareness 0 = Financial un-aware 1= Financially aware
tr	IV	Awareness creation 1 = Attended awareness seminar (Yes); 0= Otherwise
md	IV	Access to media 1 = Yes; 0 = Otherwise

DV = Dependent variable IV = Independent Variable CV = control variable

2.5 Results and Discussion

2.5.1 Demographic characteristics

The demographic characteristics of the respondents included age, gender of respondents, marital status, and education level of individuals, as presented in Table 2.2.

Table 2. 2: Demographic characteristics and participation

Category	Demographic Characteristic	Part. Freq.	Per cent (part)	Non-Part Freq.	Per cent (non-part)	Pearson's Chi-square (P-Value)
Age	20 to 30	6	3.5	61	30.5	0.000
	31 to 40	25	12.5	61	30.5	
	41 to 50	51	25.5	37	18.5	
	51 to 60	65	32.5	27	13.5	
	61 and above	53	16.5	14	7	
Gender	Male	111	55.5	121	60.5	0.311
	Female	89	44.5	89	44.5	
Marital Status	Single	60	30	69	34.5	0.336
	Married	140	70	131	65.5	
Education Level	Primary education	34	17	30	15	0.078
	Secondary Education	22	11	41	20.5	
	Vocational Education	60	30	55	27.5	
	Degree (1 st Degree, Masters, PhD.)	84	42	74	37	

Source: Field Data, 2020

As presented in Table 2.2, the results show that 55.5% of the respondents were male, and 44.5% were female. More men than women participated because women fear risk more and have limited income and financial awareness than men (Bacher, 2022; Bucher-Koenen, 2021). Regarding age, more individuals between 41-50 and 51-60 years participated in DSE, compared to other age groups, which is also in line with Pearson's Chi-square results having a p-value = 0.000. Hence, there was a significant association between age and participation because aged individuals are more committed and diversify resources for future expected returns. Results further indicated that more married respondents participated than single (single, widow, and divorced), by 35.5% for both participants and non-participants. Implicatively, married respondents are more likely to participate in the stock market due to financial responsibility (Choi and Robertson, 2020; Hu *et al.*, 2019). Furthermore, degree holders participated more than non-degree holders by 40%, which can be due to education gained from their university syllabus, but it had no association with participation, as the p-value was 0.078.

2.5.2 Level of awareness

In measuring the level of awareness, the study assessed the level of awareness related to DSE itself, DSE activities, financial awareness, share trading awareness, awareness

about the benefits, and awareness about the rights of shareholders, which are expected to be known by shareholders and the results are indicated in Table 2.3 as follows.

Table 2. 3: Level of Awareness of Individuals

Type of Awareness	Non-Participants	Per cent of Non-Participants	Participants	Per cent of Participants
Aware of DSE				
Aware of DSE	51	25.5	110	55.0
Aware of DSE activities	40	20.0	125	62.5
Financial awareness	31	15.5	60	30.0
Access to awareness seminars	9	4.5	107	53.5
Aware of Benefits				
High return	77	38.5	178	89.0
Safe Investment	103	51.5	186	93.0
Capital gain	48	24.0	99	49.5
Collateral	61	30.5.0	20	10.0
Transferable	48	24.0	5	2.5

Source: *Field data, 2020*

Overall, the results in Table 2.3 indicate a low level of awareness regarding the existence of DSE among respondents; 110 (55%) participants knew DSE, and only 51 (25.5%) non-participants knew DSE. The results also show that some participants were unaware of DSE and its activities, which can be due to group thinking. Some investors joined the stock market due to group influence, such as teachers who were shareholders of Mwalimu Commercial Bank, who acquired shares through their Union (Tanzania Teachers Union) but had limited awareness of DSE. Financial awareness was also deficient for participants and non-participants, as only 60 (30%) and 31 (15.5%) respondents were financially aware. Additionally, awareness creation seminars were accessible to 107 (53.7%) participants and only 9 (4.5%) non-participants. The trickle-down effect was inevitable, with limited attendance in awareness seminars for participants and non-participants.

In measuring awareness of the benefits of share investments, Table 2.3 shows that individuals (both participants and non-participants) were more aware of return and safety benefits. However, collateral and transferability benefits were unlikely to be known by both participants and non-participants due to individuals' usability and awareness levels. That is why only 81 respondents (61 non-participants and 20 participants) knew they could use shares as collateral, and 53 (48 non-participants and 5 participants) knew that shares were transferable. It is apparent that participants in DSE knew more about the benefits than non-participants because they experienced them,

compared to the non-participants who only expected them. Due to the expected benefits of high return, increase in price, and transferability by non-participants, 74% were willing to invest in the stock market if they had access to seminars.

Awareness of shareholders' rights was measured based on Arnstein's (1971) participation assumptions, divided into three tiers (non-participation, participation through being informed and consultation, and participation in decision-making). Participants were required to mention how they participated in their invested companies, and they could mention more than one way of participation, as applied by Gaber (2019). The results are shown in Table 2.4.

Table 2. 4: Awareness of shareholders' rights

Participation Process		Responses (200)	
		Frequency	(%)
Non-participation	No influence	97	48.5
Informed and Consulted	Informed (FS and Reports)	95	47.5
	Consulted but was not informed	26	13.0
Participate in Decision Making	Democratic vote	26	13.0
	Decision making	9	4.5
	Implementing decision	6	3.0

Source: Field data, 2020

The findings in Table 2.4 indicate that, out of the 200 participants, 97 (48.5%) did not believe they had any influence over the company. In contrast, 47.5% said they were only informed about company activities. Only 26 (13%) participants knew that they had a right to a democratic vote and decision-making, and only 9 (4.5%) respondents participated in making decisions. Making decisions and approval is done in annual general meetings by shareholders casting their votes on matters such as declaring dividends, electing directors, remuneration decisions, appointment of external auditors, etc. Thus, results indicate that individual investors at DSE had limited knowledge of their rights. The results are similar to those of Sempeho (2013), who noted that a few individual investors were aware of their rights as investors; the majority only knew about dividend pay-out. Limited awareness of rights might be due to the group effect theory, whereby individuals acquire shares after being advised by dealers, brokers, or family members.

2.5.3 Thematic analysis results

The findings of the study are based on the three developed thematic areas of awareness of DSE and its activities, awareness of investors' rights and financial awareness to

identify the effects of awareness factors on participation in the stock market. The findings were further segmented into sub-themes to show the responses of key informants. Firstly, sub-themes for *awareness of DSE* were sources of information about DSE, knowledge of DSE products and services, information accessibility, perceptions of DSE performance and benefits and influence on participation. *Secondly*, for awareness of the rights, the sub-themes were knowledge of the legal and regulatory framework, the experience of exercising shareholders' rights, and challenges and barriers to exercising investors' rights. *Thirdly*, for financial awareness, the sub-themes were level of education and financial training, financial goals and planning, and financial risk assessment and management. The contents from key informants as per themes and sub-themes were merged with quantitative data to explain the awareness factors influencing individual participation at DSE.

2.5.4 Relationship between awareness variables and participation

Binary logistic regression was used to determine the likelihood of awareness of factors influencing the participation of individuals in the stock market. The dependent variable, participation, was dichotomous with '1 Participating' and '0 Not-participating'. The results are reported in Table 2.5.

Table 2. 5: Awareness factors and Participation in the Stock Market

Variables	β	S.E.	Wald	Df	Sig.	Exp(β)
Age of respondent	-3.788	1.079	12.328	1	0.000	0.023
Sex of respondent	-0.847	0.335	6.409	1	0.011	0.429
Marital status	0.432	0.404	1.145	1	0.285	1.540
Education (Degree)	0.875	0.380	5.312	1	0.021	2.400
Awareness of DSE	-1.272	0.334	14.532	1	0.000	0.280
Financial awareness	-0.633	0.429	2.179	1	0.140	0.531
Awareness creation	-2.472	0.470	27.707	1	0.000	0.084
Access to media	-2.084	0.580	12.911	1	0.000	0.124

Source: Field Data

P-value = 0.000, Cox & Snell = R square = 0.480, Nagelkerke R Square = 0.639

Hosmer and Lemeshow Test (chi-value = 4.757, df = 8, p = 0.783)

Demographic factors and participation

The findings show that age, sex, and degree education had statistically significant effects on chances for individual participation in DSE with p-values = 0.000, 0.011, and 0.021, respectively, as indicated in Table 2.5. The results are respective to exponent (β) values of 0.023, 0.429 and 2.400 for age, sex and education, respectively. This means that the odds of participation for individuals who were male and adults with a degree

education level were 0.023, 0.429 and 2.400 more than female individuals, young individuals and those without a degree education level, respectively. The findings support the findings by Gumbo and Sandada (2018) and Hu *et al.* (2019), who noted that working age, college education and sex significantly influence media access and stock market participation. As supported by self-awareness theory, young working age and degree level of education increase self-awareness, analytical capacity, self-discipline, and proper decision-making.

Awareness of DSE and participation

The results in Table 2.5 indicate that awareness related to DSE and its activities was likely to influence individuals' participation in the stock market as $p\text{-value} = 0.000$ ($p\text{-value} < 0.05$) respective to exponent β of 0.280 times. The results mean that the odds of participation for individuals with awareness of DSE existence were 0.280 higher than those without awareness of DSE. Hence, the null hypothesis that awareness of the stock market does not influence participation was not accepted. The findings concur with the findings by Wangmo *et al.* (2018), Qureshi *et al.* (2014), and Acqua-Sam and Salami (2013), who argue that knowledge of the capital market among individuals influences participation in the stock market. The results on knowledge of DSE influencing participation relate to the findings from one of the key informants from DSE, who noted the relationship between high knowledge of DSE and participation among individuals in Dar es Salaam Region. These results imply that individuals who are aware of DSE and its activities are more likely to participate. Increased participation can lead to attaining African development goals as per Agenda 2063, which, among other things, aims to raise private equity investment in the stock market, enabling increased financial access to firms (AUC, 2015).

Financial awareness and participation

The findings in Table 2.5 show that financial awareness did not significantly influence individuals' likelihood to participate in the stock market. Therefore, the null hypothesis that financial awareness does not affect individuals' participation is accepted as the $p\text{-value} = 0.140$ ($p\text{-value} > 0.05$). The findings imply that financial awareness contributes to individual participation but is not a significant factor in investment decisions. The results contradict the findings by Arts (2018) and Sivaramakrishnan *et al.* (2016); however, they support Noel's (2013) study findings. The contradiction can be due to

differences in the geographical locations of the stock markets and levels of awareness. DSE is still developing, with less than 1% of individual participants who, according to key informants, trade their shares through brokers who cover their financial and risk analysis at an affordable commission. Impliedly, participants seek advice from financial analysts and brokers before making an investment decision; thus, being financially aware is not crucial.

Awareness creation seminars and participation

The findings in Table 2.5 further reveal that awareness creation seminars among individuals were likely to influence their participation in the stock market as the p-value = 0.000 (p-value < 0.05) with respect to exponent β of 0.084 times. The findings imply that the odds of participation for individuals with access to awareness creation seminars was 0.084 more than for individuals without awareness creation seminars. Hence, the null hypothesis that awareness creation does not influence individual participation was not accepted. The findings relate to findings by Mishra (2018), Vohra and Kaur (2017) and Liivämagi (2016), who found that individuals who had attended training participated more actively in stock trading. Therefore, awareness creation on different issues pertaining to the stock market and trading shares among individuals increases their knowledge and the probability of investing in stock market. Seminars increase individuals' awareness of the matter and enable sound decision-making as per the self-awareness theory. These results pave the way for the Capital Market and Security Authority (CMSA) to attain its targets, focusing on using different means to build prospective participants' technical and financial capacity (CMSA, 2018).

Access to media

Access to media such as newspapers, television, and other social media was likely to influence individuals' participation in the stock market p-value = 0.000 (p-value < 0.05) with exponent β of 0.124. Impliedly, the odds of participation for individuals with access to media was 0.124 higher than those without access to media. Therefore, the null hypothesis that access to media does not influence individual participation in the stock market was not accepted because the p-value was less than 0.05. Thus, the findings relate to findings by Choi and Robertson (2018), Leodeguard (2019) and Hu *et al.* (2021), who observed that media induce entry into the stock market by first-time investors with low stock market awareness. Here, they imply that access to newspapers,

television, and social media transfer knowledge and information to individuals quickly, allowing them to analyse and make sound decisions. The use of social media for accessing knowledge was also found during data collection; one of the respondents stated:

“...I haven’t attended any seminar, but I have learned about investing in the stock market through my mobile phone by reading articles related to the benefits of share ownership and decided to buy shares...” (Key informants, Dar es Salaam, May 2020).

2.6 Conclusion and Implication

One optimal investment strategy that motivates individuals to participate in the stock market is possessing adequate investment knowledge. The findings indicate that limited awareness of matters such as stock market activities, financial awareness, and shareholders’ rights are among the challenging issues among participants and non-participants in DSE. The implication is that knowledge of DSE and participation caused by the high education level of an individual or awareness creation programmes is necessary. An increase in awareness creation programmes opens the minds of individuals to new opportunities available in the market, which can lead to an individual’s economic advancement.

The findings revealed that individuals with access to media such as television, newspapers, social media, digital media, mobile applications such as DSE mobile trading platforms, and the internet are highly likely to participate in the stock market. Through media, individuals acquire knowledge of DSE and security trading. Individuals who are more aware of DSE applications and share trading are more potential participants in the stock market than those who are less aware.

Therefore, continuous community training and awareness seminars by DSE and CMSA are required, especially for university students, the young working generation, and social groups considered potential investors. The training may increase participation because 74% of non-participants were willing to invest in the stock market if they were familiar. DSE should also publicise the DSE mobile trading platform and collaborate with media service providers to disseminate awareness to the public and young and working individuals. Apart from that, DSE should consider the possibilities of virtual or

physical presence in many parts of Tanzania to reach out to many individuals and thus raise participation rates broadly. With a growing middle-class population, DSE should establish different share and bond products which average income earners can acquire.

Theoretically, the investment decision made by aware individuals aligns with the self-awareness theory. However, individuals who invested in shares without knowledge of DSE or share trading contradict with self-awareness, and it can be due to the fact that some participants are unaware of DSE activities but influenced by others. Thus, the current study adds that self-awareness requires information accessibility, awareness seminars, and awareness of investment opportunities to make proper investment decisions.

Moreover, to policymakers, the findings indicate a high likelihood of individuals participating after awareness seminars and high education levels. Thus, the study recommends CMSA to ensure that policy related to awareness creation and usage of universities to disseminate information is enhanced to increase public participation.

2.7 Limitations and areas for future research

The current study included individual participants and non-participants located in Dar es Salaam, which may limit the scope of the study. Therefore, further research should use the same sample and methods but focus on other regions. Furthermore, further studies can include group investors and those invested in mutual funds to assess their participation in the stock market compared to direct individual investors.

2.8 Contribution of the Study

Theoretically, the findings that awareness influences individuals' investment decisions in the shares market align with the self-awareness theory. However, the findings related to individual investors who are unaware of DSE and their rights as investors contradict the self-awareness theory, therefore indicating that the influence of friends, family and tips from brokers influence participation. Therefore, the study contributes to the theory because the findings show that, to be self-aware, one needs access to relevant market information, awareness creation seminars, and information through media relating to stock market trading.

The current study has a vital contribution to individuals' participation in the stock market, to which Tanzania scholars need to give more attention. The results on individual awareness of participation fill in the literature gap by addressing the key awareness factors such as awareness of individuals' rights, awareness of DSE and its activities and awareness seminars that can increase individuals' participation in DSE. Understanding the workings of the DSE and the fundamentals of share trading can help individuals make informed investment decisions and reduce the risk of losses related to share trading.

REFERENCES

- Abuselidze, G. (2018). Georgia's Capital Market: Functioning Problems and Development Directions in Association with European Union. *Journal of Applied Economic Sciences*, XIII, Winter, 7 (61), 1929 – 1938.
- Abiad, A., Furceri, D., & Topalova, P. (2015). *The Macroeconomic Effects of Public Investment: Evidence from Advanced Economies; Working Paper*. International Monetary Fund (IMF).
- Acquah-Sami, E., & Salami, K. (2013). Knowledge And Participation In Capital Market Activities: The Ghanaian Experience. *International Journal Of Scientific Research In Education*, 6 (2), 189-203.
- Andow, H. A., & David, B. M. (2016). Ownership Structure And The Financial Performance Of Listed Conglomerate Firms In Nigeria. *The Business And Management Review*, 7 (3), 231–240.
- Arts, L. (2018). *Financial awareness And Stock Market Participation: The Moderating Effect Of Country-Specific Social Connectedness*. Uppsala University and The University of Groningen. Sweden.
- Africa Union Commission (2015). *Agenda 2063, The Africa We Want - A shared Strategic Framework for Inclusive Growth and Sustainable Development; First Ten-year Implementation Plan 2014-2023*. Africa Union, 141 pp.
- Bacher, A. (2022). *The Gender Investment Gap over the Life-Cycle*. European University Institute, Italy.
- Barayandema, J., & Ndizeye, I. (2018). The Determinants of Investment Decisions in the Rwanda Stock Exchange. Rwanda: *East Africa Research Papers in Economics and Finance*, No. 2018:28.

- Berger, D. (2017). *Introduction to Binary Logistic Regression and Propensity Score Analysis*. Research Gate, California, USA. pp 30.
- Bucher-Koenen, T., Alessie, R. J., Lusardi, A., & Van Rooij, M. (2021). *Fearless Woman: Financial Literacy and Stock Market Participation*. National Bureau of Economic Research. Working Paper No. 28723. Cambridge, MA.
- Cheng, Y.-F.; Mutuc, E.B.; Tsai, F.S.; Lu, K.H.; Lin, C.H. (2018). Social Capital and Stock Market Participation via Technologies: The Role of Households' Risk Attitude and Cognitive Ability. *Sustainability Journal*, 10 (6), 1-14.
- Choi, J. J., & Robertson, A. Z. (2020). What Matters to Individual Investors? Evidence From The Horse's Mouth. *National Bureau of Economic Research, Working Paper 25019*, pp. 1–38.
- Clavery, F. S. (2018). *A Study On Awareness Of Share Ownership Among the Community Members In Tanzania: A Case Study Of Dar Es Salaam City*. Dissertation for Award of MBA degree Mzumbe University, Tanzania.
- CMSA. (2018). CMSA Five Year Strategic Plan for the Financial Year 2018/19-2022/23.
- Cochran, W. G. (1977). *Sampling Techniques* (3rd Ed.). New York: John Wiley & Sons, 442 pp.
- Dishon, N., Oldmeadow, J. A., Critchley, C. & Kaufman, J. (2017). The Effect of Trait Self-awareness, Self-reflection, and Perceptions of Choice Meaningfulness on Indicators of Social Identity within a Decision-making Context. *Frontiers in Psychology*, 8, 1–11.
- DSE. (2016). *DSE Annual Report 2016*. Dar es Salaam, Tanzania.
- DSE. (2020). *Dar es Salaam Stock Exchange*. Retrieved on May 8, 2021, from Dar es Salaam Stock Exchange Website: <http://dse.co.tz>
- Duval, S., & Wicklund, R. A. (1972). *A Theory of Objective Self Awareness*. Academic Press, New York.
- Epaphras, M. & Kiwia, B. P. (2021). 'Financial Literacy and Participation in the Financial Markets in Tanzania: An application of logit regression Model,' *Journal of Economic and Financial Sciences*, 14(1),1-13.
- Etikan, I. & Bala, K. (2017). Sampling and Sampling Methods, *Biometrics and Biostatistics International Journal*, 5 (6), 215–217.
- Evdakov, S. (2014). *How Groupthink Affects Your Stock Trading Decision*. Retrieved on November 25, 2020, from <https://www.tradersfly.com>.

- Fichtner, J. (2020). The rise of institutional investors. In *The Routledge International Handbook of Financialisation* (pp. 265–275). Routledge.
- Gaber, J. (2019). Building "a Ladder of Citizen Participation". *Journal of the American Planning Association*, 85 (3), 188–201. DOI: 10.1080/01944363.2019.1612267.
- Gowela, I. (2020). *Factors Influencing Individual Investors' Decision in Trading Shares: The Case of Dar es Salaam Stock Exchange*. Dissertation for Award of MSc. Degree, Mzumbe University, Tanzania.
- Gumbo, M., & Sandada, M. (2018). The Determinants of Stock Market Participation: Evidence from Individual Investors in Zimbabwe. *ACTA Universitatis Danubius*, 14 (4), 642-654.
- Haji, M., & Cunningham, V. (2015). *Tanzania Economic Update- Why Should Tanzanians Pay Taxes? 7th Ed*. World Bank Group, Dar es Salaam, Tanzania.
- Hu, L., Li, K., & Ngo, P. T. (2019). *Media Exposure and Stock Market Participation*. College of Business and Economics at the Australian National University, Australia.
- Hu, L., Li, K., & Ngo, P. T. H. (2021). *Media Exposure and Stock Market Participation*. Australian National University, Australia. 48pp. Accessed SSRN <http://dx.doi.org/10.2139/ssrn.3555813>.
- Janis, I. L. (1991). Victims of Groupthink. *Political Psychology*, 12 (2), 247–278.
- James, A. T., Adegboye, K. A., Osayi, V., Okorie, S. C., & Iyang, E. (2015). Opportunities and Problems of Investment in the African Stock Exchange: A Selection of Nse, Gse & Rse". *IOSR Journal of Business and Management (IOSR-JBM)*, 17 (7)II, 51-59.
- Langat, P. C. & Rop, W. C. (2019). Relationship Between Risk Aversion of Individual Investors and Stock Market Participation Decision among Secondary School teachers from Nakuru County, Kenya, *International Journal of Scientific and Research Publications*, 9 (9), 477-485.
- Leodegard, M. (2019). *Stock Market Awareness And Stock Market Participation By Retail Investors In Kampala, Uganda*. Kampala International University, Kampala, Uganda.
- Liivamägi, K. (2016). Investor Education and Training Activity on the Stock Market. *Baltic Journal of Economics*, 16 (2), 114-131.
- Livingston, S. A. (2018). *Test Reliability—Basic Concepts*. Educational Testing Service, Princeton, New Jersey, USA.

- Ma, R., Anderson, H. D., & Marshall, B. R. (2018). Stock Market Liquidity and Trading Activity: Is China Different? *International Review of Financial Analysis*, pp. 56, 32–51.
- Mauboussin, M. J., Callahan, D., & Majd, D. (2017). The Incredible Shrinking Universe of Stocks: The Causes and Consequences of Fewer US Equities. *Credit Suisse Report, Global Financial Strategies*.
- Mauricas, Ž., Darškuvienė, P. V., & Mariničevaitė, T. (2017). Stock Market Participation Puzzle in Emerging Economies: The Case of Lithuania. *Organisations and Markets in Emerging Economies*, 8 (2), 225-243.
- Mishra, R. (2018). Financial Literacy, Risk Tolerance and Stock Market Participation. *Asian Economic and Financial Review*, 8 (2), 1457–1471.
- Mookerjee, I. (2020). Stock Market Participation in Asia. *Bloomberg*. Retrieved on January 15, 2021, from Bloomberg Website: <http://www.bloomberg.com>
- Mwamtambulo, D. J. (2021). Factors Influencing Individual Investor Participation in Stock Market. Springer Proceedings in Business and Economics, in: Krzysztof Jajuga & Hermann Locarek-Junge & Lucjan T. Orłowski & Karsten Staehr (ed.), *Contemporary Trends and Challenges in Finance*, Springer, 57-74.
- NBS. (2020). *Informal Sector Survey, 2019-Analytical Report Dar es Salaam Region*. Ministry of Finance and Planning: Dodoma 131 pp.
- Noel, M. (2013). *Determinants Of Stock Market Participation By Individuals: The Study Of Dar-Es-Salaam Stock Exchange*. Dissertation for Award of MBA Degree, Mzumbe University, Tanzania.
- OECD (2011). “Shareholders’ Rights” in Corporate Governance of Listed Companies in China: Self-Assessment by the China Securities Regulatory Commission. OECD Publishing: Paris.
- Qureshi, H. A., Mehmood, S., & Sarwar, A. (2014). Determinants of Trust and Level of Awareness of Retail Investors in Stock Market of Pakistan. *Science Publications International, Lahore*, 2501–2507.
- Radtke, J., Holstenkamp, L., Barnes, J., & Renn, O. (2018). Concept, Format, and Methods of Participation: Theory and Practice. *Economics Review*. USA: Springer Publishing Company, 18 (5), 604-617.
- Salleh, I. S., Ali, N. M., Mohd-Yusof, K. & Jamaluddin, H. (2017). *Analysing Qualitative Data Systematically using Thematic Analysis for Deodoriser*

- Troubleshooting in Palm Oil Refining. Chemical Engineering Transaction - AIDIC*, 56, 1315-1320.
- Sarkar, A. K., & Sahu, D. N. (2017). Factors Influencing Behaviour of Individual Investor in Stock Market: A Case Study in West Bengal. *International Journal of Commerce and Management Research*, 33-39.
- SEBI. (2017). *A Reference Guide for Investors on Their Rights and Responsibilities and Redressal of Grievances*. Retrieved on September 9, 2020, from <http://www.sebi.gov.in>
- SEC. (2012). *Capital Market Awareness*. University of Peradeniya, Colombo, Sri Lanka.
- Sempeho, L. G. (2013). *Protection of Individual Investors at The Dar es Salaam Stock Exchange: A Critical Analysis of the Law*. Dissertation for Award of Master's Degree in Law, Mzumbe University, Tanzania.
- Sivaramakrishnan, S., Srivastava, M., and Rastogi, A. (2017). Attitudinal Factors, Financial Literacy, and Stock Market Participation. *International Journal of Bank Marketing*, 35(5), 818-841. DOI: 10.1108/IJBM-01-2016-0012.
- Tham, E. (2018). *Social Media Impact on Household Investors and Their Stock Markets Participation, Technical Report*. Think Forward Initiative: Lille, France.
- Thomas, L. (2017). Ownership of JSE-listed Companies, Research Report for National Treasury. South Africa: *London School of Economics-Centre of Research in Economics and Finance*.
- URT. (2016). *The United Republic Of Tanzania, The Finance Act, Bill Supplement No. 12*. Government Printer: Dar es Salaam.
- Vodacom Plc. (2017). *Announcement of the Results of Vodacom Tanzania PLC's Initial Public Offering Of 560,000,100 Shares*. Retrieved on August 19, 2019, from Vodacom website: <https://www.vodacom.co.tz>
- Vohra, T. & Kaur, M. (2017). Participation of Women: A Comparative Study of Stock Investors and Non-Investors. *The IUP Journal of Management Research*, XV (4), 22-38
- Wangmo, C., Choden, P., Daly, S., & Dorji, R. (2018). Awareness and Challenges of Stock Market in Bhutan. *International Journal Of Economics And Financial Research*, 4(9), 274-283.
- Wazal, D. M., & Sharma, S. K. (2017). Participation of Retail Investors in the Indian Equity Market. *IOSR Journal of Business and Management (IOSR-JBM)*, 78-80.
- WFE. (2013). *Statistics Definitions and Examples*. World Federation of Exchange.

- Williams, K. & Bradburn, M. (1985). "Self-Awareness Theory and Decision Theory: A Theoretical and Empirical Integration". *Retrospective Theses and Dissertations*. 7895.
- Wu, Y. (2016). *Individual Investors, Social Media and Chinese Stock Market: A Correlation Study*. Massachusetts Institute of Technology, Cambridge, Massachusetts, USA.

CHAPTER THREE

3.0 Influence of Socio-economic Factors on Participation of Individual Investors in the Dar es Salaam Stock Exchange

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3.1 Abstract

Individual participation in emerging stock markets like the Dar es Salaam Stock Exchange (DSE) has grown, although it covers only 1% of the country's population³. The study examined the socio-economic factors that explain individual participation decisions in DSE. Data were collected from 200 participants and 200 non-participants using a questionnaire. Quantitative data were analysed using descriptive statistics and a binary logistic regression model (BLR), while qualitative data were analysed using thematic analysis. Results indicated that individuals participate in different social and economic groups, which motivates them to invest. Binary logistic regression (BLR) results showed that social interaction, income, and internet technologies were likely to influence individuals' decisions to participate in the stock market. Conclusively, social interaction, access to the internet, and investment preference had a high likelihood of influencing an individual's investment decisions. The findings attained relate to the socioeconomic theory, indicating the intermix of economic and social factors influencing participation. However, the inclusion of internet technologies in these theories is considered necessary. The findings call for the government to strengthen supervision and quality monitoring of social groups' operations and management of funds. Furthermore, the study urges DSE to use technology enablers like the internet and social media to reach individual investors.²

Keywords: *Individual investor, Socio-economic factors, Participation, DSE*

² Published in The Journal of Policy and Leadership (JPL), Vol.9(1) of 2022. (Appendix X).

3.2 Introduction

Individual investors often save their resources by investing in different channels, such as the stock market (share acquisition), fixed assets, agriculture, financial assets, and livestock keeping, while expecting a positive return for their future economic development. One of the financial markets with the fastest growth is the stock market, which facilitates economic growth around the world in industries, banks, and companies (Iddrisu and Abdu-Malik, 2017; Abiad, Furceri, and Topalova, 2015; Khyareh and Oskou, 2015). These are channels through which savings can flow into productive economic investment (Thomas, 2017). They also facilitate individuals' income growth gained through dividends and capital gains generated by themselves as company owners through share acquisition (Grimbeek, 2016).

Although investing in the global stock market seems to bring about positive outcomes like economic growth and increased income among individuals, findings of previous studies show that individual investors prefer investing in fixed assets and other securities rather than shares (Baig and El Zoubi, 2017). It further argued that the preferences are related to socio-economic factors such as risk of share investment, economic awareness, and social awareness of share business issues. Furthermore, scholars in Bangladesh, USA, and the United Kingdom report economic aspects such as income and social interactions greatly impact individual participation in stock market investment (Khanam, 2017; Liu *et al.*, 2014; Brown and Taylor, 2010). Similarly, Cheng *et al.* (2018), as well as Shanmughama and Ramya (2012), observed that social interactions, haggling among family members, technology (internet), and relational factors (trust) affect the choice of an individual to invest in the stock market.

Johannesburg Stock Exchange (JSE) is one of the best-performing African stock exchanges but has a low level of domestic savings. This situation hinders individual investment that promotes economic growth (Thomas, 2017). Reliable sources of income, social ties, and access to the Internet are among the aspects that influence stock exchange investment (Gumbo and Sandada, 2018; Ndiege, 2012). The implication is that individual involvement in the stock market in Africa is partly associated with socio-economic factors such as income and internet access. Ndiege (2012) reported that few teachers had decided to invest in the Nairobi Stock Exchange. However, they were motivated by income and expected returns to acquire shares. On the contrary,

Barayandema and Ndizeye (2018) insist that income is among the least influential factors for retail investors' participation in the Rwanda Stock Exchange. The limited influence of income relates to Agyemang and Ansong (2016), who maintain that family security and a comfortable life contribute more to stock market shareholding than other factors.

The socio-economic perspective affects stock market participation as viewed by different scholars and echoed by Behnaz and Matos (2012), who argue that factors including income, wealth, and socialisation increase participation. Impliedly, the stock market is expected to facilitate the economic advancement of an individual through wealth/income generation and improve individuals' social and personality traits through socialisation. This paper modified Hellmich's (2015) socioeconomic definition and viewed it as a generic science intended to improve human living conditions. Similarly, socioeconomics adequately supplements economics with other social sciences and humankind. Therefore, the paper categorised socio-economic factors based on empirical review (Arts, 2018; Noel, 2013) and socioeconomic theory as follows: economic factors include investment preference and level of income of an individual, while social factors include social interaction, family participation, and access to internet technologies.

In Tanzania, DSE is a key component of capital formation for corporates; however, it has a limited impact on economic growth (Abbas *et al.*, 2016). Regardless of its contribution to individual income and firms' capital formation, individuals' participation is estimated to be less than 1% (equivalent to 556,121 participants) of the population (DSE, 2020), compared to Kenya, which is rated at 4% (Langat and Rop, 2019). Despite the DSE's on-going attempts to increase individual stock market participation, the number of direct individual participants remains low. There are various reasons why Tanzanians do not trade in financial markets. Empirical results related to participation suggest that awareness, age, sex, education, experience, and financial literacy are among the elements influencing people's stock market participation (Epaphra and Kiwia 2021; Noel, 2013), but investment preference, family participation, social interaction factors are limitedly addressed.

Marobe (2013) assessed whether economic factors (income and occupation), social factors (gender, age, and education), and financial literacy determine how many people

in Tanzania engage in stock market trading. The findings indicated that income, occupation, education, and age determine an individual's investment decision. Alliy (2015) also evaluated whether economic factors (interest, inflation, profitability, technology, and household saving) and socio-cultural factors (investors' behaviours, presence of a reference group, trust, and DSE attractiveness) affect the development of DSE but the author did not consider individual persons but the stock market itself. Therefore, this paper went beyond the expected dividend, capital gain, occupation, age, gender, and wealth, including investment preferences, social interaction and other social factors such as family participation. The paper examined whether socio-economic factors, developed from theories and the country practices (investment preference, social interaction, and family participation), affect individuals' decisions to invest in DSE.

DSE is growing in the number of listed companies and market capitalisation, partly contributed by equity shares acquired by individual investors. In literature (Epaphra and Kiwia 2021; Noel, 2013; Marobe, 2013), focusing on demographic factors and income as limiting factors for individual participation may mislead policymakers and DSE in implementing strategies to increase individual involvement in DSE. Individuals' decisions to participate in the stock market may be associated with economic factors other than income and social ones, such as the participation of family members in the stock market. Apart from that, the success factors need to be explored for prospective shareholders. Thus, the study on which this paper is based finds the need to extend the examination of economic and social factors, such as involvement in social groups and their likelihood to affect how much they participate in stock trading.

The study broadens the perspective and includes the general public (direct individual participants and non-participants) to assess whether the socio-economic factors influence participation in DSE. The inclusion of participants and non-participants is due to the fact that the stock exchange is regarded as a system of human connection where investors engage in information exchange and discussion about investment avenues with their neighbours, relatives, friends, and co-workers (Shanmughama and Ramyab 2012).

More clarity on the existing contradictions regarding the influence of income on participation in the stock market is needed because Epaphra and Kiwia (2021) and

Marobe (2013) considered income as among the key factors influencing participation, while Barayandema and Ndizeye (2018) and Ndiege (2012) argues that it is the least influential factor of stock market participation. Thus, this paper aims to determine DSE participants' and non-participants' social and economic characteristics. The study further examines how socio-economic characteristics, including family participation in the stock market, social interaction, access to internet technologies, income, economic activities, and investment preference, can influence individuals' participation in DSE.

3.3 Theoretical Review and Hypotheses Development

3.3.1 Theoretical review

The socio-economic theory links economic with non-economic activities and how they intermix.

3.3.1.1 Socio-economic theory

The theory views 'socioeconomics' as an intermix of economic and non-economic activities, whereby non-economic activities influence the costs and methods of economic activities (Granoveretter, 2005). Granoveretter (2005) assumed that economic interaction is mixed in the market's normative, cultural, structural and environmental contexts. When players seek economic gains through non-economic institutions, they presumptively attain savings. Thus, social groups foster trust and accountability among members, encouraging friends and family to lend a hand to one another. Granoveretter (2005) explains further that market prices become stable when small groups perform trade as opposed to larger groups for the stock exchange. Implicatively, security price volatility increases in larger groups than in small groups due to communication problems, trust, and social and economic forces feeding into one another.

Tansey and O'riordan (1999) supported that characteristics of the social group in which an individual is a member shape their opinions on specific issues. The degree to which people feel attached to a broader social group determines which organisations, peer groups or other authorities make up these social groups. Thus, cultural relationships, precisely the expectations and value systems of people who belong to diverse groups, shape attitudes and judgements about risk and the pattern of social fairness. Therefore, socio-economic theory was appropriate for the study as it includes income-generating economic activities, security investments through groups and saving among group

members. Integrating social, cultural, and environmental factors into these economic activities is essential for an individual to achieve economic goals. Hence, social factors such as social group, access to technology and social interaction foster trust among individuals and facilitate the attainment of economic goals such as stock market investing. Hence, social interactions shape individual choice preferences (Hellmich, 2015). As a result, trust developed in social groups and investment information sharing leads to stock market participation. The theory was applied to select variables such as social group participation, access to internet technologies, income and investment preferences.

3.3.2 Hypotheses development

3.3.2.1 Social factors and participation in the stock market

Investors usually learn from financial advisors, financial analysts, advertisements, friends and family before investing or trading, which makes the process interactive. According to Liu, Yang and Zang (2014), social connection positively impacts stock market involvement. Conventional and modern social interactions influence individual investors' stock trade decisions. However, as Brown and Taylor (2010) argue, investors find investing attractive where the participation rate is higher among their peers. Hence, it is not about social interaction alone but about how friends, family or colleagues are involved. Brown *et al.* (2008) examine how social factors enhance stock market participation and observe that community participation affects stock market participation because community stock ownership increases individual participation. Elsewhere, Wazal and Sharma (2017) revealed that cultural saving methods affect individuals' participation decisions in India. This finding is echoed in Tanzania, where individuals prefer to save in informal savings systems such as VICOBA and mobile phones. Studies show that almost a half (48.6%) of the Tanzanian population use mobile savings, 6.7 per cent use the informal system, and only 16.7 per cent use formal financial services (FinScope, 2017).

Therefore, scholars have divided opinions and methods on the influence of social factors on individual decisions to invest in the stock market. Hence, it cannot be clearly argued which social factors are most influential at DSE. Thus, this paper contributes by adding new inputs to the knowledge of what influences individuals' investment decisions in the stock market by adding new social and economic factors, such as

investment preferences. Arts (2018) observed that social factors affecting participation might vary across countries, geographical locations or cultural practices. Several studies (Gumbo and Sandada, 2018; Wazal and Sharma, 2017; Liu *et al.*, 2014) have focused on a few social factors and did not consider access to internet technologies in accessing information and socialising. They should have included family participation, the type of social group individuals prefer and the use of online applications. The only exception is Liu *et al.* (2014), who examined modern socialisation and recommended further research.

Conversely, socioeconomic and cultural risk theories assume that social interaction favourably influences individual engagement. Hence, the study aimed to assess the influence of social factors such as family background, participation in social groups, the influence of family and friends and access to the internet on individual participation in stock market investment. Thus, hypothesis H_{01} was formed as follows:

H₀₁: Family participation does not influence individual investment decisions in the stock market.

H₀₂: Social interaction does not influence individual investment decisions in the stock market.

H₀₃: Access to internet technologies does not influence individual investment decisions in the stock market.

3.3.2.2 Economic factors and stock market participation

Before investors decide to invest, they usually assess the type of investment (shares, bonds, options, and mutual funds) and the future economic outcome, including dividends, earnings, risks and returns. According to Barayandema and Ndizeye (2018), economic factors such as expected earnings and the company's ownership structure are the most influential factors in individuals' decisions to acquire stocks. Income was included as a demographic factor and has little influence on investment decisions in security markets. Similarly, Ndiege (2012) examined variables impacting teachers' decisions to trade on the Nairobi Stock Exchange and found that anticipated dividends, capital gains and share prices influenced investment decisions. In addition, Ndiege considered social and behavioural factors such as friends' and co-workers' recommendations to affect investment decisions. Therefore, the decision to invest involves both economic and social, cultural and behavioural factors.

Moreover, Agyemang and Ansong (2016) revealed that family security (future protection of the family members) and comfortable life (financial soundness and satisfaction) play an important role in investment decisions in Ghana. Thus, individuals invest not only for economic gain but also for their families' future gain. However, Mauricas *et al.* (2017) insist that higher expected returns increase participation in domestic non-current asset investments other than risky financial assets, including shares. Economic factors such as returns influence investment in less risky non-current assets, not shares. The socioeconomic theory also suggests that the intermix of economic and social factors positively influences individuals' investments. Hence, researchers have mixed findings on variables measuring economic factors and differing findings on investment preferences.

Looking at DSE as an emerging market, factors such as investment preference, economic activities of individuals, and level of income provide an economic picture of current and prospective investors. Furthermore, the socio-economic theory suggests a positive influence of economic factors such as income on investment as it facilitates the attainment of savings which can be invested for economic gains. However, empirical literature (Barayandema and Ndizeye, 2018; Ndiege, 2012) contradicts this by suggesting expected earnings and social factors as crucial and not income. Therefore, this paper examined further economic factors such as income level, economic activities, and investment preferences and their influence on participation. Thus, hypothesis H_{04} was formed as follows:

H₀₄: Income level does not influence individual investment decisions in the stock market.

H₀₅: Investment preferences do not influence individual investment decisions in the stock market.

3.4 Methodology

The study used a cross-sectional approach since the outcome (dependent variable) and exposures (predictor variable) were measured simultaneously. In addition, the description of the population's demographic characteristics was possible and facilitated the use of different modes, from data collection to analysis. Simultaneously, the study used a mixed methods approach to analyse the relationships between the variables (participation and socio-economic factors) because qualitative and quantitative data provide a more comprehensive and robust understanding of the phenomenon being

studied. The quantitative methods were used to test hypotheses by determining the relationship between socioeconomic factors and participation. The qualitative analytical approach was employed to complement the quantitative data analysis and interpretation, enabling the generalisation of the results (Apuke, 2017).

The study area was Dar es Salaam because that is where DSE and all 15 brokers are based. Moreover, Dar es Salaam is among the fastest-growing cities, a leading commercial centre and an economic hub in Tanzania (Msuya, Moshi and Todd, 2019). The study population was 3,599,412 individuals engaged in income-generating activities (NBS, 2020). The study used snowballing and purposive sampling due to limited access to participants. It interviewed six (6) key informants who were considered to be experts in the stock market, including 2 DSE informants, a CMSA spokesperson, 2 brokers and an academician; thus, the information collected was used to supplement the quantitative data. The sample used for the study included participants and non-participants because the study intended to examine whether participating or not participating in the stock market is affected by socio-economic factors. Cochran's (1977) formula for the finite population, as applied by Epaphras and Kiwia (2021), was used to get the sample size.

$$n = \frac{n_0}{1 + (n_0 - 1)/N} \quad (2)$$

Where: N = Population size (3 599 412 including 556,121 participants)

n_0 = Sample size

n = Sample Size for finite population

The margin of error is 0.05 or 5% at the Confidence level of 95%

$$n = \frac{384}{1 + (384 - 1)/3 599 412} \quad \text{estimated sample size} = 384$$

The logistic model requires a big sample size (Epaphra and Kiwia, 2019); therefore, the sample was increased by 10% (Brus, 2017) to 422, but 400 questionnaires were collected, equivalent to a 94.8% response rate. Therefore, the sample was distributed to include 200 participants and 200 non-participants with similar characteristics, meaning the distribution ratio was 1:1 (Etikan and Bala, 2017). The data were collected using a structured questionnaire and a key informant interview guide for six key informants, considered experts in the stock market. Pre-testing of the questionnaire was done on 30 individuals apart from those involved in the main data collection to measure the validity and reliability of the questionnaire. Problems, suggestions, recommendations, and observations related to the questions in the questionnaires were improved and incorporated for final data collection. Data collected were subjected to a reliability test,

and Cronbach's Alpha coefficient test indicated an internal consistency score of 0.806, considered acceptable, compared to the threshold of 0.7 (Livingston, 2018).

Qualitative data were analysed using thematic analysis as adopted and improved from Salleh *et al.* (2017). The process involved reading transcripts, interviews with key informants, and manual coding. Sorting coded information followed to get potential themes and sub-themes based on importance, relevance, and relation to the theory and objectives of the study. The identified themes were, therefore, linked with the objectives to supplement quantitative results. Conversely, quantitative data were analysed using descriptive statistics and Binary Logistic regression as adopted and improved by Arts (2018). The model was selected because the dependent variable was dichotomous (Msemo *et al.*, 2018). The dependent variable, participation, was adapted from Radtke *et al.* (2018) as represented in the model (Equation 2) as $\text{Log } P/(1-P)$. It shows the odds of 1 versus 0 at any value for x because it is a dichotomous variable with participating or not participating options. Participation in the stock market was measured against socio-economic variables to show the causal relationship (Table 1). Therefore, the model was specified as follows:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1, \text{Age} + \beta_2, \text{Sex} + \beta_3, \text{Ms} + \beta_4, \text{Edu} + \beta_5, \text{Fp} + \beta_6, \text{Si} + \beta_7, \text{Int} + \beta_8, \text{Inv} + \beta_9, \text{Inc} + \dots \varepsilon_i \quad (2)$$

Where: P = Likelihood of participation in DSE; β_0 = Constant coefficient β_1 ---- β_k = coefficient of explanatory variables; and ε = Error term = 0.05.

Table 3. 1: Definition and Variable Measurement

Variables		Variables description and Measurements
Dependent Variables		
P/(1-P)	Dependent Variable Participation in the Stock Market	Ownership of shares in different companies listed at DSE 1 = Participating in the stock market; 0 = Not participating
Independent/ control Variables		
Age	Age of respondents (C/V)	1 = Elder >35 years; 0 = Youth 18-35 years
Sex	Sex of respondents (C/V)	1 = Male; 0 = Female
Ms	Marital Status (C/V)	1 = Married; 0 = Otherwise
Edu	Education Level of respondents(C/V)	1 = High education level (Degree); 0 = Otherwise
Fp	Family participation in SM	1 = Yes; 0 = Otherwise
Si	Social interaction	1 = Yes; 0 = Otherwise
Int	Access to Internet technologies	1 = Yes; 0 = Otherwise
Inv	Type of investment preferred	Invest in bonds 1= Yes; 0= Otherwise Invest in mutual fund 1=Yes; 0= Otherwise Invest in non-current assets 1= Yes; 0= Otherwise
Inc	Income level of individuals	1 = High income earner >TZS 10,000,000; 0 = Otherwise

Source: Literature review (2022)

Ethical consideration was observed from data collection to data analysis, whereby participants were subjected to no harm, and the researcher obtained informed consent from participants before data collection. Data collection ensured the privacy, confidentiality and anonymity of the research participants, as there was no disclosure of the names of the respondents. Furthermore, deceptions, exaggeration and plagiarism were avoided.

3.5 Results and Discussion

3.5.1 Economic and Social Profile of Respondents

Individuals who invest in different areas have different social and economic profiles. This section (Table 3.2) provides a descriptive analysis of the respondents' economic profiles, including income levels, economic activities and investment preferences. It also includes social profiles such as access to internet technologies and membership in social groups.

Table 3. 2: Economic and Social Profile of Respondents

Variable	Categories	Total Freq (400)	Per cent (Total Freq/ 400 (%))	Non-part (Freq)	Non-Part/ 200 (%)	Part (Freq)	Part/ 200 (%)	Chi-square
Investment preference	Bonds	97	24.3	53	26.5	44	22	0.294
	Mutual Fund	51	12.8	13	6.5	38	19	0.000
	Shares	218	54.5	22	11	196	98	0.000
	Non-current Assets	182	45.5	156	78	26	13	0.000
Economic activities	Government employee	94	23.5	62	31	32	16	0.000
	Private employed	50	12.5	32	16	18	9	0.000
	Self Employed	305	76.3	138	69	167	83.5	0.000
Income	TZS50,000-5,000,000py*	143	35.8	106	53	37	18.5	
	TZS5,100,000-10,000,000py	93	23.3	38	19	55	27.5	
	TZS10,100,000-100,000,000py	164	41	56	28	108	54	0.000
Family Participation	Yes	276	69	98	49	178	89	0.000
	No	124	31	102	51	22	11	
Involved in Social group	Yes	310	77.5	125	62.5	185	92.5	0.000
	No	90	22.5	75	37.5	15	7.5	
Type of social groups	VICOBA	208	52	71	35.5	137	74.1	0.000
	Men/Women group	94	23.5	47	23.5	47	23.5	1.000
	Regional/Tribe group	73	18.3	22	11	51	27.6	0.000
Access to Technologies	Yes	331	82.8	138	69	193	96.5	0.000
	No	69	17.3	62	31	7	3.5	

Source: Primary data collected *Py = Per Year

The results in Table 3.2 show that individuals could save and invest in multiple modes due to their social group membership, investment preferences and economic activities.

Also, other employees in different organisations were privately involved in other economic activities, such as owning a school or a company. Furthermore, 54.5% of the respondents preferred shares investment, while 45.5% preferred non-current assets. Shares were preferred by 98% of the participants, and non-current assets were preferred by 78% of non-participants. Pearson's chi-square results indicated a positive association with a p-value of 0.000. Therefore, the mode of investment preferred by an individual was associated with participation.

Table 3.2 also indicates that 305 respondents were self-employed, while 94 were government employees. About 138 of the self-employed were non-participants, and 167 were participants in the stock market. The high participation of self-employed individuals could be attributed to their on-going search for new sources of income, financial capacity or risk diversification from other sources. Chi-square results support these findings as $p\text{-value} = 0.000$, meaning that the economic activities of an individual were associated with participation in the stock market. About 54% of participants earned an annual income of TZS 10,000,000 to TZS 100,000,000, while only 28% of non-participants earned that amount. About 53% of non-participants had an annual income of less than TZS 5,000,000. Individuals' Chi-square results showed the association between income earned and participation in the stock market with a $p\text{-value} = 0.000$.

Regarding social factors, Table 3.2 shows that 89% of individual participants had friends and family members who owned shares. In contrast, only 49% of non-participants had friends or family members who owned shares. In addition, participants were engaged in different social (sports) and economic groups such as VICOBA and therefore socialised with family, friends and colleagues who might motivate them to invest. The Chi-square results showed a $p\text{-value}$ of 0.000, confirming a significant relationship between social interaction and participation.

Furthermore, access to the internet and mobile technologies was also among the social factors associated with participation. Access entails using websites, DSE applications, mobile phones and online trading to access DSE information. A rise in the utilization of technology-based media by participants indicates increased usage of modern

socialisation platforms for accessing information related to investment decision-making (Hu *et al.*, 2021).

3.5.2 Thematic analysis findings

The qualitative findings of the study are based on three developed thematic areas of socio-economic factors, which are socio-demographic characteristics, social interaction and influence and access to internet and information technologies. The findings were used to examine their influence on participation in the stock market. The findings were further segmented into sub-themes to show different responses from key informants. Therefore, *firstly*, for socio-demographic characteristics, the sub-themes included age, gender, marital status, education level, income level, the influence of socio-demographic factors on participation decisions and differences and similarities among participants and non-participants. *Secondly*, for social interaction, the sub-themes were the role of family, friends, peers, and brokers in individual participation, the use of social media and online platforms and the impact of social norms and values in influencing participation. The *third* theme of access to the internet sub-themes were the availability and accessibility of internet services and devices, the use of online trading platforms and applications, and the benefits and challenges of the internet and information technologies. The voices of key informants as per specific sub-themes were integrated with quantitative data to explain the socio-economic influence on participation.

3.5.3 Influence of socio-economic factors on participation

3.5.3.1 Introduction

Binary logistic regression included social and economic variables. The results are discussed separately to examine which variables influenced participation. The model's appropriateness was confirmed by its significant Omnibus test result, with a P-value of 0.000. Nagelkerke, Cox, and Snell R square showed that the model had good explanatory power, exceeding 50%. Hosmer and Lemeshow's test showed a p-value = 0.244, confirming the reliable model. The presentation of results is shown in Table 3.3.

Table 3. 3 : Influence of Socio-economic Factors on Participation

Variables	β	S.E.	Wald	df	Sig.	Exp(β)
Age	-1.976	0.524	14.236	1	0.000	0.139
Sex of respondent	-0.708	0.389	3.312	1	0.069	0.493
Marital status	0.696	0.452	2.364	1	0.124	2.005
Education	0.427	0.456	0.880	1	0.348	1.533
Family participation	-1.258	0.454	7.665	1	0.006	0.284
Social interaction	-1.084	0.453	3.172	1	0.027	0.338
Access to internet technologies	-2.142	0.614	12.170	1	0.000	0.117
Invest in bonds	1.620	0.419	14.954	1	0.000	5.054
Invest in non-current assets	4.218	0.499	71.578	1	0.000	67.871
Income	-0.948	0.444	4.554	1	0.033	0.388

Omnibus test, P-value = 0.000, Cox & Snell = R square = 0.571, Nagelkerke R square = 0.761

Hosmer and Lemeshow test (chi-value = 10.307, df=8, p=0.244)

Demographic factors

Table 3.3 reveals that age was likely to influence individuals' decision to participate in the stock market as the p-value was 0.000 (P-value < 0.05) and exponent β is 0.139. Impliedly, the odds of individuals with old age participating in the stock market were 0.139 times lower than the ones for young individuals. The results are aligned with Fagereng *et al.* (2017), who noted that young individuals participated more than those approaching retirement age. Thus, working age will likely influence individuals' participation in the stock market due to the fact that they are highly working groups looking for investment opportunities for future economic gain. However, sex, marital status and education did not influence participation, which relates to Marobe's (2013) findings that other demographic characteristics, including sex, marital status, and education, are less likely to influence individuals' engagement in the stock market. Thus, individuals' decision to invest is not only about demographic factors but also social, economic and behavioural factors, as Ndiege (2012) suggests.

3.5.3.2 Economic factors and participation

The income level of respondents

Table 3.3 shows that individuals' annual income had a high likelihood of influencing individual participation as the p-value = 0.033 (p < 0.05) with respect to exponent β results of 0.388. Thus, the odds of individuals with high income participating in the stock market were 0.338 times higher than those for low-income individuals. As a result, the null hypothesis was rejected, meaning that income was likely to significantly influence individual participation in the stock market. These findings are consistent with the socioeconomic theory, Barayandema, and Ndizeye's (2018) results that high income influences individual participation in the stock market. The findings imply that, as an

individual's annual income increases, alternative chances of the individual's decision to invest in shares also increase. In contrast, the findings revealed that increasing income at any level likely influenced individual participation. Individuals who are low- and high-income earners are likely to participate in the stock market if they have additional income. The likelihood is that practically all disposable income, after meeting basic consumption needs, can be invested variably, including share acquisition.

Investment preferred and participation

The results in Table 3.3 also show that investing in government or corporate bonds and fixed assets was likely to influence participation as the p-value = 0.000 with exponent β of 5.054 and 67.871. Hence, the odds of individuals with investments in bonds and fixed assets participating in the stock market were 5.054 and 67.871, respectively, higher than those for individuals who invested in other investments. Therefore, we failed to accept the null hypothesis and concluded that investment preference in bonds and mutual funds by an individual increases the likelihood of participation in the stock market. The findings align with Mauricas *et al.* (2017), who noted that individuals prefer investing in high-return fixed assets over risky assets. Impliedly, owning bonds and fixed assets by an individual is likely to influence participation because they relate and, therefore, gain experience from trading, but it also indicates the availability of extra income from an individual, which can be invested in shares. These findings support government efforts to encourage individuals to own companies' shares (URT, 2016). This is because experience from trading bonds and income generated from it can be invested variably by an individual looking for different investment opportunities and attaining individuals' and government targets. These results align with socio-economic theories whereby individuals can invest in different areas based on trust. Therefore, one can invest in any securities and still invest in shares, as it was noted during data collection when one of the key informants stated:

"...Individuals learned about share acquisition after investing in UTT/Umoja fund and benefited from them then decided to invest in other companies like Tanga Cement Company Ltd (TCCL)....". (Key Informant, Dar es Salaam, May 2020).

3.5.3.3 Social Factors and Participation

Social interaction and participation

Table 3.3 reveals that people who participated in social groups were much more likely to acquire stocks, with a p-value = 0.027 and exponent β of 0.338. Impliedly, the odds of individuals who socially interact to participate in the stock market are 0.380 higher than those for individuals who do not socially interact. Therefore, the null hypothesis is not accepted because increased socialisation increases the likelihood of participating. These results are consistent with the results in a study by Wong and Yap (2019). Similarly, the results align with Granovetters' socio-economic theory, Liu *et al.* (2014), cultural risk theory, and Shanmughama and Ramyab's (2012) findings that social interaction affects stock market participation and trading behaviours of individuals. The results imply that social interaction will likely motivate individuals to save and invest by learning from their colleagues. Moreover, the findings indicate that social groups establish different modes of saving and investment to facilitate economic advancement among members. The results support the DSE policies on encouraging share acquisition through registered groups.

Family participation

Family members, close friends and peer groups who invest in the stock market will likely encourage other family members to do the same. The findings in Table 3.3 demonstrate that participation in the stock market was likely influenced by family members who are investors as the p-value = 0.006 (p-value < 0.05) and exponent β of 0.284. The findings imply that the odds of individuals with family members who are shareholders participating in the stock market were 0.284 higher than the odds for those without family members who were investors. As a result, the null hypothesis was not accepted, and the alternative hypothesis that family participation influences individual participation in the stock market was accepted. The findings are consistent with those by Shanmughama and Ramyab (2012) and Li (2014), who noted that the family's likelihood to enter the stock market is high if parents entered the market in previous years. Practically, these results imply that having friends and family participating in the DSE increases the trust of prospective shareholders. The findings are also consistent with the notions of socioeconomic theory because members of the family, friends, and peer groups who invest in the stock market encourage other family members to do the

same. Furthermore, the participation of family members can also be associated with inheriting shares from parents, as noted by one of the key informants:

"... There are individuals who participate in the stock market after inheriting shares and bonds from their parents and later decide to acquire more shares after realising the benefits associated with share acquisition...". (Key Informant, Dar es Salaam, May 2020).

Access to technology

Access to technologies like the internet, social media, and DSE applications had a high likelihood of influencing individuals' decisions to participate in the stock market as the p-value = 0.000 (< 0.05) and exponent β of 0.117. The findings imply that the odds of individuals with access to internet technologies participating in the stock market were 0.117 higher than those for individuals without access to internet technologies. As a result, the null hypothesis was not accepted, and the alternative hypothesis that access to internet technology influences individuals' involvement in the stock market was accepted. Hence, access to the internet may cause an individual to learn and access information relating to DSE and sharing trading. The findings relate to Liu *et al.* (2014), who claim that modern and traditional socialisation affect stock market participation. The results imply that, due to the current use of online trading and online access to information, the need for internet technologies to access information about DSE also increases. The availability and accessibility of DSE information through internet technologies show DSE activities' efficiency, fairness, and transparency per the investment policy review (UN, 2002). These findings are also consistent with the information from one of the key informants:

"... due to increased use of internet technologies, DSE Mobile application was established to enable easy information accessibility and share trading...". (Key Informant, Dar es Salaam, May 2020)

3.6 Conclusions and Recommendations

The study examined the socio-economic factors that explain the individual's decision to participate at DSE. The study revealed that, due to the continuous quest for alternative sources of income, individuals invest in different assets. In addition, membership in various social groups and access to internet technologies has a higher probability of influencing individuals' participation in the stock market due to continuous interaction

with friends, family and peer group members. It was further observed that individuals with different income levels are likely to invest in different assets. Hence, it increases the probability of diversifying their portfolio, thus increasing their likelihood of participating in the stock market.

Likewise, socialisation with friends and family members who are participants influences other family members, thus increasing the likelihood of their participation. Theoretically, the findings indicated that non-participants who were a part of social groups and had relatives and friends who owned shares were motivated to invest in the stock market. Social group influence on non-participants relates to socioeconomic and cultural risk theories. The relationship is because the nature and trust of social groups shape individuals' economic decisions. Hence, share trading is an interactional process involving social factors such as social interaction, social groups, and economic factors. However, modern technologies and online social groups should be considered in improving the theories.

The results further indicated that accessibility of internet technologies such as Websites, DSE Mobile applications, and Online platforms (WhatsApp, Instagram, Twitter, DSE Mobile) had a higher likelihood to influence participation; hence, they could be used by DSE to create awareness among the public and access prospective shareholders. Internet technologies allow prospective shareholders residing in different parts of the country to be located and accessed. Similarly, as individuals' preference for bonds indicates a probability of share ownership, government and corporate organisations can establish bonds with a small value to provide investment opportunities to small investors with different income levels.

Regarding policy implications, policymakers and financial regulators should enhance supervision and quality monitoring of social groups' operations and management of funds contributed by individuals. For example, DSE has established share acquisition through registered financial groups; hence, savings from local/small social groups should be protected for future investment. Furthermore, DSE should consider extending its services by improving its policies and establishing share acquisition through small social groups, which build trust among them and formally operate their activities. The

groups will provide investment opportunities for potential investors lacking the confidence to invest in the stock market individually.

3.7 Limitations and areas for further studies

This paper involved data collected from Dar es Salaam due to the location of DSE and its brokers. Therefore, future studies should include participants and non-participants from other regions apart from Dar es Salaam. Furthermore, future studies should include behavioural and psychological factors in assessing public participation; the findings may facilitate proper policy formation in enhancing individual participation at DSE.

REFERENCES

- Abbas, A. O., Pei, Y. X., & Rui, Z. (2016). Impact of Stock Market on Economic Growth Evidence: Dar es Salaam Stock Exchange-Tanzania. *Journal of Finance and Accounting*, 4 (6), 321-327.
- Abiad, A. A., Furceri, D., & Topalova P. (2016). The macroeconomic effects of public investment: Evidence from advanced economies. *Journal of Macroeconomics*, 50, 224-240.
- Agyemang, O. S., & Ansong, A. (2016). Role of personal values in investment decisions perspectives of individual Ghanaian shareholders. *Ghana: Management Research Review*, 39 (8), 940 - 964.
- Alliy, A.A. (2015). Analysis of Factors Affecting Stock Market Development in Tanzania: The Case of Dar es Salaam Stock Exchange. *The Open University of Tanzania, Dar es Salaam, Tanzania*.
- Arts, L. (2018). Financial literacy and stock market participation: The moderating effect of country-specific social connectedness. *Uppsala University and the University of Groningen, Sweden*.
- Barayandema, J., & Ndizeye, I. (2018). The Determinants of Investment Decisions in the Rwanda Stock Exchange. Rwanda: *East Africa Research Papers in Economics and Finance*, No. 2018:28.
- Behnaz, A., & Matos, A. (2012). Behavioural Determinants of Stock Market Participation. *Lund University-School of Economics and Management*. Lund, Sweden.

- Berger, D. (2017). Introduction to Binary Logistic Regression and Propensity Score Analysis Categorical Data Analysis *Research Gate*, no. October, pp. 1–30.
- Briggs, J., Cesarini, D., Lindqvist, E., & Ostling, R. (2015). Wealth and Stock Market Participation: Estimating the Causal Effect from Swedish Lotteries. *Research Institute of Industrial Economics (IFN)*. Stockholm, Sweden.
- Broer M., Bai Y., Fonseca F. (2019). A Review of the Literature on Socioeconomic Status and Educational Achievement. In: Socioeconomic Inequality and Educational Outcomes. *Springer, Cham: IEA Research for Education*, 5.
- Brown, S., & Taylor, K. (2010). Social Interaction and Stock Market Participation: Evidence from British Panel Data. *Institute for the Study*, Bonn, Germany.
- Brown, J. R., Ivkovic, Z., Smith, P. A., & Weisbenner, S. (2008). Neighbours Matter: Causal Community Effects and Stock Market Participation. *The Journal of Finance*, LXIII(3), 1509–1531.
- Cesarini, D., Lindqvist, E., Briggs, J., & Ostling, R. (2015). Wealth and Stock Market Participation: Estimating the Causal Effect from Swedish Lotteries. *The Research Institute of Industrial Economics (IFN)*, Sweden.
- Chamley, C. P. (2004). Rational Herds—Economic Models of Social Learning. *Cambridge University Press*. The United Kingdom.
- Cheng, Y.-F., Mutuc, E. B., Tsai, F.-S., Lu, K.-H., & Lin, C.-H. (2018). Social Capital and Stock Market Participation via Technologies: The Role of Households' Risk Attitude and Cognitive Ability. *Basel, Switzerland: MDPI, Sustainability*, 10 (1904).
- Creswell, J. W. (2009). *Research Design; Qualitative, Quantitative, and Mixed Methods Approaches*, 3rd Ed. SAGE Publications, Inc. California
- DSE. (2017). *DSE Annual Report 2017*. Dar es Salaam, Tanzania.
- DSE. (2019). *Annual Report and Financial Statement* Dar es Salaam, Tanzania.
- DSE. (2021). *Dar es Salaam Stock Exchange-Individual Participants Report* (Unpublished). Dar es Salaam, Tanzania.
- Epaphra, M. & Kiwia, B. P. (2021). Financial Literacy and Participation in the Financial Markets in Tanzania: An Application of logit regression Model', *Journal of Economic and Financial Sciences*, 14 (1), 1-13.
- Fagereng, A., Gottlieb, C., & Guiso, L. (2013). Asset Market Participation and Portfolio Choice over the Life-Cycle. *European University Institute*. Fiesole, Italy.
- FinScope. (2017). *Insights that Drive Innovation*. Dar es Salaam, Tanzania.

- Guiso, L., & Jappelli, T. (2004). Awareness and Stock Market Participation.: *Centre for Studies in Economics and Finance – University of Salerno*. Fisciano, Italy.
- Gumbo, M., & Sandada, M. (2018). The Determinants of Stock Market Participation: Evidence from Individual Investors in Zimbabwe. *ACTA Universitatis Danubius*, 14 (4), 642-654.
- Granoveretter, M. (2005). "The Impact of Social Structure on Economic Outcomes," *Journal of Economic Perspectives*, 19 (1): 33–50.
- Grimbeek, J. (2016). Shareholder Protection in Closely Held Companies. The University of Johannesburg. Johannesburg, South Africa.
- Haji, M., & Cunningham, V. (2015). *Tanzania Economic Update- Why Should Tanzanians Pay Taxes? 7th Ed.* World Bank Group Ma. Dar es Salaam, Tanzania.
- Hellmich, S. N. (2015). What is socioeconomics? An Overview of Theories, Methods, and Themes in the Field *Forum for Social Economics, Taylor & Francis Journals*, 46 (1), 3-25.
- Hong, H., Kubik, J. D., & Stein, J. C. (2001). Social Interaction and Stock-Market Participation *Working paper*, 1-47.
- Hong, H., Kubik, J. D., & Stein, J. D. (2004). Social Interaction and Stock Market Participation. *The Journal of Finance*, LIX (1), 137–163.
- Hu, L., Li, K., & Ngo, P. T. (2021, March 12). Media Exposure and Stock Market Participation. Retrieved May 13, 2021, from SSRN: <https://ssrn.com/abstract=3555813> or <http://dx.doi.org/10.2139/ssrn.3555813>.
- Iddrisu, S. & Abdu-Malik, A. (2017). Economic Growth and Stock Market Developments: Evidence in Africa. *UDS International Journal of Development*, 4 (2), 47-58.
- Johnston, K.M., Lakzadeh, P., Donato, B.M.K., Szabo, S.M. (2019). Methods of Sample Size Calculation in Descriptive Retrospective Burden of Illness Studies. *BMC Medical Research Methodology*.
- Kadariya, S., Subedi, P. P., Joshi, B., & Nyaupane, R. P. (2012). Investor Awareness and Investment on Equity in Nepalese Capital Market. *Banking Journal*, 1-15.
- Kaur, G. (2014). Evolution of Stock Markets and Role of Stock Exchange. – *International Journal of Commerce, Business and Management (IJCBM)*, ISSN: 2319–2828 3(4) 549–556.

- Kendall, J. (2010, November 1). A Penny Saved: How do Savings Accounts Help the Poor? Retrieved from <https://ssrn.com>: <https://papers.ssrn.com>.
- Khanam, Z. (2017). The Impact of Demographic Factors on the Decisions of Investors during Dividend Declaration: A Study on Dhaka Stock Exchange, Bangladesh. *IOSR Journal of Business and Management (IOSR-JBM)*, 19(8), 01–07.
- Khyareh, M. M. & Oskou, V. (2015). The Effect of Stock Market on Economic Growth: The Case of Iran. *International Journal of Academic Research in Economics and Management Science*, 4 (4), 52-62.
- Kumar, R. (2011). *Research Methodology; a Step by Step Guide for Beginners; 3rd Ed.* SAGE Publications Ltd. London.
- Kyngäs, H. & Rissanen, M. (2001). Support as a Crucial Predictor of Good Compliance of Adolescents with Chronic Disease-Wald Test Information Point Blackwell Science Ltd., *Journal of Clinical Nursing*, 10, 767-774.
- Luong, L. P., & Doan, H. T. (2011). *Behavioural Factors Influencing Individual Investors' Decision-Making and Performance.* UMEA Universitet: Sweden
- Li, G. (2014). Information sharing and stock market participation: Evidence from extended families. *The Review of Economics and Statistics*, 96 (1), 151-160. https://doi.org/10.1162/REST_a_00301.
- Liu, Z., Yang, X., & Zang, Z. (2014). Social Interaction and Stock Market Participation: Evidence from China. *Hindawi Publishing Corporation Mathematical Problems in Engineering*, 1–9.
- Mauricas, Ž., Darškuvienė, P. d., & Mariničevaitė, T. (2017). Stock Market Participation Puzzle in Emerging Economies: The Case of Lithuania. Lithuania: *Organisations and Markets in Emerging Economies*, 8 (2).
- Masoud, N. M. (2013). Stock Markets: A Catalyst for Economic Growth. *International Journal of Finance & Banking Studies (IJFBS)*, 12–29.
- Mkwela, H. S. (2013). Urban Agriculture in Dar es Salaam: A Dream or Reality? *WIT Transactions on Ecology and The Environment*, pp. 173, 161–172.
- Msemu, E., Sayi, S., & Kazuzuru, B. (2018). Barriers to Adoption of Sustainable Agriculture Practices Among Farmers in Tanzania, Case Study of Mbarali District. *Worldwide Journal of Multidisciplinary Research and Development*, 4 (6), 170-174.

- Msuya, R. I. (2020). Savings and Credit Co-operative Societies' Impact on Poverty Reduction in Rural Tanzania: The Case of Mwanza and Tabora Regions. *Journal of Co-operative and Business Studies (JCBS)*, 5 (2), 1–7.
- Ndiege, C. O. (2012). *Factors Influencing Investment Decision in Equity Stocks at the Nairobi Securities Exchange among Teachers in Kisumu Municipality, Kenya*. School of Business, University of Nairobi: Nairobi, Kenya.
- Ndungu, D. I. (2011). *Determinants of Individual Investors' Behaviour in The Nairobi Securities Exchange*. The University of Nairobi. Nairobi, Kenya.
- Noel, M. (2013). *Determinants of Stock Market Participation by Individuals: The Study of Dar-Es-Salaam Stock Exchange*. Mzumbe University. Dar es Salaam, Tanzania.
- Otuo, S. A. A. (2016). "Role of personal values in investment decisions Perspectives of individual Ghanaian shareholders ", *Management Research Review*, 39(8), 940 – 964. Accessed from <http://dx.doi.org/10.1108/MRR-01-2015-0015>.
- Qureshi, H. A., Mehmood, S., & Sarwar, A. (2014). Determinants of Trust and Level of Awareness of Retail Investors in Stock Market of Pakistan. *Science Publications International, Lahore*, pp. 2501–2507.
- Radtke, J., Holstenkamp, L., Barnes, J., & Renn, O. (2018). *Concept, Format, and Methods of Participation: Theory and Practice*. Springer Publishing Company, USA.
- Sedgwick, P. (2014; 349:g4550). Understanding P Values. *BMJ*, 1-2.
- Shanmughama, D. R., & Ramya, K. (2012). Impact of Social Factors on Individual Investors' Trading Behaviour. *2nd Annual International Conference on Accounting and Finance* (Elsevier Ltd.) held in 2012 at Coimbatore, India. 237–246 pp.
- Tansey, J., & O'riordan, T. (1999). Cultural Theory and Risk: A Review *Health, Risk & Society*, 1(1), 71–90.
- Thomas, L. (2017). *Ownership of JSE-listed companies, Research Report for National Treasury*. London School of Economics - Centre of Research in Economics and Finance. South Africa.
- Tuominen, N. (2016). *A Basic Theory of Rational Herd Behaviour and Informational Cascades. Does it apply to Financial Markets?* Aalto University's School of Business Department of Economics, Helsinki.

- Turner, J. (1988). *A Theory of Social Interaction*. Stanford University Press. Stanford, California.
- United Nations (2002). *Investment Policy Review- The United Republic of Tanzania*. Switzerland.
- URT. (2019). *The Economic Survey 2018*. Ministry of Finance and Planning. Dodoma, Tanzania.
- URT. (2016). *The United Republic of Tanzania, The Finance Act, Bill Supplement No. 12*. Government Printers: Dar es Salaam, Tanzania.
- URT. (June 2021). *Hali ya Uchumi wa Taifa Katika Mwaka 2020*. Ministry of Finance and Planning. Dodoma, Tanzania.
- Wazal, D. M., & Sharma, S. K. (2017). Participation of Retail Investors in the Indian Equity Market. *IOSR Journal of Business and Management (IOSR-JBM)*, 78-80.
- Wong, M. C., & Yap, R. C. (2019). Social Impact Investing for Marginalised Communities in Hong Kong: Cases and Issues. *Sustainability Journal*, 1-16.
- Worrall, L., Colenbrander, S., Palmer, I., Makene, F., Mushi, D., Mwijage, J., Martine, M., and Godfrey, N. (2017). *Better Urban Growth in Tanzania: Preliminary Exploration of the Opportunities and Challenges*. Coalition for Urban Transitions, London and Washington, DC. Available at: <http://newclimateeconomy.net/content/cities-working-papers>.
- Wu, Y. (2016). *Individual Investors, Social Media, and Chinese Stock Market: A Correlation Study*. Massachusetts Technology, Cambridge, Massachusetts, USA.

CHAPTER FOUR

4.0 Individual Investors' Risk Behaviour and Share Trading Frequency: Evidence from Dar es Salaam Stock Exchange

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4.1 Abstract

The study on which this paper is based examined the risk behaviour of individual investors in the Dar es Salaam Stock Exchange (DSE), Tanzania. Furthermore, it analysed how risk behaviour variables influence individuals' trading frequency of shares at the DSE. The study used primary cross-sectional data collected using a structured questionnaire distributed to 200 individual investors selected through snowball sampling. It further used descriptive statistics and multinomial logistic regression (MLR) to analyse the risk behaviour of individual investors and their impact on share trading frequency. The study revealed that share prices, investment experience, and amount of funds invested depicted the risk aversion behaviour of individual investors and thus influenced their share trading frequency at DSE. The findings showed that individuals' risk perception did not significantly influence share trading frequency. Thus, the paper concluded that individual investors had limited risk awareness and lacked analytical skills and knowledge in share trading. Further, the study on which this paper is based concludes that DSE retail traders depend on brokers and financial analysts to participate in DSE. Individual investors' risk behaviour in relation to share trading at DSE received attention for the first time through this study. The study suggests that DSE improve policies and training programmes related to individuals' trading and risk management to stimulate active share trading among individual participants for improved liquidity in the exchange and enhanced contribution to general economic growth.³

Keywords: *Risk, Trade, Individual investors, DSE*

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4.2 Introduction

Stock markets play a significant role in bringing together buyers and sellers of equities, bonds and other securities, but it is also burdened by investment risk (Cardoza, 2019). The debate on risk and investment decisions in global stock markets raises questions about how risk affects Tanzania's stock market. According to Cheng (2019), economic changes tend to influence individuals' financial risk, thus affecting individual investment intentions. Economic changes affecting individual stock market involvement include drop-in wealth, negative company returns, drop-in market capitalisation and the number of investors (Buccioli and Miniaci, 2017). The consequences associated with the economic changes affect the expected returns, investment decisions and trading behaviour of individual investors, whereby the past trading experience influences investment intention (Vidanalage and Shantha, 2019; Rossi, 2016).

The willingness of an individual to take risks in making financial decisions is among the economic factors highlighted to affect investment (Svetlova and Thielmann, 2020). Risk behaviour is considered an influential factor in investment decisions as investors strive to reduce risk in making investment decisions (Shehata *et al.*, 2021; Ngadino, 2019). Share trading, as one investment form, whether done manually or electronically (Cardoza, 2019), contains different kinds of risk, although the risk related to electronic trading seems to increase. Risk behaviour is not the only factor affecting trade in the world; it is also associated with information, price change, and market trends (Barberis *et al.*, 2019). However, investors' risk behaviour is considered crucial in investing in stock markets as per prospect theory.

Efforts to explain risk behaviour and how it affects trading in the stock market worldwide have been highlighted by different scholars. Cheng (2019) and Mishra (2018) explain how individual investors' risk behaviour affects share acquisition in the stock market by arguing that low risk-taking behaviour towards shares can lead to stock holding. Stock holding occurs because risk takers perceive high-risk investments yield a high expected return (Trang and Tho, 2017). On the other hand, Ainia and Lutfi (2019) show that high-risk behaviour towards share trading can negatively influence individuals' fear of risk in investment. Hence, risk-averse individuals constrain their ability to trade due to fear and may move out of the market (Huber, 2019). Regarding stock trading and risk, Lee *et al.* (2015) argue that if risk probability rises, the

expectation of a positive return from the market decreases. Thus, a risk-averse individual solely interested in making a profit will not trade in any situation with a probability of loss (Bilsen and Laeven, 2020). Hence, some individuals are willing to take risks while others avoid risk, but there is no clear explanation of how risk influences the trading frequency of shares.

Gumbo and Sandada (2018) identified risk behaviour as one of the determinants of stock market individuals' participation in Zimbabwe. They pointed out willingness to take risks can lead to a share acquisition where an investor expects few participants and a high-expected return. According to Maziriri *et al.* (2019), individual equity investors in Zimbabwe are more likely to invest if they perceive more benefits because the return on investment affects risk appetite and investment behaviour. Grimbeek (2016) argues that high-risk behaviour leads to increased risk aversion and, therefore, negatively impacts share trading by individuals. Thus, individuals perceiving share business as risky will not invest with a fear of associated perceived loss. Muiruri (2014) concludes that individuals differ in willingness to take the risk for greater returns. As a result, an investor will invest in shares with high risk, expecting better returns in future and not otherwise, as supported by Trang and Tho (2019) and the prospect theory. The reviewed studies focus on how the expected return on assets influences investment intentions. However, they did not consider how individuals' risk behaviour affects the trading frequency of shares, which is core in this study, drawing evidence from the Dar es Salaam Stock Exchange (DSE) in Tanzania.

DSE started to operate in 1998 under the Capital Markets and Security (CMS) Act of 1994. Since then, it has grown from 5 to 27 publicly traded companies, and by the end of 2022, it was trading with five (5) corporate bonds and twenty (20) government bonds. Domestic market capitalisation grew from TZS 1,669.45 billion to TZS 9,157.19 billion in 2020 (DSE, 2021). However, growth in terms of direct individual participation has been marginal, less than 1% of the total population (National Census, 2022), compared to institutional investors. Epaphra and Kiwia (2021) describe share trading among Tanzanians as challenging and influenced by social aspects, risk attitudes, and economic factors such as income. Individual investors' stock trading decisions connect to psychological elements like get-rich-quick mentalities, cognitive bias, and irrational thinking (Barayandeme and Ndizeye, 2018). Apart from the decision to acquire shares

in the stock market, trading shares (continuous buying and selling) is another identified challenge (DSE data, 2021). Ozenbas *et al.* (2022) attribute low stock trading activity by individuals to a lack of understanding of financial markets and technology applications, economic considerations, social factors, and fear of incurring loss owing to equities market frictions.

Economic and social crises are also among the identified factors affecting DSE trading, as suggested by Werema (2020). In times of crisis and disaster, stocks react negatively (decrease in trade) as people become more risk cautious (Werema, 2020). The change was evident during the COVID-19 outbreak when DSE turnover dropped dramatically and reached its lowest level, with a median monthly turnover of TZS 3.66 million (Werema, 2020). The heightening of the COVID-19 crisis in June 2020 caused DSE to transact zero equity in the market due to a drop in demand and a price mismatch between offer and bid (Christopher, 2020). The global health crisis led to an economic crisis and very adverse effects in many stock markets. Share trading in stock markets plummeted in Romania (Hatmanu and Cautisanu, 2021) and Ghana and Kenya (Takyi and Ennin, 2021). In those times, risk appetite was virtually non-existent as people focused on life-saving endeavours rather than investment activities.

Besides the COVID-19 pandemic and social and health crises, pricing as an economic factor is among the elements influencing trading at DSE. According to DSE (2022), trading deals for Tanga Cement (TCCL), NICO, and CRDB Bank shares increased due to price increases. For example, the share price for TCCL was TZS 500 in December 2020 and rose to TZS 1,100 in December 2021. The share price for CRDB increased from TZS 198 to TZS 280 in December 2021, and NICO's share price increased from TZS 185 per share, which was the price in December 2020, to TZS 300 per share in December 2021. DSE is a market for international and domestic individual investors; thus, global financial and economic crises affect both. The analysis of how individuals' risk behaviour affects stock market trading from a Tanzanian perspective is timely given their very low participation rate in this rather emerging stock market, coupled with a limited understanding of stock markets (Mboma and Reuben, 2013).

Scholars have used several variables to measure the risk behaviour of individuals in stock markets, namely financial knowledge, intention to invest, attitude towards risk,

types of shares traded, and investment performance (Maziriri *et al.*, 2019; Trang and Tho, 2017). This paper paid attention to individual investors' risk behaviour in relation to share trading frequency at DSE to complement prior studies. Furthermore, it measures individual investors' risk behaviour using financial variables: type of assets held, risk perception (risk-taking and aversion), and price consideration. Furthermore, the study included the value of funds invested in share acquisition and investors' experience in trading/years of trading (drawn from behavioural finance theory). Previous studies in Tanzania (Kasoga, 2021; Epaphra and Kiwia, 2021; and Alliy, 2015) addressed risk perception and investment decisions in a limited manner. It did not consider individual investors' risk behaviour and how it affects share trading frequency at DSE.

4.3 Theoretical Frameworks and Hypothesis Development

4.3.1 Theoretical review

Two theories guided the study: firstly, the behavioural finance theory, which considers irrational and behavioural factors affecting decision-making, and secondly, the prospect theory, which captures risk behaviour and decision-making for gain and loss situations.

Behavioural Finance Theory

Behavioural finance theory explains the risk behaviour of individual investors as propounded by Statman (2008). The theory states that investors are normal, not rational; the market is inefficient, investors do not design portfolios on mean-variance, and the expected return is measured by more than risk. Prosad *et al.* (2015) add that behavioural finance considers investors' psychology and leads to behavioural biases, such as overconfidence, excess optimism, herd behaviour and the disposition effect. Prosad *et al.* (2015) add that volume, past success experience, and frequency of trading for an individual are among the indicators of overconfidence and optimism. Therefore, individuals allocate their portfolios based on their irrational behaviour, experience, and confidence. The theory considers the human side of an investor (behavioural factors) and experience in trading decisions. Thus, it does not consider risk behaviour, gains and losses in making an investment decision but rather human behaviour towards share business. Apart from that, individuals use the rule of thumb in making decisions in uncertain situations as per behavioural finance, and behavioural biases may lead to poor

decision-making. Therefore, it is more appropriate to include prospect theory in trading decisions.

Prospect Theory

In explaining risk and investment decision-making, the study used the prospect theory. It was developed by Kahneman and Tversky (1979). The theory states that people decide based on the potential value of gains and losses. It adds that outcomes obtained with certainty outweigh those related to uncertain situations. It includes individual expectations, asset integration and loss aversion in making decisions. Barberis *et al.* (2019) argue that prospect theory sheds light on asset price and investor behaviour and assigns value to gains and losses rather than to net final assets. Apart from individuals' risk-taking behaviour, price changes cause investors to focus on profit and loss. Prospect theory is an appropriate measure of an individual's potential gains and losses in shareholding as it helps manage stock market anomalies.

The theory considers individual investors to be conscious of different risks, focusing on potential gain and loss (Barberis *et al.*, 2019). It assumes that with an assurance of a positive outcome in trading, investors will choose to trade as the outcome exceeds its origin. On the contrary, a risk-averse investor will prefer holding a share at a low price (loss) and selling when the price increases (gain). Price consideration relates to Ebert and Strack (2018), whereby they argued that an agent does not gamble any gamble, meaning that an investor cannot trade in unsure gain. Bilsen and Laeven (2020) also note that individuals with prospect theory preferences favour a conservative portfolio strategy, indicating a low-risk investment preference.

4.3.2 Hypotheses development

Risk perception of individual investors

Depending on how an individual perceives a risk, any firm, whether sole proprietorship, partnership, or corporation, may face different risks and make different decisions. Diverse people have different risk perceptions. According to Lee *et al.* (2015), some are risk-takers, while others are risk-averse. Individuals' willingness to accept risks is higher during an economic boom and lower during a recession (Buccioli and Miniaci, 2017). Gumbo and Sandada (2018) assert that investors who perceive high levels of uncertainty are more likely to refrain from investing in stock markets due to negative

impressions. Therefore, it implies that high-risk perceptions have an impact on investment intentions.

On the other hand, Trang and Tho (2017) reported that the higher the investors' perceived risk in investing, the more the intention to invest, which means that an increase in risk does not affect an individual's trading or investment behaviour. The results contradict Bilsen and Laeven (2020), who observed that no investor prefers risky investments. As a result, the authors found that perceived risk detracts people from investing, while others maintain that risk does not affect people's investment plans. Besides the contradicting results, Lee *et al.* (2015) used secondary data, while Gumbo and Sandada (2018) focused on managers, brokers and financial analysts, not individuals. Thus, as an emerging and developing market, the DSE baseline risk perception of individual investors towards share trading business ought to be added to existing knowledge.

Price of share and trading frequency

Simple rules applied to beat the stock market, which focuses on share price indices, facilitate share trading, which generates a better return than the market average (Gunnlaugsson, 2018). The rule applies due to the claim that selling at a high price leads to profit, hence better return. Ozenbas *et al.* (2022) observed that prices are affected by market information; demand and supply link to the decision of trading or not. Huber (2019) adds that the price and volatility of markets affect buying and selling shares. Therefore, trading is affected by price changes and market friction because prices cover costs and may lead to profit.

Ma *et al.* (2017), who assessed liquidity and trading in stock markets in China, revealed that trading does not consider price alone but also the timing to trade. The timing is important because trade declines during holidays and weekends, caused by the situation whereby markets are closed during weekends and holidays, and trading starts on working days. Besides, price manipulation can occur, leading to losses for small individual shareholders (Fox *et al.*, 2018). Cardoza (2019), on the other hand, views trading frequency as associated with whether an individual investor treats financial assets as a trading or investment strategy. He added that the trading frequency can be

associated with price change or other factors such as information or an individual's investment strategy. Therefore, the following hypothesis was formulated:

H₀₁: The price of shares in the market has no significant influence on the trading frequency of individual investors in DSE.

Experience and trading frequency

Knowledge of markets and strategies to beat the market seem to contribute to individual investors' trading decisions. Malmendier *et al.* (2020) examined how investors' experiences influence financial market dynamics. They observed that experiences generate an asset pricing puzzle and produce a testable price and asset holding prediction. The findings imply that experience enables investors to predict whether they will hold or trade shares. Alternatively, Liivamägi (2016) argues that trading experience contributes to higher returns in trading. Thus, investment experience does not only lead to trading but also contributes to a higher return. However, Malmendier (2021) indicated that long-lasting experience triggers bias, but it also requires more research to update new events. As an emerging market, DSE contains experienced and inexperienced individual investors who learn trading from their peers, financial analysts, and other financial advisors. Thus, the study found examining the influence of investment experience on share trading frequency worthwhile. The relevant null hypothesis states that:

H₀₂: Experience in share business has no significant influence on the trading frequency of individual investors

Amount invested and trading frequency

Investment in stock markets involves an exchange of equity and money because listed companies seek capital while investors seek future economic returns. Plieger *et al.* (2020) maintain that investing more money in stocks indicates risk-taking behaviour. Additionally, Barber and Odean (2013) argue that transaction costs in trading require funds, so trading in stock markets requires financial resources to generate a return. However, Yochim and Davis (2021) recommend that, because of high levels of volatility, individuals should invest only an amount of money they can afford to risk, and the amount should not exceed 10% of their portfolio. The volatility is associated with changes in share price, being highly influenced by share demand and supply (Ozenbas *et al.*, 2022). As Tanzania grows to a middle-income economy, listing

companies on DSE expects to increase capital accumulation. Therefore, as per behavioural finance theory, it is necessary to analyse whether individuals participating in DSE are overconfident or risk-takers to ensure the liquidity and sustainability of the market. Apart from that, as suggested by Barber and Odean (2013), the amount invested indicates the financial resources available to generate the required return; thus, examining it at the DSE in relation to trading frequency will show how it impacts markets' liquidity. Therefore, this led to the development of the third hypothesis:

H₀₃: Amount invested in shares business does not influence trade frequency of shares.

Risk perception and trading frequency

Individual investors are recognised for being conscious of changes in their wealth. According to Lee *et al.* (2015), risk aversion links to lower market expectations, which in turn connects to the willingness to take risks (Sivaramakrishnan *et al.*, 2017; Grimbeek, 2016). As a result, investors who perceive lower risk associated with assets are net buyers in markets, while those who perceive higher risk related to assets trade out of the share business (Huber, 2019). Thus, studies deduce that individual traders' risk perceptions tie directly to their risk tolerance, not just a positive return.

In their study in Indonesia, Yuliani *et al.* (2017) add psychological aspects to risk perception by claiming that individuals' psychological ability to manage risk primarily limits their ability to purchase and sell shares. On the other hand, Brown *et al.* (2017) claim that the risk premium can change the decision to invest, suggesting that risk perception may be one of the elements influencing trading decisions. However, Werema (2020) indicates that crises and disasters affect the trading of shares. The difference in opinions from previous studies on different indicators of risk and share trading prompted the need for this paper to examine the effect of individual investors' risk perception on share trading frequency at DSE. The study investigation was guided by hypothesis 4:

H₀₄: Risk perception does not influence the shares' trading frequency among individual DSE investors.

4.4 Research Methodology

4.4.1 Data selection and collection approach

The study adopted a cross-sectional research design because it simultaneously measures the exposure and outcome in the study population and facilitates studying the association between them (Setia, 2016). Likewise, it facilitates the use of a survey strategy employed in the study to explain how the risk behaviour influences the trade frequency of individuals, as pinpointed by Saunders (2012). The study used a mixed methods research approach whereby qualitative and quantitative data facilitated triangulation between interviews with brokers and data collected using a questionnaire. Data were collected from 200 individual investors in Dar es Salaam because it is where DSE and the main offices of 14 brokers are located. The selection of respondents involved a population of 556,121 individual investors registered in the repository at DSE (DSE, 2020).

An exponential non-discriminative snowball sampling procedure was applied to access individual investors due to limited accessibility, as Kumar (2011) supported. Furthermore, snowballing was appropriate because the individuals' physical locations were not identifiable from the DSE repository. Tanzania started introducing the GIS postal codes in 2021/2022. At the time of data collection, the exercise was in progress. The procedure first involved a few respondents selected randomly from the annual general meeting booklet of one of the listed companies, who later provided contacts of multiple referral participants. In addition, a few participants created a social group (WhatsApp social group), which the researcher was referred to by one of the participants, leading to the accessibility of other participants. The study selected a sample of 200 individual investors in the listed companies at DSE using Slovin's (1960) formula for finite populations (Equation 1).

$$n = N / (1 + Ne^2) \quad (1)$$

$$n = 556,121 / (1 + 556,121(0.07)^2) = 204 \text{ respondents}$$

In attaining 204 respondents from 556,121 individual participants using snowballing, a 95% Confidence interval (CI) is challenging to attain, and 90% is small for a given population. However, Dean & Pagano (2015) argued that < 0.10 error term or > 90% confidence interval performs best. As a result, 93% CI was applied, and the questionnaire copies collected that were filled out were 200, equivalent to a 98% response rate.

Data were collected through a structured questionnaire, which was pre-tested on 15 individual participants to ensure its validity. Problems related to responses to questions and terminologies that respondents did not understand were improved for final data collection. The internal consistency of the questionnaire was determined by computing Cronbach's alpha coefficient, which resulted in an alpha coefficient of 0.8, which is greater than the minimum value recommended of 0.7 (Livingston, 2018); thus, it confirmed the consistency of the questions in the questionnaire (*Appendix III-vi*). The researcher distributed the questionnaire copies directly to respondents, and participants were requested to complete them. Apart from the questionnaire, the researcher purposely interviewed key informants (KII) to collect qualitative data from two (2) brokers selected from the first registered brokerage firms, a CMSA spokesperson, an academician and one (2) DSE informants considered experts in stock market trading.

4.4.2 Data Processing and Analysis

Trading frequency as a dependent variable was measured by an indicator of the number of trades, grouped into often trading, rarely trading, and not trading in accordance with Chong *et al.* (2020) and Du and Zhu (2017). In the model (equation 2), $(P(Y_i) = j)/(P(Y_i = J))$ represents the trading of shares as adopted and improved from Ari (2016). The independent variables were operationalized variably. In measuring risk behaviour, the study used perceived risk, the amount invested, experience in share trading, and price consideration. Perceived risk had two constructs, risk-taking and risk aversion, while TZS value invested measured the amount used in share acquisition. The length of the period since an individual had bought shares for the first time at DSE denoted experience and factors individual investors considered before trading shares, which led to price consideration (Epaphra and Kiwia, 2021; Kasoga, 2021; Maziriri *et al.*, 2019; Trang and Tho, 2017; Prosad *et al.*, 2015).

Both qualitative and quantitative data analyses were carried out in the study. Qualitative data were analysed using thematic analysis as adopted and improved from Salleh *et al.* (2017). The process involved reading transcripts and interviews from key informants and then coding manually. Sorting coded information followed to get potential themes and sub-themes based on importance, relevance, and relation to the theory and objectives of the study. Quantitative data analysis included descriptive statistics whereby the computation of frequencies, percentages, medians, and Standard Deviation (SD) facilitated descriptions of the type of assets owned, amounts invested, experience,

and trading frequency. A 5-point Likert scale was adopted from Kasoga (2021) and was improved to measure risk perception. Five (5) points indicated a high-risk perception, while one (1) point indicated a low-risk perception of share trading business, as used by Grimbeek (2016). The Multinomial Logistic Regression model (MLR) was used to measure probabilities of share trading frequency influenced by individual investors' risk behaviour. The choice of the MLR was based on three reasons: (i) the dependent variables had more than one outcome (often trade, rarely trade and not trade); (ii) the variables had no order in the outcome; and (iii) the independent variables that predict the outcome were both categorical and continuous (Ari, 2016). The model facilitated testing of the four hypotheses as follows:

$$\frac{P(Y_i=j)}{P(Y_i=J)} = \exp [\alpha_j + \beta_{j1}Amo + \beta_{j2}Yrs + \beta_{j3}Rpe + \beta_{j4}Pri] \dots \dots \text{Equation 2}$$

Where: P = Probability of trading shares at DSE; $j = 3$ for often trade, $j = 2$ for rarely trade, and $j = 1$ for holding. β_j s = are estimated, 1 for each explanatory variable as defined in Table 4.1.

Table 4. 1: Variable Matrix

Variables		Description of Variables and Measurements
$P(Y_i = j)/$ $P(Y_i = J)$	Trading Frequency	Number of times per year that individual investors trade shares adopted from Chong <i>et al.</i> (2020). Measured: 3 = Probability of Frequent trading (>10 times per year) trading (Pj); 2=Probability of Rarely trading (<10 times per year) trading (PJ) 1=Probability of holding for dividend (Reference group -Ref).
Amo	Amount Invested	Amount of TZS invested through share acquisition: 3 = TZS 50,000 – TZS 5,000,000 2 = TZS 5,010,000 – TZS 10,000,000 1= >TZS 10,010,000
Yrs	Years of Trading (Experience	1 = Less experienced: 1-5 years of trading 2 = Experienced: 5-25 years of trading
Rpe	Risk perception	Individual Investors' perception of risk measured: <45 points = Risk taker > 45 points = Risk-averse
Pri	Price Consideration	2 = Consider price before trading 1 = Do not consider price before trading

Multinomial Logistic Regression (MLR) assumptions were addressed, including one category unrelated to the choice of another category. Apart from that, the study had mutually exclusive and exhaustive categories for the dependent variable and the independence of observations, continuous variables portraying graphical linear with minimal outliers and influential points. VIF was lower than 10 (1.021 to 1.224). Thus, no multi-collinearity was observed, and no pair of continuous variables were highly correlated ($r < 0.7$), as advised by Schober *et al.* (2018) (*See Appendix III*).

4.4.3 Hypotheses testing

Hypotheses testing involved stating the null hypotheses and selecting the significance level, whereby this paper used a 5% significant level. Furthermore, the study included a t-test (Wald test) and p-values in testing hypotheses and making decisions. Therefore, this determined the significance of individual variables on the outcome variable at the five (5) per cent significance level. Hence, with a p-value less than 0.05, the null hypothesis was rejected, and the alternative hypothesis was accepted (Cooper *et al.*, 2012).

4.5 Findings and Discussion

4.5.1 Descriptive analysis of risk variables

Risk Perception of Individual Investors

Although individual investors do not directly trade at DSE, they use brokers to trade their shares. They set the decisions on price and amount to trade. Therefore, individual investors evaluate risk in consultation with financial analysts and brokers. As a result, it is necessary to examine individuals' perceptions towards share business. The presentation of a summary of findings (median scores) is given in Table 4.10.

Table 4. 2: Summary of Individual Investors' Risk Perception

Variables of Risk Measurement per Dimension	Median (IQR)
Investment in different assets reduces associated risks	3 (3 - 3)
Access to training encourages share trading	3.5 (3 - 4)
Investing in corporate and Government bonds has low risk compared to shares	3 (3 - 3)
Shareholding through mutual funds has lower risk than individual direct investment	3 (3 - 3)
Buying shares through brokers enables the selection of safer assets	4 (3 - 4)
Continuous change in price limit trading among individual investors	3.5 (3 - 4)
DSE regulates transaction costs, therefore reducing risk	4 (4 - 4)
Young people invest in riskier assets	2 (2 - 2)
Shares can be traded through brokers at any time after assessing the price.	4 (4-4)
Older people invest in safer assets	3 (3 - 3)
The lower the transaction costs, the less the risk	4 (3 - 4)
Risky business is preferred because it is associated with a high expected return	3 (2 - 4)
A company with a high dividend pay-out has a low associated risk	3 (3 - 4)
With limited cash, investors may lose money in shares	3 (3 - 4)
Experience in the stock market increases efficiency in trading	4 (4 - 4)
Overall Median Score	3.5 (3.4 - 3.7)

Source: Data Collected

IQR= Interquartile Range

The results in Table 4.2 show median (Interquartile range-IQR) score ranges between 1 and 5 (minimum scale range 1 and maximum 5). IQR is an unbiased estimator of the population, which is not normally distributed, and it is based on extreme data values compared to standard deviation (Samuels, 2014; Whaley, 2005). The overall average median score for all variables was 3.5, which is > 3 , indicating that individual investors perceived share business as highly risky and, therefore, most of them were risk-averse. Table 4.3 presents the Likert scale results, leading to a risk perception frequency formulation.

Table 4. 3: Risk Perception of Investors

Risk Behaviour	Frequency (n/200)	Per cent (%)
Low-risk perception (Risk taker)	65	32.5
High-risk perception (Risk-averse)	135	67.5
Total	200	100.0

Source: Data collected

It can be deduced that individual investors at DSE have a high-risk perception associated with share business. As shown in Table 4.3, the median was greater than 3, indicating high-risk perception, hence depicting risk aversion behaviour. Table 4.3 also indicates that 67.5% of individual investors at DSE perceived share business as high risk (risk-averse). Descriptive statistics support that individual investors at DSE perceived share business as high risk. They were, thus, more risk-averse than risk-takers, which is in line with the prospect theory whereby investors prefer small but certain returns to probable higher returns.

Other risk variables

The amount (TZS) invested in shares, trading experience, and trading frequency as among the variables indicating the risk behaviour of individuals were also analysed. The amount invested as an ordinal variable was measured using a median value to avoid biases. The results are presented in Table 4.4.

Table 4. 4: Amount Invested in Shares and Experience in Trading

Variable	Mean	Median	Std. Deviation	Minimum	Maximum
Experience (No. of years trading)	6.7	6	3.4	1	21
Number of trades	8.5	8	5.365	1	25
Amount invested (TZS)	11,826,600	7,600,000	12,549,767.99	50,000	76,000,000

Source: Data collected

Experience means years of trading shares by individual investors, as presented in Table 4.4. The findings confirm that individual investors had been trading in the stock market for more than six years, shown by the mean value of 6.7 years. The number of trades, volume and amount show that individual investors of DSE had a good experience in trading shares and, therefore, knew the challenges and opportunities associated with stock trading (Nicolosi *et al.*, 2009). Malmendier *et al.* (2020) noted that agents or traders could update their future expectations due to experiences related to stock market shocks. Individual investors, on average, had been trading eight times and above per year, as shown in Table 4.4. The findings imply that individual investors bought and held shares and traded and increased their experience.

The study examined the amount of money invested in shares by individual investors to determine the risk behaviour. The results are presented in Table 4.4 and show that the median amount invested by individual investors in DSE shares was TZS 7,600,000 (approximately USD 3,300). The results imply that individual investors at DSE invested an average of about TZS 7.6 million in share acquisition, except for a few investors who invested up to TZS 76,000,000 (approximately USD 33,000). Higher-value investment in shares shows individuals' risk-taking behaviour as expected to invest what one is willing to lose. Plieger *et al.* (2020) support the findings by noting that investing a lot of money in shares indicates risk-taking behaviour.

Individual investors chose different investment options based on the type of assets they owned, expecting a positive return on their investment like dividends, capital gain for shares and return on assets. The study results show that, although individuals participated in the stock market through share trading, they also preferred to invest in other less risky assets. Half (50%) of individuals preferred to invest in government bonds, while 41% preferred investing in mutual funds. Individuals perceived government bonds as safe investment modes (Huang and Chang, 2021). Apart from shares traded by DSE, only 9% of individual participants preferred investing in non-current assets (*Appendix III, Table vii*)

4.5.2 Thematic Analysis Findings

The qualitative findings of the study are based on two developed thematic areas of individual investors' behaviour and share trading frequency. The themes included risk

perception and preference and Share trading frequency and behaviour. The findings were further segmented into sub-themes to show different responses from key informants. Firstly, for *risk perception*, sub-themes include factors influencing risk perception and preference, types and levels of risk involved in share trading and strategies to cope with risk and uncertainty. Secondly, for *share trading frequency*, the sub-themes were factors influencing share trading frequency, patterns and trends of share trading activity, reaction to market events, active and inactive investors, and outcomes and impacts of share trading frequency and behaviour. The specific findings for each sub-theme (quotes) are linked with quantitative findings to explain the influence of risk behaviour in trading frequency.

4.5.3 Risk Behaviour and Trading Frequency

The study used the Multinomial Logistic Regression (MLR) model to measure risk behaviour variables and the trading frequency of individual investors at DSE. Trading frequency options included: (1) often trading, (2) rarely trading and (3) holding shares. The model test results showed that it was highly significant, having a p-value = 0.000, and Pseudo R-square tests, Cox and Snell R square of 0.266 and Nagelkerke R square of 0.318. R-square results indicated the model's moderate explanatory power in explaining the influence of risk behaviour variables on the trading frequency of individuals. The results are presented in Table 4.5.

Table 4. 5: Risk Behaviour and Trading Frequency of Individual Investors at DSE

Trading frequency	β -OT	Wald OT	Sig. OT	Exp(β) OT	β -RT	Wald RT	Sig. RT	Exp(β) RT
Amount Invested “000”								
TZS 50-TZS 5,000	0.762	11.988	0.000	2.143	0.383	12.355	0.000	1.467
>TZS 5,010-TZS 10,000	0.310	9.663	0.001	1.364	0.249	5.507	0.019	1.283
>TZS 10,010	Ref.							
Experience								
>5 years (Experienced)	0.855	5.321	0.021	2.352	0.894	4.479	0.034	2.446
1-5 years (Less experienced)	Ref				Ref			
Risk perception								
<45 (Risk taker)	1.561	0.940	0.332	4.762	0.990	0.452	0.501	2.692
>45 Risk-averse	Ref				Ref			
Price consideration								
Consider price before trading	0.771	5.079	0.024	2.163	0.324	5.875	0.015	1.383
Do not consider the price.	Ref				Ref			

Source: Field Results

OT = Often Trading;

RT = Rarely Trading;

Ref = reference group; β = Coefficient, S.E = Standard Error; df = degree of freedom;

Model Fit: chi-square 61.718, df 16, P-value = 0.000; Goodness of fit Pearson: Chi-square 69.613, df 68, p = 0.479 Pseudo R-square: Cox & Snell 0.266 and Nagelkerke 0.318

Amount invested and trading frequency

The findings in Table 4.5 indicate a negative influence of the amount invested on often trading (p-value = 0.000 and $0.001 < 0.05$) and rarely trading (p-value = 0.000 and $0.019 < 0.05$) of shares at DSE. Hence, the null hypothesis was rejected, and it was concluded that the amount invested influences individual trading frequency. The results imply that the odds ratio of individuals who invested TZS 50,000 to TZS 5,000,000 and TZS 5,010,000 to TZS 10,000,000 in shares to often or rarely trade increases by 2.143 and 1.364 times more for often trading, and by 1.467 and 1.283 times more for rarely trading, compared to the odds ratio of those holding shares. As trading is associated with costs and risk-taking, the amount invested signifies opportunities for an individual to take higher risks. The findings align with those by Nadeem *et al.* (2020) and Barber and Odean (2013), who found that the relationship between money attitude and stock market participation reflects the risk attitude of investors. Findings from key informants corroborate the survey results, whereby one of the key informants reported that:

“...An individual can invest any amount of money in share acquisition, but for the attainment of capital gain and payment of commission (2.366%), more than a minimum number of shares required by the firm need to be acquired...” (Key informant, Dar es Salaam, May 2020).

Risk perception and trading frequency

The findings in Table 4.13 reveal that risk-taking and risk aversion had no significant influence on individual share trading (p-values = 0.332 and $0.501 > 0.05$) for often and rarely trading. The null hypothesis was, therefore, accepted, and it was concluded that risk perception does not influence the trading frequency of individuals. The probability of risk-averse individuals to often or rarely trading at DSE was positive but insignificant compared to risk-taking individuals. Therefore, risk perception is essential but not a decisive factor because trading at DSE is through brokers after considering the price and other risks. The results align with Ozenbas *et al.* (2022) that trading is a matter of price, transaction cost and timely market access, not necessarily how an individual perceives risk. Information from key informants supported the findings that individuals trade their shares through brokers. Thus, brokers cover risk-taking or management at an affordable commission before trading.

Experience and trading frequency

The results in Table 4.5 also show a significant influence of experience on individuals' share trading frequency. Thus, experience positively influenced often and rarely trading shares in the stock market as P-value = 0.021 and 0.034 (P-value < 0.05). Consequently, the null hypothesis was rejected, and it was concluded that an individual's experience significantly influences the trading frequency of individual investors in DSE. The results show that the odds ratio of experienced individual investors at DSE to often and rarely trade than holding shares were 2.979 and 2.446, respectively, higher than the odds ratio for those without experience. These results align with Liivamägi (2016) and behavioural finance theory that the confidence to trade increases as individual investors' experience increases. In addition, one of the KIs confirmed that experienced traders like stockbrokers who closely follow the firm performance and growth influence individual investors to buy or sell shares, thus affecting the frequency.

Price consideration and trading frequency

Price, among key factors in trading shares, was found to positively and significantly influence the often and rarely trading shares in the stock market as p-value = 0.024 and 0.015, which is < 0.05 (Table 4.5). As a result, the null hypothesis was rejected, and it was concluded that the price of shares influences the trading frequency of individual investors at DSE. Hence, individual investors who consider price before trading have a higher odds ratio of often or rarely trading at DSE than holding shares by 2.163 and 1.383 times more than the odds ratio for individual investors who do not consider the price. The results relate to the prospect theory and findings by Ozenbas *et al.* (2022) and Huber (2019), who found that price affects buying and selling shares. The findings align with the practice that individual investors do not directly trade at DSE but trade indirectly through brokers, and the main decision factor is price. Furthermore, findings from key informants relate to survey results whereby one of the key informants reported that:

“... different indicators facilitating decision to trade share in the stock market, but the price is a key determinant although it is not stable, depending on information and market trend...”. (Key informant, Dar es Salaam, May 2020).

4.6 Conclusions, Implications and Limitations

The study assessed individual investors' risk behaviours and share trading frequency at DSE. The behavioural theory of finance and prospect theory guided the study to determine the relationships. The results depicted that individual investors at DSE vary in risk behaviours towards share business. Even though individuals are mostly risk-averse and a few are risk-takers, their trading options are not linked directly to their risk perception. Price changes drive individuals' trading frequency, thus targeting capital gain. Individual investors are unfamiliar with risk analysis factors, and their primary key indicator to attaining targeted return is share price. Furthermore, experienced traders can predict outcomes associated with share trading, decide on the price and volume of shares to trade, and influence trading frequency.

Theoretically, the findings showed that the risk aversion behaviour of individual investors relates to the prospect theory because they trade shares when they are sure that share prices generate a positive return, thus expecting a positive outcome. The experience in trading and the investment value in Tanzanian shillings in shares point to individual investors' over-confidence, hence recounting the behavioural finance theory. Thus, it can be concluded that share trading is not affected by risk perception but rather by behavioural and economic factors. Practically, individual investors at DSE avoid risk and prefer investing in low-risk assets such as government bonds or mutual funds like collective schemes such as the Umoja Unit Trust Fund. As individual investors focus on price as the main decision criterion for trading with DSE, financial analysts and brokers should enlighten them on risk assessment and analysis and how the same affects share price and the economy in general.

DSE and the capital markets regulator, the Capital Market and Securities Authority (CMSA), are advised to develop and promote policies requiring the listed companies and DSE to increase investors' knowledge of risk management strategies, specifically financial risk analysis, and enlighten investors on share trading. Risk management knowledge on equity investment can be a mind-opener to new and prospective investors.

This paper has focused on individual investors' risk behaviour and share trading decisions and thus examined only one market player at DSE, which is thus limited in

scope. Further studies can examine the perception of brokers towards share trading of individual and institutional investors to facilitate broad-based policy and regulations. Assessment of factors affecting individual trading behaviour can broaden the perspective and improve trading at DSE.

REFERENCES

- Ainia, N. S. & Lutfi, L. (2019). The Influence of Risk Perception, Risk Tolerance, Overconfidence, and Loss Aversion towards Investment Decision-making. *Journal of Economics, Business, and Accountancy Ventura*, 21(3), 401–413.
- Alliy, A. A. (2015). *Analysis of Factors Affecting Stock Market Development in Tanzania: The Case of Dar es Salaam Stock Exchange*. Dissertation for Award of MBA, The Open University of Tanzania, Tanzania.
- Ari, E. (2016). Using Multinomial Logistic Regression to Examine the Relationship Between Children’s Work Status and Demographic Characteristics. *Research Journal of Politics, Economics and Management*, 4(1), 77–93.
- Barayandema, J. & Ndizeye, I. (2018). The Determinants of Investment Decisions in the Rwanda Stock Exchange. Rwanda: *East Africa Research Papers in Economics and Finance*, 28, 1-22.
- Barber, B. M., & Odean, T. (2013). The behaviour of individual investors. In *Handbook of the Economics of Finance, Elsevier*. 2, 1533-1570.
- Barberis, N., Jin, L. and Wang, B. (2021). Prospect Theory and Stock Market Anomalies. *The Journal of Finance*. 76 (5), 2639-2689.
- Bilsen, S. & Laeven, R. (2020). Dynamic Consumption and Portfolio Choice Under Prospect Theory, *SSRN Electronic Journal*, 10, 1-40.
- Brown, S., Veld, C. & Veld-Merkoulova, Y. (2017). Why do Individuals not Participate in the Stock Market? Monash University. *SSRN Electronic Journal*, 10. 2139, 1-39. accessed from <https://ssrn.com>
- Buccioli, A. & Miniaci, R. (2017). *Financial Risk Propensity, Business Cycles and Perceived Risk Exposure*. The University of Oxford and John Wiley & Sons Ltd. Verona, Italy. 22 pp.
- Cardoza, D. (2019). *Introduction to Trading System Development*. Interactive Qualifying Project, Worcester Polytechnic Institute, Massachusetts, USA.
- Cheng, Z. (2019). *Risk Tolerance and Stock Holding Behaviour After the Great Recession*, Dissertation for Award of MS Degree, Ohio State University, USA.

- Chong, T., Wu, Y. & Su, J. (2020). The Unusual Trading Volume and Earnings Surprises in China's Market. *Journal of Risk and Financial Management*, 13 (244), 1-17.
- Christopher, J. (2020). *Stock and Surprise as DSE Record Zero Trading*, The Citizen, Dar es Salaam, Tanzania. Retrieved on February 7, 2022, from <https://www.thecitizen.co.tz>.
- Cooper, D. R., Schindler, P. S., & Sharma, J.K. (2012). *Business Research Methods* (11th ed.). Tata McGraw Hill Education Private Ltd. New Delhi.
- Dean, N. & Pagano, M. (2015). Evaluating Confidence Interval Methods for Binomial Proportions in Clustered Surveys. *Journal of Survey Statistics and Methodology*, 3(4), 484-503. DOI: 10.1093/jssam/smv024.
- DSE (2020). *Dar es Salaam Stock Exchange Annual Report*, Dar es Salaam, Tanzania. Retrieved on November 11, 2021, from Dar es Salaam Stock Exchange website: <http://dse.co.tz>.
- DSE (2022). *Dar es Salaam Stock Exchange Quarterly Trading Report Ending (October-31 December 2021)*, Dar es Salaam, Tanzania. Retrieved on February 8, 2022, from Tanzania Investment Centre, <https://www.tanzaniainvest.com>.
- Du, S., & Zhu, H. (2017). What is the Optimal Trading Frequency in Financial Markets? *Review of Economic Studies*, 84, 1606 –1651. DOI: [10.1093/restud/rdx006](https://doi.org/10.1093/restud/rdx006).
- Ebert, S. & Strack, P. (2018). *Never Ever Getting Started: On Prospect Theory without Commitment*. Working Paper, 20 pp. DOI: 10.2139/ssrn.2765550.
- Epaphra, M. & Kiwia, B. P. (2021). Financial Literacy and Participation in the Financial Markets in Tanzania: An application of Logit Regression Model. *Journal of Economic and Financial Sciences*, 14(1), 1-13.
- Fox, M. B., Glosten, L. R. and Rauterberg, G. (2018). Stock Market Manipulation and Its Regulations, *Yale Journal*, 35 (1), 67-126.
- Grimbeek, J. (2016). *Shareholder Protection in Closely held Companies*. Dissertation for Award of ML degree, University of Johannesburg, Johannesburg, South Africa.
- Gumbo, M. & Sandada, M. (2018). The Determinants of Stock Market Participation: Evidence from Individual Investors in Zimbabwe. *ACTA Universitatis Danubius*, 14(4), 642-654.

- Gunnlaugsson, S. B. (2018). Trading Rules on a Small Stock Market. *Oradea Journal of Business and Economics*, III (1), 46-55.
- Hatmanu, M. & Cautisanu, C. (2021). The Impact of COVID-19 Pandemic on Stock Market: Evidence from Romania. *International Journal of Environmental Research and Public Health*, pp. 18, 9315.
- Huang, W. & Chang, M. S. (2021). Gold and Government Bonds as Safe-Haven Assets Against Stock Market Turbulence in China. *SAGE Open*, 1-10
DOI:10.1177/2158244021990655.
- Huber, J., Palan, S. and Zeisberger, S. (2019). Does Investor Risk Perception Drive Assets Prices in Markets? Experimental Evidence. *Journal of Banking and Finance*. 108, 1-17.
- Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Journal of the Econometric Society (Econometrica)*, 47(2), 263-291.
- Kasoga, P. S. (2021). Heuristic Biases and Investment Decisions: Multiple Mediation Mechanisms of Risk Tolerance and Financial Literacy—A Survey at the Tanzania Stock Market. *Journal of Money and Business*, 1(2), 102-116.
doi:10.1108/JMB-10-2021-0037.
- Kumar, R. (2011). *Research Methodology; a Step by Step Guide for Beginners* (3rd Ed). *SAGE Publications Ltd. London*, 366 pp.
- Lee, B., Rosenthal, L., Veld, C., & Veld-Merkoulova, Y. (2015). Stock Market Expectations and Risk Aversion of Individual Investors. *International Review of Financial Analysis*, 40, 122-131.
- Liivamägi, K. (2016). Investor Education and Trading Activity on the Stock Market. *Baltic Journal of Economics*, 16 (2), 114-131.
- Livingston, S. A. (2018). *Test Reliability—Basic Concepts*. Educational Testing Service, Princeton: New Jersey.
- Ma, R., Anderson, H. D. & Marshall, B. R. (2017). Stock Market Liquidity and Trading Activity: Is China Different? *International Review of Financial Analysis*, 56, 32-51.
- Malmendier, U. (2021). *Experience Effects in Finance: Foundation, Application, and Future Directions*, National Bureau of Economic Research. Working Paper No. 29074, Cambridge, USA.
- Malmendier, U., Pouzo, D. & Vanasco, V. (2020). Investor Experiences and Financial Market Dynamics. *Journal of Financial Economics*, 136, 597-622.

- Maziriri, E. T., Mapuranga, M., & Madinga, N. W. (2019). Navigating Selected Perceived Risk Elements on Investor Trust and Intention to Invest in Online Trading Platforms. *Journal of Economic and Financial Sciences*, 12(1), 1-14.
- Mboma, L. M., & Reuben, J. (2013). Personal Decision Factors Influencing Investing In Capital Markets And Stock Exchange Performance In Tanzania: The Case Study Of Dar es Salaam Stock Exchange. COSTECH Integrated Repository, University of Dar es Salaam (UD), Dar es Salaam.
- Mishra, R. (2018). Financial Literacy, Risk Tolerance and Stock Market Participation. *Asian Economic and Financial Review*, 8(2), 1457–1471.
- Muiruri, P. M. (2014). Effects of Estimating Systematic Risk in Equity Stocks in the Nairobi Securities Exchange (NSE) An Empirical Review of Systematic Risk Estimation. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 4 (4), 228-248.
- Nadeem, M. A., et al. (2020). How Investors' Attitudes Shape Stock Market Participation in the Presence of Financial Self-Efficacy. *Front. Psychol.* 11:553351. DOI: 10.3389/fpsyg.2020.553351.
- Ngadino, F. S. (2019). The Influence of Investment Knowledge, Perceived Risk and Perceived Behavioral Control towards Tock Investment Intention. *International Journal of Business Marketing and Management (IJBMM)*, 4 (1), 84-95.
- Nicolosi, G., Peng, L., & Zhu, N. (2009). Do individual investors learn from their trading experience? *Journal of Financial Markets*, 12(2), 317-336.
- Plieger, T., Grünhage, T., Duke, E., and Reuter, M. (2020). Predicting Stock Market Performance: The Influence of Gender and Personality on Financial Decision Making. *Journal of Individual Differences*, 42(2), 64-73.
- Prosad, J., Kapoor, S. & Sengupta, J. (2015). Behavioural Biases of India Investors: A Survey of Delhi-NCR Region. *Qualitative Research in Financial Markets*, 7 (3), 230–263.
- Ozenbas, D., Pagano, M. S., Schwartz, R. A., & Weber, B. W. (2022). *Liquidity, Markets and Trading in Action: An Interdisciplinary Perspective*. Springer Nature, Switzerland. 103 pp. DOI: 10.1007/978-3-030-74817-3.
- Rossi, M. (2016). The Capital Asset Pricing Model: A Critical Literature Review. *Global Business & Economics Review*, 18(5), 604–617.
- Salleh, I. S., Ali, N. M., Mohd-Yusof, K. & Jamaluddin, H. (2017). *Analysing Qualitative Data Systematically using Thematic Analysis for Deodoriser*

- Troubleshooting in Palm Oil Refining. Chemical Engineering Transaction - AIDIC*, 56, 1315-1320.
- Samuels, P. & Gilchrist, M. (2014). Descriptive Statistics-Measure of Spread, Technical Report, Birmingham City University, England.1-4.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Research Methods for Business Students, Fourth Edition. Pearson Education Limited: England. 652pp.
- Schober, P., Boer, C. & Schwarte, L. (2018). Correlation Coefficient: Appropriate Use and Interpretation. *Anaesthesia and Analgesia*, 128(5),1763-1768
- Setia, M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *India Journal of Dermatology*, 61(3), 261–264.
- Shehata, S. M., et al. (2021). The Moderating Role of Perceived Risks in the Relationship between Financial Knowledge and the Intention to Invest in the Saudi Arabian Stock Market. *International Journal of Financial Studies*, 9(9), 1–16.
- Slovin, E. (1960). Slovin's formula for sampling technique. <https://prudencexd.weebly.com>. Retrieved 21st July 2021.
- Sivaramakrishnan, S., Srivastava, M., and Rastogi, A. (2017). Attitudinal Factors, Financial Literacy, and Stock Market Participation. *International Journal of Bank Marketing*, 35(5), 818-841. DOI: 10.1108/IJBM-01-2016-0012.
- Statman, M. (2008). What is Behavioural Finance? Handbook of Finance (Vol. II). John Wiley & Sons Inc: New Jersey (USA).
- Svetlova, E. & Thielmann, K. (2020). Financial Risk and Management. *International Encyclopaedia of Human Geography*. 2nd Edition, 5, 139-145.
- Takyi, P. O. & Ennin, I. B. (2021). The Impact of COVID-19 on Stock Market Performance in Africa: A Bayesian Structural Time Series Approach. *Journal of Economics and Business*, 115, 1-10
- Trang, P. T. & Tho, N. H. (2017). Perceived Risk, Investment Performance and Intentions in Emerging Stock Markets. *International Journal of Economics and Financial Issues*, 7(1), 269-278.
- URT. (June 2021). *Hali ya Uchumi wa Taifa Katika Mwaka 2020*. Ministry of Finance and Planning. Dodoma, Tanzania. 291 pp
- Vidanalage, K. & Shantha A. (2019). Individual Investors' Learning Behaviour and Its Impact on their Herd Bias: An Integrated Analysis in the Context of Stock Trading. *Sustainability Journal (MDPI)*, 11, 1-24.

- Whaley, D. L. (2005). *The Interquartile Range: Theory and Estimation*. Dissertation for Award of MSc Degree in Mathematics, East Tennessee State University, USA.
- Werema, S. M. (2020). The Effect of Covid-19 on Stock Market Performance: Evidence from Dar es Salaam Stock Exchange. *International Journal of Science and Research (IJSR)*, 9(10), 990-995.
- Yochim, D. & Davis, C. (2021). *How Stock Trading Works*. Accessed from: <https://www.nerdwallet.com>. On February 2, 2022.
- Yuliani, Y., Isnurhadi, H. and Jei, F. (2017). Risk Perception and Psychological Behaviour of Investors in Emerging Market: Indonesian Stock Exchange. *Investment Management and Financial Innovations*, 14 (2-2), 347-358.

CHAPTER FIVE

5.0 Stock Market Indicators and Domestic Market Capitalisation of Emerging Markets

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5.1 Abstract

Market capitalisation plays a significant role in the performance of emerging stock markets. This paper is focused on stock market indicators of the Dar es Salaam Stock Exchange (DSE) in Tanzania as an emerging stock market and its market capitalisation. Specifically, the study used the ARMA model to analyse the trend of stock market indicators: individual participation, share volume, share turnover, and DSE's All Share Index's time series monthly data from 2014 to 2020. The study further investigated how the stock market indicators influence the domestic market capitalisation of DSE using the ARMAX model. Results indicated that changes in domestic market capitalisation and stock market indicators were associated with signals such as policy change, issuance of new shares, and price changes, as suggested by the Dow theory. Furthermore, individual participation, turnover, and DSE's All Share Index significantly influenced domestic market capitalisation at DSE. However, the volume of shares traded did not influence DSE's domestic market capitalisation. Deductively, DSE's market capitalisation is associated with turnover, price, and individuals' participation. The study advises brokers to encourage individual investors to trade large-volume shares and frequently to take advantage of transaction costs and increase market capital. It also recommends that DSE should encourage new listings to trigger trading and increase the market share index.⁴

Keywords: market capitalisation, individual participation, volume, turnover, DSEI

⁴ Published in The Operations Research Society of Eastern Africa (ORSEA) Journal,13(1) of 2023. (Appendix XII)

5.2 Introduction

Market capitalisation plays a significant role for an investor in determining stocks to buy, risk, and firm performance before investment (Pavone, 2019). Capital is also one of the key components in generating the country's economic output (Idenyi *et al.*, 2017). Share index, number of transactions (volume), turnover, total equity, and share price are among the key identified indicators measuring market and capitalisation performance (Indrayana *et al.*, 2020; Abdel and Al-Afeef, 2020; Idenyi *et al.*, 2017). Governments mount diverse participation enhancement programmes to foster stock market capitalisation and economic growth. The government of Tanzania introduced different policies and programmes like the Improved Business Climate (IBC) and Local Investment Climate (LIC), which, among other things, required privately owned mobile telecommunication companies to issue at least 25% of their authorised share capital to the public to local shareholders (URT, 2016). These measures increased the number of listed companies at DSE, brokers, public participation, and public-owned companies (Kamazima and Omurwa, 2018).

The empirical review provides different results on the trend of stock market indicators and capitalisation in different parts of the world. For individual participation in the US, individual participation decreased from 80% in the 1980s to 20% in 2020 (Fichtner, 2020), while in Nairobi, it decreased from 27% in 2014 to 4% in 2019 (Langat and Rop, 2019). All the decrease signals an increase in institutional investors in the market and a change in market capitalisation. Apart from that, other authors have reported an increase in other stock market indicators in different markets. For example, in China, the share price by 2021 had increased by 1.38%, volume changed by 8.62%, and individual participation increased from 13% in 2015 to 55% in 2022, leading to increased market capitalisation (Peng *et al.*, 2022; Khandelwa, 2021; Ma *et al.*, 2017; Ibrahim and El Haron, 2018). Reports show that the increases were due to policy reforms and technological changes (online trading) in stock market operations (Peng *et al.*, 2022; Brown *et al.*, 2021). The changes in stock market indicators facilitate growth in market capitalisation and liquidity of different markets. According to the World Federation of Exchange (2017) statistics, Egypt's volume of shares and retail participation value is 64% of the market capitalisation; in Colombo, it contributes up to 20% to the market capitalisation.

The market capitalisation of DSE as an emerging market has shown remarkable changes since its commencement in 1998. The recorded changes include an increase in the number of listed companies from five (5) to twenty-eight (20 local companies and 8 cross-listed) and the inclusion of small and medium enterprise companies (SMEs); an automated trading system which increased brokers from 7 in 2014 to 15, and the demutualisation of DSE into a public-owned company in 2016 (Kamazima and Omurwa, 2018) and consequently growth in overall market capitalisation. The data collected indicated that, cumulatively, market capitalisation also grew from USD 2,599,565.22 in January 2014 to USD 6,873,669.57 by December 2022 (DSE, 2022), and individual participants increased from 201,011 in 2014 to 556,121 in 2020. However, the study observed a decrease in volume and DSE's All Share Index from 2,172 units in 2014 to 1,830 units by 2020 (DSE, 2021).

The data and graphical presentation (Figure 5.3) show that observations from data collected vary in trends of market capitalisation, volume, turnover, and DSE All-share Index (DSEI). The variation indicates that changes in stock market indicators do not transform/are directly reflected in domestic market capitalisation. Even though studies have evaluated changes in stock market indicators and economic growth (Omodero, 2020; Mubarak and Hamdan, 2016), the focus of analysis is mainly on the price of stocks/shares, corporate governance, and market capitalisation. However, Kuvshinov and Zimmermann (2021) focused on share price, and Pavone (2019) analysed the sale of shares and their contribution to market capital. In Tanzania, Abbas *et al.* (2016) focused on market capitalisation and the country's economic growth, while Haji and Jianguo (2014) examined the effect of exchange rate and market capitalisation on DSE's share price using a multiple regression model. The studies imply that, in Tanzania, the focus has mainly been on economic growth, share price, and institutional investors (Abbas *et al.*, 2016; Haji and Jianguo, 2014).

Apart from price, institutional investors contribute close to 99% of DSE's overall market capitalisation and liquidity; equity shares also play a vital role. Volume and turnover of shares traded by investors (including individual investors) contribute to the DSE's market capitalisation. However, the DSE focuses more on institutional investors than individual investors, affects government efforts to reduce income inequality and make individuals financially self-sufficient as per SDG 2030 (UNDP, 2015). Apart from that,

trade restrictions and costs incurred while buying and selling stocks, such as bid-ask spread and commission and fees, which must be analysed by traders (Brière *et al.*, 2020), might be overlooked by DSE. Hence, the overlook of financial costs and trading restrictions to reduce risks for individual investors might be due to the fact that individual investors have less/no influence on the market compared to institutional investors. Thus, it is necessary to address individuals' participation in the equity market (volume and turnover of equity) along with the share index and their contribution to the domestic market capitalisation. The analysis of individual trends and influence on the stock market can facilitate the improvement of government policies relating to the promotion of individual investment in the DSE. Specifically, this paper examines the trends of the four indicators and the domestic market capitalisation of DSE from 2014 to 2020, then forecasts them for the next four years using the ARMA model. The forecasted data enable future investors to make proper investment decisions after analysing the market. Apart from that, it was essential to examine if trends of individuals' participation at DSE, DSE's All Share Index, volume, and turnover impact the domestic market capitalisation of DSE for proper policy implication.

This study's findings provide a long-run plan for developing emerging stock markets as they deliver historical data on equity trading, public participation, and the causes of the reported performance. The findings provide a forecast of the future performance of DSE's equity market indicators and a snapshot for investors on the future performance of the equities while suggesting ways for improving the performance of DSE. Using the Dow theory and the Box-Jenkins model facilitated simple prediction of DSE's indicators and market capitalisation. The results contribute to the body of knowledge as they answer critical questions on whether individuals' participation in the stock market, volume, turnover of equities and DSEI have any influence on the domestic market capitalisation of DSE.

5.3 Literature review

This section includes a theoretical literature review and an empirical literature review, which includes hypotheses development.

5.3.1 Theoretical Review

Dow Theory, as developed by Charles Dow in series from 1900-1902, guided the study. The theory propounds that the stock market does not move randomly, but it is in an up/downward trend. Therefore, when one of its averages (industrial) declines/advances above a previous critical high, then a similar decline/advance in the other average (transportation) follows. Three cyclical trends or movements influence the changes, which Sheimo (1998) terms primary, secondary, and minor (tertiary) movements. Furthermore, this theory, according to Thomsett (2019), contains six tenets, including (1) three market movements, including primary trends, medium trends, and minor trends; (2) phases of market dynamics, such as the phases of accumulation, public participation, and distribution; (3) news that the market discounts as reflected in prices; (4) a trend must be seen in the major average and confirmed in one of the others to be recognised as new and in opposition to prior trends; (5) trading volume serves as a reliable indicator of trend strength because it indicates the trend's general direction; and (6) trends persist until clear indications that they have come to an end.

The theory is appropriate for this paper as it helps to observe the trend of individuals' participation over time, with primary and secondary movements and minor movements. Apart from that, changes in volume, price, and individual participation act as signals of market capitalisation vary at DSE. Hence, the movement of market capitalisation will be observed through a change in volume, turnover, price, and individual shareholding and assessing whether these indicators influence the trend of market capitalisation. Nevertheless, the random walk theory, developed by Burton Malkiel in 1973, argues that price change is random and, therefore, unpredictable. It can be 50/50 with positive or negative direction caused by the poor quality of the information in the market. However, the reaction to information by investors at DSE may not last long. Therefore, concluding that this can affect the market movement is hard. Apart from that, with well-interpreted facts (information), market movements (DSE market capitalisation and indicators) can be predicted or forecasted. The random walk theory also highly focuses on price and factors affecting price movement in the market. Therefore, the Dow theory is appropriate because signals such as a change in policy, leadership, the volume of shares traded, and the introduction of new issues can trigger changes in market trends and make them predictable.

Box-Jenkins model

The Box-Jenkins model was developed by Box and Jenkins in 1976 as a combination of the Yule (1926) AutoRegressive (AR) scheme and Slutsky's (1937) Moving Average (MA) scheme. The assumption is that by utilizing the ARIMA process, predictions can be made based on past stationary time series data, with the order of p for AR and q for MA being considered. Thus, general series X_t values can be modelled as a combination of past X_t values and past errors e_t (Anderson, 1977). The model proposes four steps of forecasting: i) The original time series data must be stationary in mean and variance; otherwise, they should be integrated to attain the stationarity; ii) The order of ARMA (p, q) must be determined and seasonality P, Q ; iii) Values of the parameters (p, q) must be estimated using non-linear optimization procedure; and iv) Diagnostic checks of the residuals of actual values and estimated value must be performed (Makridakis & Hibon, 1997). Thus, based on the Dow Theory and ensuring that stock market data can be predicted, the time series data of the study were examined and forecasted using the four steps of the Box-Jenkins (ARMA) model.

5.3.2 Hypotheses development

5.3.2.1 Participation of individual investors and market capitalisation

Radtke *et al.* (2018) view participation as an individual's ownership and co-ownership of assets and benefits in financial returns from the assets. However, Sivaramakrishnan *et al.* (2017) identify stock market participation as measuring whether the investor invests in the stock market. This paper considers individuals' participation as public participants in trading shares at the DSE, which may affect the market capitalisation of the DSE. Blume and Keim (2012) analysed the institutional investors and market liquidity relative to individual participation and market capitalisation and noted that the illiquidity of the firm decreases with an increase in market capitalisation caused by an increase in individual and institutional investors. Furthermore, Robinson (2020) observed that higher retail investor participation helps the EU capital markets grow and increase the volume of the fund. Notably, De La Cruz *et al.* (2019) reviewed the ownership structure of 10,000 companies in 54 countries. They concluded that, in the US, individual investors contribute 4% of the market capitalisation, 13% of China's market capitalisation, and 6% of emerging countries' market capitalisation. Therefore, a change in individual participation in the stock market increases the volume of funds of the listed firms, and so does the stock market capital.

On the contrary, Alderighi and Gurrola-Perez (2021), when investigating investors' type, liquidity, and price formation, found that although retail investors have superior ability in stock-picking, they are not excellent contributors to liquidity. Active retail investors demand immediate trading of shares and, therefore, snatch liquidity. Impliedly, individual investors contribute to small firms' market capitalisation, but institutional investors highly contribute to overall market capitalisation. Hence, the reviewed studies focused on institutional investors. In contrast, other studies focused on ownership structure and the contribution of individual investors to a specific firm's capital, as per Alderighi and Gurrola-Perez (2021). Although individual participants are small in number in Tanzania (2% of the working population), their contribution to domestic market capitalisation was found necessary to be examined, leading to the formation of the hypothesis (H_{01}):

H₀₁: The trend of individual participation in the DSE does not affect the market capitalisation of the DSE.

5.3.2.2 The volume of shares and market capitalisation

Trading volume signals the stock market's future movement and, therefore, has a significant impact on individuals' participation and liquidity of the firm (Hariyanto, 2021). Hence increase in volume encourages individuals to participate more, and a decrease discourages investors, leading to a decrease in market capitalisation. Indrayana *et al.* (2020) analysed the effect of income, volume, dividend, and the average price on corporate market capitalisation. The authors found that an increase in volume indicates an increase in stock demand, significantly affecting corporate market capitalisation. This implies that an increase in the volume of shares acquired by investors increases demand, resulting in increased prices, and so does the firm's capitalisation. Wan and Hendrawaty (2018) examined the Indonesian market's stock market liquidity and capitalisation using a qualitative descriptive approach. They observed that the frequency of transaction signals impacts changes in trading volume. An increase in the trading volume of shares increases the firm's liquidity, leading to high firm capitalisation.

Thus, the previous studies (Hariyanto, 2021; Wan and Hendrawaty, 2018) focus on the contribution of volume to a firm's capital and not market capitalisation. At DSE, being among the emerging markets, addressing the volume of share transacted and its contribution to domestic market capitalisation is limited. Hence, this paper analysed the

contribution of the volume of shares traded in DSE domestic market capitalisation. Thus, the study hypothesised that:

H₀₂: The volume of shares traded does not influence the domestic market capitalisation of the DSE.

5.3.2.3 Turnover and market capitalisation

Bonga and Sithole (2019), who examined stock market development evidence on capital market trends, revealed that an increase in market shares of the firm through the sale of shares increases the firm's capital base and encourages expansion. Turnover indicates the number of shares traded in the market at a given price of the shares. Variations in company share price and the number of shares traded in the market may negatively or positively trigger the injection of more money into a firm and lead to economic growth (Abina and Lemea, 2019). As supported by Wan and Hendrawaty (2018), high stock transactions indicate high investors' interest in investing, signalling the firm's good performance and encouraging stocks to be more liquid. Therefore, increased share price and volume of shares transacted increase capital flow into the company and the market.

The reviewed studies (Abina and Lemea, 2019; Wan and Hendrawaty, 2018) focused more on firm performance in relation to turnover and not the influence of turnover on domestic market capitalisation. This study, therefore, examined the extent to which the investors' share turnover contributes to the DSE's overall domestic market capitalisation. Hence, the following hypothesis was formed:

H₀₃: The share turnover does not influence the domestic market capitalisation of the DSE.

5.3.2.4 DSE all share index and market capitalisation

DSE's All Share Index (DSEI) is a market capitalisation-weighted index with a base reference of 1000, representing all stocks listed under DSE (DSE, 2021). It usually shows the market situation as observed by Babarinde *et al.* (2020), who examined how stock market indicators such as volume and share index impact gross capital formation in Nigeria. They revealed that the share index significantly influences gross capital formation. Not only does the share index contribute to the capital formation of firms, but also to market capitalisation (Eze, 2019). Therefore, the increase in share indices indicates firms' and markets' growth leading to economic development. In confirming

this, Maxwell *et al.* (2018), who analysed the impact of the Nigerian All Share Index, Market Capitalisation, and Number of Equities on Gross Domestic Product, revealed that all share indices positively relate to market capitalisation and Gross Domestic Product.

All Share Index also acts as an indicator of individual investors choosing an investment sector. Initially, the selection of firms was based on market capitalisation, but currently, random walk evidence is observed in stock indices, enabling investor assurance and forecasting of investment (Shamshir *et al.*, 2018; Uzuke *et al.*, 2016). The scholars in the previous studies focused on the indices and their usage in investment decisions, economic growth, and evaluating market performance. As a growing market, DSE faces continuous change in the DSEI, which is affected by the difference in prices among listed companies. As a result, it is hard to attain the stability and growth of DSEI. Therefore, the attraction of DSE investors to improve performance cannot be guaranteed. Thus, it was crucial to examine the variations of DSEI and how they impact the domestic market capitalisation of DSE, resulting in the formation of this hypothesis:

H₀₄: DSE All Share Index does not influence the domestic market capitalisation of DSE.

5.4 Methodology

5.4.1 Research design and data

The study on which this paper is based used secondary time series data accessed from DSE on a monthly basis for seven years. According to Singh (2006), trends are based on considering recorded data, representing past and present situations and what is likely to happen in the future. Therefore, the study used secondary data related to the historical phases of DSE in terms of domestic market capitalisation, volume, turnover, and individual participation from June 2014 to June 2020 to examine the current status of DSE. Time series data were obtained from equity shares, covering 73 monthly observations. The period was selected because in 2013, DSE changed to the new efficient Automated Trading System and central Depository System (DSE, 2023), and therefore, data collected from 2014 are of better quality and reliable, which can be replicated for further studies.

5.4.2 Time series analysis

The study used the Autoregressive (AR) Moving Average (ARMA) mathematical model to predict time series data as per Al-Mamun *et al.* (2020). The Box-Jenkins model (1976) often known as the ARIMA (p, q, d) model, whereby 'p' represents AR, 'q' represents I, and 'd' represents MA. According to Young (1977), the model consists of four (4) phases, including forecasting: identification, parameter estimates of the model, diagnostic testing, and forecasting. Data must be stationary to analyse and forecast the stock market indicators' trends. Hence, the ARMA (p, d) model was employed in this investigation because the domestic market capitalisation and stock market indicators data were stationary; therefore, no Integration (q) was required. Simple Moving Average was used to get an average of the variables because it smoothens the changes and makes it easier to observe the trend of variables. Several related previous studies (Shah *et al.*, 2019; Uzuke *et al.*, 2016) also applied the Box-Jenkins model in analysing the stock market performance. On the other hand, the model links the dependent variable (Domestic Market Capitalisation) and independent variables (volume, turnover, individual participation, and DSEI) using the ARMAX model. The ARMAX model is an extension of ARMA known as the ARMA regression model with exogenous variables (Hamilton, 2013).

Model identification

The identification method involves examining the data to obtain the proper ARMA class. It further considers consecutiveness and seasonality in DSE data to make the series stationary. However, the study's findings indicated that domestic market capitalisation, volume, turnover, individual participation, and DSEI data were stationary. The study identified stationarity patterns in both mean and variance using the autocorrelation function (ACF) and partial autocorrelation function (PACF) (*Appendix IV-III*). As a result, it was possible to detect the presence of AR and MA components in the residue. Results showed that ACF and PACF had sufficient sparks and were closer to zero, indicating that the data were stationary (*Appendix IV-III*).

Model estimation

In estimating the model that best fitted all DSE indicators, the study used monthly data from 2014 to 2020. Furthermore, the study determined the most fitting model using the normalised Bayesian information criterion (BIC) and Akaike information criterion

(AIC). A comparison of the non-seasonal ARMA models' p-values and BIC showed that the five models with the highest p-values (higher than 0.05) and lowest BIC were chosen (*Appendix VI-Table 3*). The comparison made it easier to choose the best ARMA model for forecasting purposes, and the following values were used: domestic market capitalisation is (2,0,0) (0,0,0); DSE All Share Index is (1,0,0) (0,0,0); volume is (0,0,0) (0,0,0); and turnover is (1,0,0) (0,0,0); individual participation is (1,0,0) (0,0,0) (*Appendix VI-Table 2*). From the best ARIMA, the data were stationary with zero (0) for Integration (q); thus, ARMA was appropriate. In the domestic market, the capitalisation model includes AR (p) at lags 1 and 2 with no transformation, whereas other variables (volume and individuals' participation) underwent natural log transformation.

Diagnostic test

The study required running the diagnostic test to see if the model fitted the data well after validating that the data were stationary and choosing the proper approximated ARMA parameters. It involved model residuals examination using the ACF, PACF, and normal probability plot of the residual testing the significance. The results demonstrated that the model's residual had a constant variance and zero means (*Appendix IV (V)*). Apart from that, analysis of residuals, whether there was white noise or not, was performed using the portmanteau test. The portmanteau null hypothesis states that variables do not follow a white noise or random walk effect. Results indicated that individual participation, turnover, volume, and DSEI were not white noise as the p-value was 0.9852 (i.e. $p > 0.05$ and, therefore, the null hypothesis was accepted; the data were predictable (*Appendix IV*).

Forecasting using the best ARMA

Forecasting was achievable since the best ARMA was found, the residual had zero mean and variance, and all stock market indicators showed no white noise in the time series. Using the best ARMA, the study projected domestic market cap, individual participation, volume, turnover, and DSE All Share Index between July 2020 and June 2024. The results showed that the outcome would remain as predicted—figure 6 and *Appendix IV (VI)*.

5.4.3 ARMAX model

ARMAX (Autoregressive Moving Average with exogenous variables) was appropriate in examining the relationship between domestic market capitalisation and stock market indicators. Because data were not integrated and had no seasonal effect (which would fit in pure ARIMA), previous data explained the predicted data as per ARMA. Apart from that, Domestic Market Capitalisation (**DMC**), as a dependent variable indicated by y_t , is explained by several independent variables, including turnover (TS), numbers of individual participants (IP), volume of shares (VS), and DSE All Share Index (DSEI). The model was adapted from Hamilton (2013) and applied to show the relationship between variables as shown;

$$y_t = \beta_0 + \beta_1 TS_{1, t-1} + \beta_2 IP_{2, t-1} + \beta_3 VS_{3, t-1} + \beta_4 DSEI_{4, t-1} + \mu_t$$

Where: y_t = domestic market capitalisation at time t, and it is a function of lag-1 and lag-2 values of predictor variables TS, IP, VS, and DSEI,
Disturbance μ_t .

Table 5. 1: Definition of Variables and Measurement

Dependent	Variables	Description of Variables and Measurements	Relationship
DMC	Domestic Market Capitalisation	Domestic Market Capitalisation DMC= Price X Outstanding shares of Domestic Listed Companies DMC= Monthly trend of DMC from 2014-2020	
Independent/Exogenous Variables			
VS	The Average Volume of Shares	The average volume of shares traded; VS= Monthly volume of shares from 2014-2020	+/-
IP	Individual Participation trend	Time series data of individual investors from 2014-2020	+/-
TS	Average Turnover of Shares	The trend of the average turnover of shares from 2014-2020	+/-
DSEI	DSE All Share Index	The trend of DSEI from 2014-2020	+/-

Source: Literature review

5.5. Findings and Discussion

The study presents findings in two parts. Part one is a trend analysis of variables related to individual participation, market capitalisation, volume, price, and turnover of shares traded under DSE by individuals from 2014 to 2020. Part two of the findings shows the relationship between the variables (turnover, price index, volume, individual participation) and how they affect the market capitalisation of DSE.

5.5.1 Trends of variables and forecasting

Market capitalisation

The findings showed that the domestic market capitalisation trend had changed significantly from 2008 to June 2020 and had mainly been stationary.

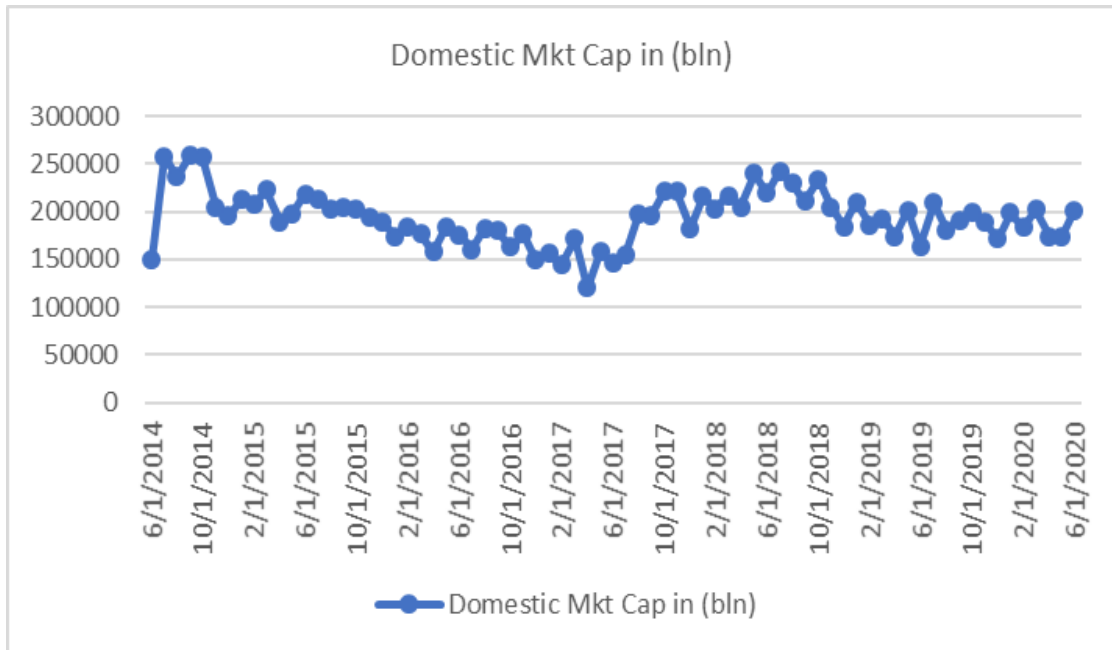
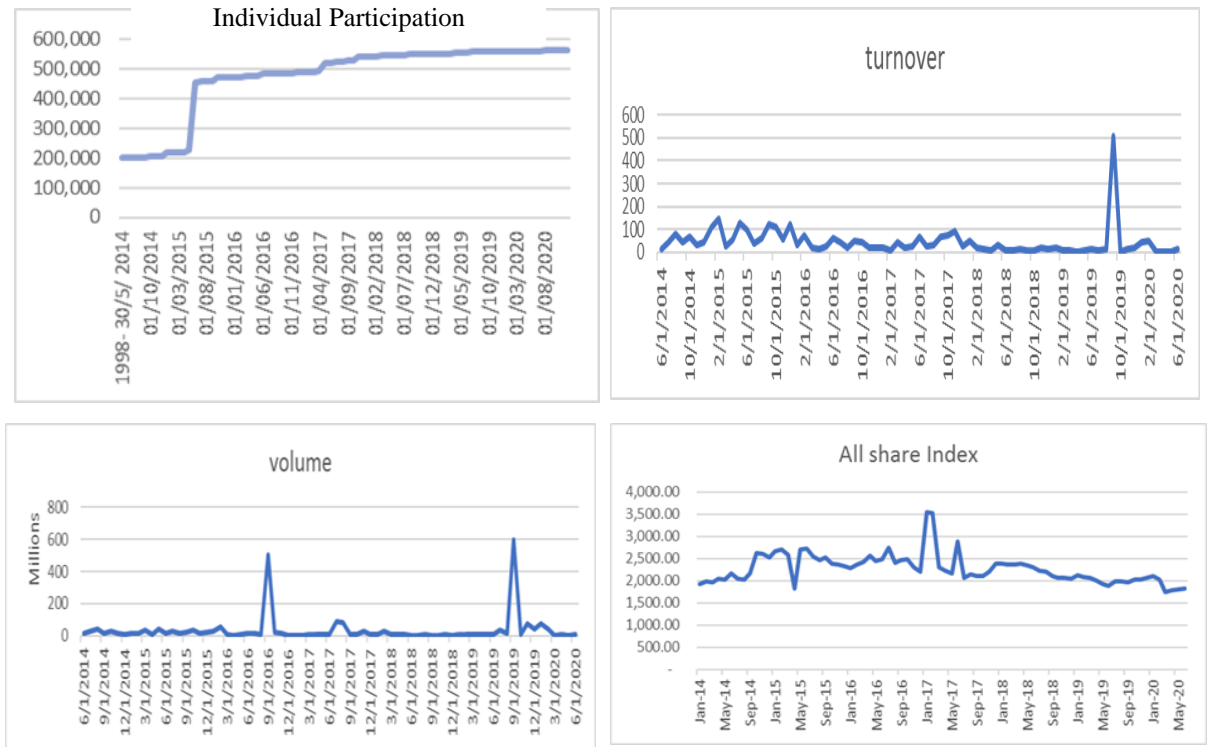


Figure 5. 1: DSE domestic market capitalisation trend

Source: Data

The findings, as provided in Figure 5.1, show that, in 2014, there was a sharp increase in domestic market capitalisation. From 2015 to mid-2017, domestic market capitalisation kept declining but increased by the end of 2017 to 2019, then maintained an average of TZS 194,036 billion (*Appendix IV*). The domestic market capitalisation trend series was not uniform but did not vary much because the number of listed companies did not increase frequently. The small volume of shares traded resulted in a small or no impact on the domestic market capitalisation. Hence, the trend of domestic market capitalisation depended on price and changes in outstanding shares. As a result, few listed companies existed from the establishment of DSE in 1998 to 2010. However, the number of listed companies increased with the issuance and trading of securities, leading to increased domestic market capitalisation.

Figure 5. 2: Stock market indicators trends

Source: Secondary data

As shown in Figure 5.2, the individual participation range appeared from 200,000 to 600,000 approximately, although a significant peak in participation occurred in June 2015. The DSE policy change may be attributed to the changes in individual participation from 2015 to 2016. Hence, the results revealed that individuals' participation in DSE was constant and increased at a low rate. In 2015, the rapid increases might be associated with the policy change whereby communications companies were required to issue 25% of their shares to individual investors (URT, 2016). Apart from continuous trades by the listed companies, Vodacom and Mwalimu Commercial Bank issued new shares, contributing to the increased number of participants. Therefore, the change in individual participation at DSE was small and constant, averaging 4900 per month (*Appendix IV*), but unpredictable because any change in policy or introduction of new shares triggers changes in individual participation.

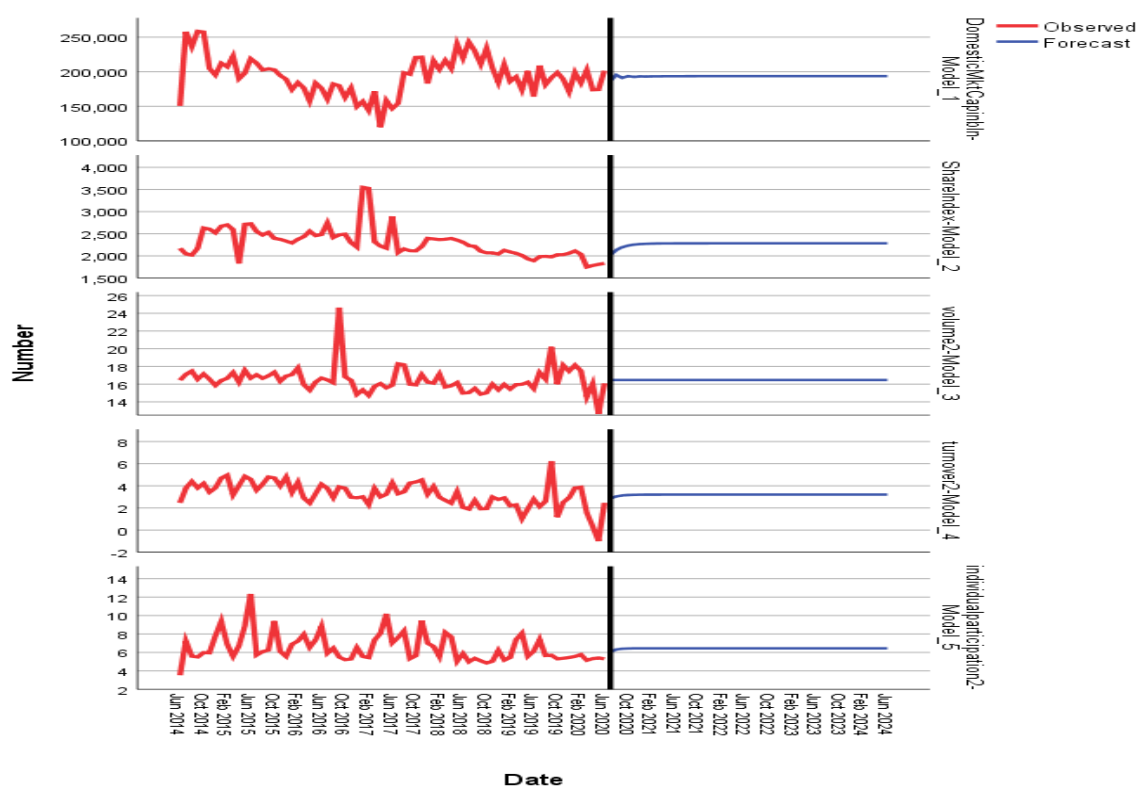
The findings, as shown in Figure 5.2, indicate that the trend for turnover had more or less remained the same. However, it increased sharply in mid-2019, caused by an increase in sales by local investors, and decreased at the end of the year. According to the DSE quarterly report (2019), the decrease in volume (liquidity) and domestic market

capitalisation was associated with a decrease in the price of shares for DSE Plc, CRDB, DCB and TBL. Generally, the trend for turnover decreased as time increased, and its mean value was 44.91 billion (*Appendix IV*). Hence, the results showed that the turnover rate of shares/stock at DSE was constant, and it changes in rare cases associated with a change in the price of the listed shares.

In the case of volume, the study found that the trend of the number of transacted shares at DSE was constant. The sharp increase in mid-June 2016 was due to the listing of DSE shares and an increase in share price (DSE, 2016). The decrease at the end of 2016 was associated with selling pressure, resulting from socio-economic needs, and decreased foreign investors' activities, which affected the volume traded (DSE, 2017). On the other hand, the increase in 2019 was caused by an increase in sales by local individual investors, as reflected in turnover (DSE 2019). DSEI also ranged between 2,000 units and 2,500 units. However, it increased in the first quarter of 2017 due to increased trades of DSE shares and increased trades of cross-listed counters (DSE, 2017). The decrease in the quarter ending June 2017 was linked to a decrease in the price of some domestic listed companies and cross-listed companies, such as ACACIA and Swissport prices, which decreased by 31% and 30%, respectively (DSE, 2017). Appendix IV shows the average mean trend of the four stock market indicators.

Forecasting

The presented data for domestic market capitalisation and stock market indicators (individual participants, the volume of shares traded, turnover, and DSEI) facilitate forecasting for the next four years, from July 2020 to June 2024. Continuous equities trading in DSE led to a moderate increase at the end of 2020 for domestic market capitalisation, share index, and turnover. However, variables are expected to remain stationary unless triggered by introducing new shares, policy changes, price changes, and other financial and economic changes. Predicted values are shown in *Appendix IV (VI)*, while figures are shown in Fig. 5.3.

Figure 5. 3: Predicted Stock Market Indicators

Source: Forecasted data

5.5.2 Relationship between stock market indicators and market capitalisation

In determining the relationship between individual participation, DSEI, volume, and turnover of equity shares traded by individuals and how they affect domestic market capitalisation, the study used the ARIMAX model. The results are shown in Table 5.2.

Table 5. 2: ARMAX model

Domestic Mkt cap.	Coef.	St. Err.	t-value	p-value	[95% Conf Interval]	Sig
DSEI	-19.272	0.615	-31.33	0.000	-20.477 -18.066	***
Turnover	6604.37	323.22	20.43	0.000	5970.871 7237.869	***
Individual participation.	-1950.471	222.593	-8.76	0.000	-2386.745 -1514.19	***
Volume	966.262	1401.842	0.69	0.491	-1781.298 3713.821	
Constant	229585.64	1497.723	153.29	0.000	226650.16 232521.1	***
L	0.066	0.075	0.88	0.381	-0.081 0.213	
L2	0.041	0.081	0.51	0.61	-0.117 0.199	
Constant	2612.037	746.561	3.50	0.00	1148.804 4075.27	

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Secondary data, 2020

Individuals' participation in DSE had a significant negative relationship with market capitalisation with a t-statistic of -8.76 and a p-value = 0.000 ($p < 0.05$), as shown in

Table 5.2. Therefore, the study found that domestic market capitalisation decreased by 1950 units for a unit increase in individual participation at DSE. The change was due to the situation that individuals acquire shares in small quantities, compared to institutional investors who acquire shares in large quantities and highly contribute to domestic market capitalisation. With a given price, the small number of shares acquired by individuals and transaction costs incurred decreased the domestic market cap. Thus, the null hypothesis was not accepted because the changes in individuals' participation influenced DSE's domestic market capitalisation. The findings agreed with the theoretical review as they relate to observations by Robinson (2020) and Blume and Keim (2012), who found that individual investors contribute to market capitalisation; however, institutional investors are more highly contributors to market capitalisation than individual investors. The results also relate to Dow Jones' theory because public participation changes the overall market trend. However, the results reflect negative changes to the market brought by the public.

In the case of volume, it is observed in Table 5.2 that the volume of shares relates to the domestic market capitalisation because a rise in the unit volume of shares traded affected the market capitalisation by 966 units. However, the volume of shares transacted appeared to have no significant impact on the domestic market capitalisation of DSE as $p\text{-value} = 0.491$ ($p > 0.05$). The impact of the shares on capital is evident only when their small volumes are combined with price (turnover), as most of the shares transacted were in small volumes. As a result, the null hypothesis that the volume of shares transacted does not influence market capitalisation was accepted. The findings contradict the findings by Hariyanto (2021) and Indrayana *et al.* (2020), although the authors focused on firms' capital. Similarly, the findings contradict rule five (5) of the Dow theory that the trading volume confirms the market trend because the findings indicate no influence on the market capital. The contradiction can be due to the fact that Hariyanto (2021) and Indrayana *et al.* (2020) focused on the contribution of volume to firms' capital and not on the overall stock market's capital.

The study hypothesised that share turnover does not influence the domestic market capitalisation of DSE. Table 5.2 indicates that an increase in equity turnover significantly influenced domestic market capitalisation with $t\text{-statistics}$ of 20.43 and $p\text{-value} = 0.000$ ($p < 0.05$). Hence, for a unit increase in share turnover, the domestic

market capitalisation increased by 6604 units. Thus, the null hypothesis that turnover does influence market capitalisation was not accepted. The sale of shares increases firms' capital, which leads to an overall positive contribution to domestic market capitalisation. The findings align with theoretical expectations and partly with Bonga and Sithole (2019) and Pavone (2019) that an increase in the sale of shares facilitates expansion due to capital accumulation.

Initially, the study suggested that the DSE's All Share Index does not influence DSE's domestic market capitalisation. As shown in Table 5.15, DSEI negatively influenced domestic market capitalisation as $p\text{-value} = 0.000$ ($p < 0.05$). Hence, the null hypothesis was not accepted, and the alternative hypothesis that the DSEI influences domestic market capitalisation was accepted at the 1% significant level. The influence was because the share price and domestic market capitalisation were linear. However, an increase in the unit of DSEI decreased the domestic market capitalisation by 19 units. The findings are due to the fact that as price increases, shareholders sell more for capital gain, which leads to high supply and low demand, resulting in a decline in the price and capital of the market. These findings relate to those by Eze (2019), Maxwell *et al.* (2018), and Idenyi *et al.* (2017), who identified a causal relationship between market capitalisation and share indices. Therefore, the findings also relate to the Dow theory because the price negatively affects the stock market as a reflection of market information (random walk theory).

5.5.3 Theoretical implications

Public participation in the stock market and DSE's All Share Index influenced the DSE domestic market capitalisation trend in line with the Dow theory. However, findings on the volume of shares traded at DSE contradict the theory. Apart from that, Dow theory suggests that change in stock market trends does not occur randomly, based on random price changes caused by information, but is triggered by signals indicating the change. The theory relates to the observed trends in all the indicators at DSE whereby signals such as policy change, new issues, or new listing in the market trigger the changes. However, although the volume of shares traded at DSE was a good indication, it contradicted the theory as it did not signal the general direction of the market trend. The contradiction can be due to the theory focusing more on the firms rather than the market

trend. The limited trading of shares among individual investors in Tanzania may not necessarily align with theoretical expectations.

5.6 Conclusion and Recommendations

5.6.1 Conclusion

The study found that stock market indicator trends are constant with major primary trends. Furthermore, individual participation, DSEI and equity turnover influence domestic market capitalisation, while volume does not influence domestic market capitalisation. Therefore, the study concludes that an increase in individual share acquisition increases the number of outstanding shares acquired per given price. However, individuals acquire a small number of shares targeting decreased price, which decreases the firm's and DSE's domestic market capitalisation. Regarding the volume, share transaction at DSE is in a small volume of equities with a given share price. As a result, the transaction cost of trading shares through brokers is the same for individual and institutional investors. Thus, the volume of shares transacted is highly affected and, as a result, does not influence domestic market capitalisation.

For turnover, although trading at DSE involves free float shares (tradable shares) and investors trade a limited number of them, they have a high impact on the domestic market capitalisation. As share price differs per company along with the number of shares traded, high trading companies facilitate increased turnover, influencing the firm's market capitalisation and the market. DSEI, among the key indicators of firms and market performance, shows that DSE is growing. It has increased listed companies and local and international investors, who bring high capital to the firms and DSE. As a result, DSEI influences domestic market capitalisation, although an increase in the supply of shares due to increased price negatively affects domestic market capitalisation.

5.6.2 Recommendations

From the above conclusion, the study recommends that DSE should encourage listing new firms through IPO and enhance public participation, which will, in turn, lead to increased domestic market capitalisation. Moreover, the study advises brokers to encourage local individual investors to acquire large volumes of shares from newly listed companies for future economic return.

Concerning turnover, potential individual investors such as employees (government and private), self-employed, and university graduates should be encouraged to acquire shares in large amounts to take advantage of the cost and, therefore, continue to increase the market capitalisation. Where necessary, DSE should establish joint share acquisition among individual investors, such as registered social and economic groups like SACCOS, so that they can acquire shares in large amounts, leading to increased share turnover. Likewise, listed companies should develop new products that ensure the firm's growth and sustainability and, therefore, attract investors, which triggers share price and share trading. The increase in trading companies and the price of listed shares can lead to an increased DSEI, indicating good performance of the DSE.

5.6.3 Limitations and areas for further studies

This paper was based on seven-year time series data for each category, which may limit the study's scope in both coverage and time. Thus, the study recommends further research using panel data for more than ten years to assess the stock market indicators' contributions to specific firms' capital formation, which can enhance long-term forecasting for policy implications. Furthermore, the study examined the trend of individual investors only, but future studies should consider including the speed and frequency of institutional and individual investors as institutional investors highly contribute to market capitalisation. The result can expand the body of knowledge by identifying key factors contributing to capital formation for the firm's growth and market. Similarly, knowing the speed and frequency can facilitate awareness of factors affecting investors' trading behaviour. Additionally, results can assist DSE in realising critical areas of improvement for the betterment of Tanzania's market and economic growth.

REFERENCES

- Abbas, A. O., Pei, Y. X., & Rui, Z. (2016). Impact of Stock Market on Economic Growth Evidence: Dar es Salaam Stock Exchange - Tanzania. *Journal of Finance and Accounting*, 4(6), 321-327.
- Abdel, M., & Al-Afeef, M. (2020). Factors Affecting Market Capitalisation: A Practical Study Ase 1978-2019. *International Journal of Scientific & Technology Research*, 9 (3), 7049–7053.

- Abina, A. P., & Lemea, M. G. (2019). Capital Market and Performance of Nigeria Economy (1985-2017). *International Journal of Innovative Finance and Economics Research*, 7(2), 51–66.
- Alderighi, S., & Gurrola-Perez, P. (2021). *Investor Types, Liquidity and Price Formation: Evidence from the Stock Exchange of Thailand*. World Federation of Exchange: Thailand, 32pp.
- Al-Mamun, M. A., et al. (2020). A Statistical Analysis on Forecasting Prices of Some Important Food Commodities in Bangladesh. *SQU Journal for Science*, 25(2), 130-137.
- Anderson, O.D. (1977). The Box-Jenkins Approach to Time Series Analysis. *Recherche Opérationnelle*, 11(1), 3-29.
- Babarinde, G. F., et al. (2020). Relationship Between Stock Market Indicators and Gross Capital Formation in Nigeria (1985-2018): A Long-Run Analysis. *Nigerian Journal of Accounting and Finance*, 12(1), 102-116.
- Blume, M. E., & Keim, D. B. (2012). Institutional Investors and Stock Market Liquidity: Trend and Relationship. *FTSE World Investment Forum* (p. 29). Jacobs Levy Equity Management Center for Quantitative Financial: Philadelphia.
- Bonga, W. G., & Sithole, R. (2019). Stock Market Development: Evidence from Market Capitalization Trends. *DRJ's Journal of Economics & Finance*, 4(3), 41-52.
- Brière, M., Lehalle, C. A., Nefedova, T. & Raboun, A. (2020). Stock Market Liquidity and the Trading Costs of Asset Pricing Anomalies. 2018 Quant Vision Summit. Université Paris-Dauphine, PSL Research University, Paris, France. pp. 1-36.
- Brown, N. C., et al. (2021): *News or Noise: Mobile Internet Technology and Stock Market Activity*, CFR Working Paper, No. 21-10, University of Cologne, Centre for Financial Research (CFR), Cologne.
- De La Cruz, A., A. Medina & Y. Tang (2019), "Owners of the World's Listed Companies". *OECD Capital Market Series*, Paris. 46pp. Accessed from www.oecd.org.
- DSE. (2016). *DSE Quarterly Update September, (71)*. DSE, Dar es Salaam, Tanzania.
- DSE. (2017). *DSE Quarterly Update June 2017, (74)*. DSE, Dar es Salaam, Tanzania.
- DSE. (2017). *DSE Quarterly Update March 2017, (73)*. DSE, Dar es Salaam, Tanzania.
- DSE. (2019). *DSE Quarterly Update, (4)*. DSE, Dar es Salaam, Tanzania.
- DSE. (2021). *Market Report*, Dar es Salaam, Tanzania.

- DSE (2023). About Major Achievements Made by the Exchange. Accessed from <https://www.dse.co.tz> on 20th September 2023.
- Eze, G. P. (2019). Measurement of Liquidity Effects on Stock Market Returns Using Market Capitalization Ratio-A Study of Zenith Bank Nigeria Plc. *International Journal of Economics and Financial Management*, 4(1), 1–17.
- Fichtner, J. (2020). The Rise of Institutional Investors. In *The Routledge International Handbook of Financialization*, Routledge. 265–275pp.
- Haji, I. S. & Jianguo, W. (2014). The Relationship of the Stock Market Price on Exchange Rate and Market Capitalisation: The Case Dar es Salaam Stock Exchange in Tanzania. *Research Journal of Finance and Accounting*, 5(10), 107–112.
- Hariyanto, D. (2021). Effect of Trading Volume, Market Capitalisation, Firm Size Explaining Return on Vultures. *Journal of Advanced Research in Economics and Administrative Sciences*, 2(3), 50–64.
- Hamilton, L. C.(2013). *Statistics with STATA*, 8th Ed. (488pp), Engage Learning, Boston, USA.
- Ibrahim, M. E. & El Haron, E. O. (2018). Accounting and Financial Literacy of Participants in UAE Financial Market. *Archives of Business Research*, 6(6), 85-103.
- Idenyi, O. S., Ifeyinwa, A. C., & Samuel, O. O. (2017). Capital Market Indicators and Economic Growth in Nigeria: An Autoregressive Distributed Lag (ARDL) Model. *Asian Journal of Economics, Business, and Accounting (AJEBA)*, 2(3), 1–16.
- Indrayana, K., Hamzah, D., & Aswan, A. (2020). The Effect of Net Income, Equity, Cash Dividend, Average Price and Volume on Corporate Market Capitalization. *Hasanuddin Journal of Applied Business and Entrepreneurship (HJABE)*,3(4), 117-135.
- Kamazima, B. K., & Omurwa, J. K. (2018). The Determinants of Emerging Financial Markets Development: A Case Study of the Dar es Salaam Stock Exchange, Tanzania. *European Journal of Business and Management*, 10(17), 92-108.
- Khandelwa, T. (2021). *Population Participating in Stock Market by Country*. Draft Red Herring Prospectus (DRHP): India.
- Kuvshinov, D., & Zimmermann, K. (2021). The Big Bang: Stock Market Capitalization in the Long Run. *Journal of Financial Economics*, 2, 1-26.

- Langat, P. C. & Rop, W. C. (2019). Relationship between Risk Aversion of Individual Investors and Stock Market Participation Decision among Secondary School Teachers from Nakuru County, Kenya. *International Journal of Scientific and Research Publications*, 9(9),477-485.
- Ma, R., Anderson, H. D., & Marshall, B. R. (2018). Stock Market Liquidity and Trading Activity: Is China Different? *International Review of Financial Analysis*, pp. 56, 32–51.
- Makridakis, S., & Hibon, M. (1997). ARMA Models and the Box-Jenkins Methodology. *Journal of Forecasting*, 16, 147-163.
- Maxwell, O. et al. (2018). An Empirical Assessment of the Impact of Nigerian All Share Index, Market Capitalization, and Number of Equities on Gross Domestic Product. *Open Journal of Statistics*, 8, 584–602.
- Malkiel, B. (1973). *A Random Walk Down Wall Street*. WW Norton Inc. New York.
- Mubarak, M. M., & Hamdan, A. M. (2016). The Impact of Corporate Governance on Market Capitalisation: Evidence from Bahrain Bourse. *Corporate Ownership and Control Journal*, 13(3), 121-130.
- Omodero, C. O. (2019). Capital Market Determinants and Market Capitalization in Nigeria. *International Journal of Financial Research*, 11 (1), 462–473.
- Pavone, P. (2019). Market Capitalisation and Financial Variables: Evidence from Italian Listed Companies. *International Journal of Academic Research Business and Social Sciences*, 9(3), 1356–1371.
- Peng, C., She, P. -W., & Lin, M. -K. (2022). Financial Literacy and Portfolio Diversity in China. *Journal of Family and Economic Issues*, 1-14.
- Radtke, J., Holstenkamp, L., Barnes, J., & Renn, O. (2018). *Concept, Format, and Methods of Participation: Theory and Practice*. Springer Publishing Company, USA.
- Robinson, K. (2020). *A New Vision for Europe Capital Markets- Final Report of the High-Level Forum on the Capital Market Union*. European Union: Ireland.
- Sarkar, A. K. & Sahu, T. N. (2018). Analysis of Investment Behaviour of Individual Investors of Stock Market: A Study in Selected District of West Bengal. *Pacific Business Review International*, 10 (7), 7–17.
- Shah, D., Shah, D., & Zulkernine, F. (2019). Stock Market Analysis: A Review and Taxonomy of Prediction Techniques. *International Journal of Financial Studies*, 7 (26), 1-22.

- Shamshir, M., Baig, M. J., & Mustafa, K. (2018). Evidence of Random Walk in Pakistan Stock Exchange: An Emerging Stock Market Study. *Journal of Economics Library*, 5(1), 103–117.
- Sheimo, M. D. (1998). *Cashing in on the Dow-Using Dow Theory to Trade and Determine Trends in Today's Markets*. CRC Press LLC: Florida, 70pp.
- Singh, Y. K. (2006). *Fundamental of Research Methodology and Statistics*. New Age International Publisher: New Delhi, 323 pp.
- Sivaramakrishnan, S., Srivastava, M., and Rastogi, A. (2017). Attitudinal Factors, Financial Literacy, and Stock Market Participation. *International Journal of Bank Marketing*. 35. 10.1108/IJBM-01-2016-0012.
- Thomsett, M. C. (2019). The Theory of Trends: Dow, EMH, and RMH in Context. In M. C. Thomsett, *Chapter 1: Practical Trend Analysis: Applying Signals and Indicators to Improve Trade Timing, 2nd Ed.* De Gruyter, Berlin: Boston pp. 1–24.
- UNDP, (2015). Sustainable Development Goals 2030, SDGs_Booklet. Accessed from <https://www.undp.org/content/dam/undp/library>.
- URT. (2016). *The United Republic Of Tanzania, The Finance Act, Bill Supplement No. 12*. Government Printers: Dar es Salaam, 34pp.
- Uzuke, C., Obiora-Ilouno, H., Eze, F., & Daniel, J. (2016). Timeseries Analysis of All Shares Index of Nigerian Stock Exchange: A Box-Jenkins Approach. *International Journal of Science*, 5 (6), 24-38.
- Vodacom Plc, (2017, July 8). *Announcement of the Results of Vodacom Tanzania PLC's Initial Public Offering of 560,000,100 Shares*. Retrieved on August 19, 2019, from Vodacom Website: <https://www.vodacom.co.tz>.
- Wan, G., & Hendrawaty, E. (2018). Stock Liquidity and Market Capitalization: Investment Challenges in Indonesian Capital Markets. *SSRG International Journal of Economics Management Studies (SSRG – IJEMS)*, 5(11), 11–20.
- WFE. (2013). *Statistics Definitions and Examples*. World Federation of Exchange, 30pp.
- Zheng, W., Li, B., Huang, Z., & Chen, L. (2022). Why Was There More Household Stock Market Participation during the COVID-19 Pandemic? *Finance Research Letters*, (46), 1-9pp.

CHAPTER SIX

6.0 Summary, Conclusion and Recommendations

6.1 Summary of the Key Findings

The performance of individuals' participation in the Dar es Salaam Stock Exchange (DSE) has been very low since the establishment of the DSE in 1998. The current study aimed to determine factors influencing individual investors' participation in DSE. Specifically, the study aimed at examining individual investors' awareness level and how it influences their participation; determining the influence of socio-economic factors on individual investors' stock market participation; evaluating the effect of individual investors' risk behaviour on share trading frequency; and analysing the impact of stock market indicators on the domestic market capitalisation of DSE.

The conceptual framework (CF) was developed based on a literature review and theories to attain the objectives (Section 1.7). From the conceptual framework, factors such as awareness of DSE, access to media, awareness creation, and demographic factors such as age, sex and education influenced individual participation. Regarding social factors, family participation, social interaction, and access to internet technologies influenced individual participation in the stock market. Additionally, economic factors, level of income, and investment preferences affected individuals' decision to participate. However, financial awareness was found to not influence individuals' decisions to invest. For risk behaviour variables, experience, the amount invested and share price impacted share trading frequency, while risk perception of individuals had no impact on the trading frequency of individual investors. Similarly, domestic market capitalisation was found to be influenced by turnover, individual participation and DSEI. However, the volume of equity shares traded did not impact the dependent variable (*See Appendix VI-Resultant Conceptual Framework*). A summary of the findings for each specific objective is shown in the subsequent sections.

6.1.1 Awareness and participation

The first specific objective of the study was to determine the level of awareness of individual investors at DSE and examine the relationship between individuals' awareness and participation in the stock market. The indicators used were established from the literature review and included awareness of DSE and its activities, awareness

creation seminars, awareness of investors' rights, financial awareness, access to media and demographic factors. The study used thematic analysis, descriptive statistics and a binary logistic regression model to analyse data. The model results indicated a Cox and Snell R-square of 0.480 and a Nagelkerke R-square of 0.639. Therefore, the awareness variables could predict individuals' participation by more than 50%.

Results showed that individuals' awareness of DSE and investors' rights was very low. Accordingly, awareness of DSE, awareness creation seminars, and access to media were found to have a high likelihood of influencing participation among individuals. Socio-demographic factors such as possession of higher education level (degree), age, and sex are likely to influence individual participation as DSE as $p\text{-value} < 0.05$. Well-educated males of working age are more likely to invest in the stock market. However, financial awareness, marital status, and low level of education did not influence individuals' participation. The limited influence of financial awareness is due to the fact that individuals acquire shares through brokers after accessing financial advice from analysts and stock brokers. Similarly, a low level of education limits awareness of investments, benefits, and opportunities as a result of limited knowledge of resource allocation.

6.1.2 Socio-economic factors and individuals' participation

The second objective was to analyse the socio-economic factors that clarify individual decisions to participate in DSE. The objective included factors elicited from the literature review and theories, including family participation, social interaction, income, preferred investment (bond, mutual fund, non-current assets) and internet technologies. Socio-demographic factors such as age, sex, marital status, and education level were also included. The variables in the objective were analysed using descriptive statistics and a binary logistic regression model. The latter indicated an r-square of 0.571, indicating that socio-economic factors predicted participation by about 60%.

Regression results indicated that age, social interactions, access to the internet, family participation and investment preference (in bonds and non-current assets) had a high likelihood of influencing individuals' investment decisions as the $p\text{-value}$ was < 0.05 . Hence, individuals who invest in bonds and fixed assets but interact online or in person may be interested in acquiring shares. However, factors like investment in a mutual fund, income, education, and marital status had no likelihood of influencing the

participation of individuals. Mutual funds have low influence because they are a group investment rather than a direct risky investment such as share acquisition. Similarly, individuals of any working age with different income levels have similar opportunities to invest in the stock market, so it is unlikely to influence an individual to invest. Generally, social factors such as social interaction and family participation in the stock market attract prospective investors to participate in the stock market.

6.1.3 Individual investors' risk behaviour and share trading frequency

The third objective was to examine how the risk behaviour of individual investors impacts their trading frequency of shares at DSE. The risk behaviour was measured with different variables, including share price consideration, trading experience, amount of funds invested in shares and individuals' risk perception towards share business. The study employed multinomial logistic regression to examine the relationship with the results; an r-square of 0.266 was found, indicating moderate (27%) explanatory power of variables towards trading frequency.

The regression results revealed that share price consideration, trading experience, and amount of funds invested in shares influenced the trading frequency at DSE, as the p-value was < 0.05 . However, individuals' risk perception did not influence individuals trading frequency of shares. Generally, the results indicated that the risk perception of individuals who trade shares at DSE had no impact on trading; rather, the issues of the number of funds, price and trading experience are key in trading. The influence is because individuals' trading frequency is driven by price changes, thus targeting capital gain. Risk does not influence individual investors because they are unfamiliar with risk analysis factors, and their primary key indicator to attaining targeted return is share price. Furthermore, experience in trading share indicates knowledge of the market and strategies to trade, thus influencing trading frequency.

6.1.4 Stock market indicators and domestic market capitalisation

Through the fourth specific objective, the study aimed to analyse the trend of stock market indicators based on time series monthly data from 2014 to 2020. The study further analysed the impact of stock market indicators on the domestic market capitalisation of DSE. The variables studied included domestic market capitalisation, individuals' participation trend, share volume, share turnover, and DSE's All Share Index (DSEI). In analysing the trend of variables, the study used the ARMA model. In

showing the impact of indicators on domestic market capitalisation, the ARMAX model was applied.

ARMA results indicated the stationarity of the indicators and facilitated the prediction of the future trend of stock market indicators. The findings indicated that the change in indicators was associated with changes in signals, such as policy change, the introduction of new shares, and price changes. Similarly, ARMAX results showed that the trend of individual participation, turnover, and DSEI significantly influenced domestic market capitalisation at DSE as $p\text{-value} < 0.001$. Individual participation increases the number of outstanding shares and, therefore, affects market capitalisation. Similarly, an increase in DSEI indicates growth in the market, thus attracting local and international investors, which brings high capital to DSE. However, the volume of shares traded did not impact domestic market capitalisation because the number of shares traded at DSE is very small and includes a limited number of traders.

6.2 Conclusions

6.2.1 Awareness and Participation

Individuals' awareness significantly influences individual participation, indicating the requirement for awareness seminars to open the minds of prospective investors to new opportunities available in the stock market. Therefore, individuals increase their interest in investing at DSE when they become aware of the DSE and share trading business. Thus, awareness of share trading increases knowledge of the type of shares to trade, the type of company to invest in, knowledge of DSE and its activities, risk and trading decisions. Furthermore, using media such as television, newspaper, social media, digital media, and DSE mobile trading platforms enhances knowledge of DSE activities and shares trading with individuals. Therefore, it is concluded that individuals who are aware of DSE and share trading are more potential participants in the stock market than those who are less aware.

6.2.2 Socio-economic factors and individual participation

Individuals with high social interaction and family members participating in the stock market share opinions and experiences about investing in shares when they socialise with friends and families. As a result, social interaction through groups and media (traditionally and through internet technologies) enhances individuals' decisions to

invest in the stock market. Similarly, investing in bonds and non-current assets requires a long-term investment of resources for required return and therefore influences diversification of resources into share acquisition. Thus, preference for long-term investments indicates risk-taking behaviour, thus increasing the probability of higher reward, hence increasing the likelihood of individuals participating in the stock market.

6.2.3 Individual investors' risk behaviour and share trading frequency

Risk behaviour towards share business varies among individual investors, but they are mostly risk-averse at DSE. The individuals trading shares take advantage of price change and invest the required amount in attaining capital gain. Thus, to attain expected profit by individuals, price is their primary indicator as they have limited knowledge of risk analysis. Additionally, experienced traders could predict outcomes and risks associated with share trading, thus deciding the price and volume of shares to trade and influencing trading frequency. Therefore, with given experience, individual investors allocate a reasonable amount at a given price, targeting positive returns.

6.2.4 Stock market indicators and domestic market capitalisation

Individual investors acquire a small number of shares, which increases the number of outstanding shares at a low rate; as a result, it negatively affects the domestic market capitalisation. Similarly, an increase in the DSEI indicates the market's good performance and attracts the trading of shares. High trading of company shares facilitates increased turnover, influencing domestic market capitalisation. On the other hand, the limited increase in the volume of shares traded at DSE did not indicate a future increase in trading; hence, it does not influence domestic market capitalisation.

6.3 Recommendations

6.3.1 Recommendation to DSE

As a mediator between buyers and sellers aiming at increasing firms' capital, DSE should continuously increase training and awareness seminars to the public, especially the young working generation, university graduates and social groups who are considered potential investors. Therefore, seminars should be disseminated to the public in regions other than Dar es Salaam and provided at a low cost to attract participants. Seminars related to the benefits of investing, share trading seminars, and risk assessment in trading shares are crucial.

Additionally, publicising more on media use in trading shares, such as using the DSE mobile trading platform and collaborating with mobile phone service providers to disseminate awareness information to the public, should be encouraged. Media and mobile phones can disseminate information related to trading activities to the general public in different parts of the country. Different messages explaining share trading and the benefits of investing can be distributed to individuals using media to encourage participation.

Apart from seminars and media, DSE should consider the possibilities of being available in many parts of the country, including an agency model to reach out to many individuals and, thus, raise participation rates broadly. The presence of the market in other parts of the country may increase awareness to the public by indicating what it is and its main role in raising firms' capital and providing investment opportunities to the public.

Furthermore, to increase public participation and share turnover, listing new firms should be encouraged, leading to the issue of new shares through IPO, thus facilitating an increase in individual participation. An increase in listing firms and public participation increases market capitalisation, leading to market growth and liquidity.

Moreover, as the share index influences domestic market capitalisation, listed companies should be encouraged to develop new strategies that attract investors and trigger share prices. An increase in trading companies and the price of listed shares can lead to an increased DSEI, indicating the market's good performance and attracting more investment.

6.3.2 Recommendations to CMSA

As a regulator, it is recommended to implement policies that promote training and encourage public participation in universities that teach business and economics courses in other regions different from Dar es Salam. These policies and programmes that aim to increase stock market knowledge among the youth should be mandatory in business studies for individuals and the country's economic growth. In addition, the regulator should oversee and regulate the cost of seminars that aim to educate prospective investors about the stock market. Cost reduction will help to attract more public

participation in stock market awareness seminars and improve overall awareness of the stock market.

Due to the strong influence of social groups and social interaction in participation in the stock market, it is recommended to expand group participation in the stock market by encouraging other registered social groups to acquire shares in the market on behalf of its participants. Through social groups, individuals build trust among themselves and operate their activities as a group, providing investment opportunities for potential investors who fear investing in the stock market individually.

6.3.3 Recommendations to government and policymakers

To ensure that funds contributed by members who are prospective investors are being managed and monitored effectively, policymakers are advised to strengthen their supervision of social and economic groups. Although share acquisition through registered financial groups has been accepted, policymakers should prioritize protecting individual savings within these groups for future investment opportunities. Additionally, registered groups that invest in shares should be required to maintain a minimum reserve with regulatory authorities. The reserve will help reduce the risk of losing shareholders' funds invested in shares. By implementing these measures, policymakers can promote greater confidence in the investment process for individuals and groups alike.

In addition, the government can introduce various investment options catering to small investors with different income levels. The options would enable a wider range of individuals to become owners of various government projects. For example, new shares could be created to attract public participation in owning sports clubs such as Simba and Yanga. Involving individuals would allow them to become part-owners of these clubs. Additionally, the government could introduce the concept of being shareholders in municipal development projects such as constructing investment centres, city malls, and markets. The development projects would help to encourage public participation in such projects and give individuals a sense of ownership in the development of their communities. By expanding investment opportunities in this way, the government can foster a greater sense of civic engagement and investment in the country's future.

Furthermore, it is important to introduce policies and strategies that focus on attracting local individual investors. The updated Tanzania Investment Act of 2022 should also be revised to attract and benefit domestic investors of DSE. The investment policies and regulations should create an attractive environment that supports and promotes domestic investment in the stock market and not only in establishing business ventures. The promotion will encourage more individuals to invest in their local economy and contribute to its growth. By prioritizing domestic investment, Tanzania can establish a more sustainable and resilient economy that benefits all its citizens.

6.3.4 Recommendations to Individual Investors

It is recommended that individual investors use internet technologies to learn about investors' rights and protection policies. With advanced technology and online availability of different investment policies which protect investors, individuals can access knowledge easily and participate fully in the invested companies. Individual investors who are risk-averse and fear trade shares are encouraged to consider investing in low-risk assets such as government or corporate bonds. They should also invest in mutual funds like collective schemes such as the Umoja Unit Trust Fund.

6.4 Contributions of the Study

6.4.1 Theoretical contribution

The current study used different theories to explain its four specific objectives and establish its key indicators. Concerning self-awareness, the theory emphasizes the role of introspection and self-reflection in decision-making, which helps individuals identify their biases and make more rational choices. The findings showed that DSE-aware individuals were found to make decisions to invest in shares aligned with the self-awareness theory. Contrary to the self-awareness theory, the results showed that individual investors who were unaware of DSE and their rights as investors exhibited characteristics in line with group influence. The contradiction is because some participants invested in shares through learning from friends and family members, others through peer groups without knowledge of shares trading. Therefore, the study contributes to self-awareness in the sense that, for an individual to be self-aware, one requires information accessibility. An individual also requires awareness creation seminars and awareness of investment opportunities to make proper investment decisions.

The socio-economic theory views socio-economics as the intermix of economic and non-economic activities with normative, cultural, structural and environmental factors. It further acknowledges the use of social groups and friends to motivate investment. The study findings indicated that participants were part of social groups, and those with relatives and friends who owned shares were motivated to invest in the stock market, which relates to the socio-economic theory. Hence, the study contributes to the theory by showing that share trading is an interactional process involving social (social interaction and groups) and economic factors. However, the inclusion of modern technologies and online social groups should be considered in improving the theories because it relate to current advanced technologies worldwide and facilitates the online trading of shares.

Additionally, individual investors' risk-averse behaviour relates to the prospect theory because they trade shares when they are certain that share prices generate a positive return, expecting a positive outcome. Thus, individuals focus on gains and losses by considering price as a key indicator of trading as it signals the possibility of a return on their investment. Contrary to the prospect theory, findings indicated risk perception does not influence the trading frequency of individual investors because trading involves a small number of participants who are risk-takers. Apart from that, experience in investment and the overconfidence of individual investors recount the behavioural finance theory, not the prospect theory. Thus, the study contributes to the prospect theory with an argument that individuals' share trading is not affected by how the individuals perceive risk and price only but also includes behavioural factors such as accumulated experience.

Moreover, public participation in the stock market and the DSE All Share Index influences the DSE domestic market capitalisation trend aligned with the Dow theory. The theory suggests that change in stock market trends does not occur randomly based on random price changes caused by information but is triggered by signals indicating the change. The theory relates to the observed trends in all the indicators at DSE whereby signals such as policy change, new issues, or new listings in the market were found to trigger the changes. However, although the volume of shares traded at DSE is a good indication, it contradicts the Dow theory as it does not signal the general direction of the market trend. The contradiction can be because the theory focuses more on firms

than the total market trend. Apart from that, the unsteady increase in the trading volume of shares over the past period reduced investors' confidence. Therefore, it did not influence buying or selling of shares. Moreover, the trading of shares in Tanzania is in small volumes; only 2% of the outstanding shares are traded at DSE, thus having little impact on the overall market trend in domestic market capitalisation. Therefore, the study adds that the Dow theory should not only focus on industrial performance but also the market trends as the market may have unsteady trading, such as DSE and therefore may not have any impact on the market.

6.4.2 Contribution to the body of literature

The current study has a vital contribution to individual involvement in the stock market, to which Tanzanian scholars have given less attention. The stock market highly contributes to firms' capital generation and shareholder's income, which highly contributes to the country's economic development. Although institutional investors highly contribute to the firms and market funds, individual investors play a vital role. Therefore, the study documents that individual participation contributes to individuals' financial sufficiency, firm capital generation and market liquidity. Hence, the results from this study fill in the literature gap by addressing key determinants of individuals' participation and suggesting different measures that, when implemented by different organs, may motivate an increased number of individuals to participate at DSE.

Additionally, the study included non-participants, which enabled the identification of barriers to stock market entry for potential investors, such as lack of knowledge or understanding of the market, limited access to investment opportunities, or risk aversion. The inclusion of non-investors in the study provided insights into the perceptions and attitudes towards the stock market among individuals who choose not to invest. Understanding the reasons behind these attitudes helps policymakers and market stakeholders develop strategies to increase awareness and promote investment opportunities in the stock market.

Moreover, previous studies mainly focused on economic and demographic factors influencing participation. In Tanzania, studies related to determinants of individual investors were mostly conducted a long time ago, and the current ones focus on different aspects, such as demographic factors, return, income and firm's performance in

influencing participation. The current study combined aspects of economic, social, financial and awareness factors. The study included family participation, social interaction, awareness, experience, access to internet technologies and awareness of investors' rights, which were not captured by previous studies. By combining different factors, the study obtained a more nuanced and accurate understanding of what motivates individuals to participate in the stock market and which barriers prevent others from doing so. Furthermore, in this study, the inclusion of the trend analysis of individual participation and frequency of individual trading indicated patterns and trends of individuals' investment behaviour in the stock market, which highly contributes to the literature.

6.4.3 Policy contribution

The study results indicate low individual participation, which negatively affects the DSE domestic market capitalisation; thus, concerted efforts are required to improve their participation, which will improve the market capital. Therefore, the Tanzania Investment Act of 2022 and the reviewed investment policy of 2021 should attract and benefit DSE individual investors, especially the local investors, to improve their well-being and eventually improve the liquidity of the market.

Apart from that, the study advises the policymakers, DSE and CMSA to not only focus on institutional investors as key actors in the stock market and initiate policies to ensure the intensification of awareness-raising seminars and outreach activities to different regions of Tanzania. Thus, DSE can provide services virtually or through representatives to influence individual participation.

In the same vein, DSE should establish policies facilitating partnerships with telecommunication companies for timely information dissemination. Therefore, DSE and management of the listed companies should invest in modern internet technologies, social media and other digital platforms for marketing their product and increasing investors' awareness, targeting the potential investors from sprouting young business people and the growing middle class.

6.4.4 Methodological contribution

This study used primary and secondary data to assess the factors influencing investors' participation in the stock market and analyse the trend of participation, volume and

turnover of equity shares affecting domestic market capitalisation. Combining primary and secondary data provides patterns on the historical performance of individual participants and the equity market, which can be linked with current data on the factors affecting their participation, leading to proper policy formulation.

Secondly, in terms of methodology, some scholars use descriptive statistics in their analysis, and others only base their results on multiple regression. The current study combined descriptive statistics and different tests in responding to the study questions, such as binary logistic regression, multinomial logistic regression and ARMAX model, to analyse data for the generalisation of the study findings. The use of multinomial regression enables a comparison of reasons for trading for an individual who targets dividends and others who seek capital gain. Thus, enables knowledge of facilitating and hindering factors to trade to trade at DSE. Furthermore, the use of ARMA and ARMAX methods helps to identify the patterns in individuals' investment behaviour, enabling informed decisions on share trading and reducing the risk of losses for individuals by examining the trends of market indicators.

Thus, triangulating the data using different models while supported with qualitative data analysis provided a more detailed understanding of how different factors influence or hinder individual participation in the stock market over time, leading to proper policy and managerial implications.

6.5 Limitations of the Study

One of the study's limitations was using only individuals (direct participants and non-participants) in analysing the factors influencing individual participation in DSE. Including institutional investors and indirect participants (who invested through mutual funds) could potentially impact risk factors and contribute to domestic market capitalisation. However, focusing on individual participants only provided a deep understanding of individuals' perceptions towards the stock market. Furthermore, it enables knowledge of specific factors facilitating or hindering individual participation in the stock market, which could be overlooked as studies and the stock markets consider institutional investors as key contributors to stock market capitalisation. Therefore, the study focused solely on direct individual investors while also considering and

encompassing various social, economic, technological, and cultural aspects, such as family participation and their influence on stock market participation.

Additionally, the study examined the trend of direct individual participants, volume, turnover, DSEI, and domestic market capitalisation for only seven years; thus, forecasting for many years was impossible. However, the study used monthly data for each indicator to attain the depth of the indicators' contribution to domestic market capitalisation. Expanding research on individual participation in DSE and contribution to domestic market capitalisation facilitates better informed decision-making by DSE and policymakers to enable adequate formulation of economic and financial policies.

6.6 Areas for Further Research

This study assessed determinants of individual investors' participation in the stock market using mixed methods and focused on individuals (participants and non-participants) located in Dar es Salaam only. Future studies should focus on institutional and individual investors in mutual funds located in different parts of the country. Moreover, as the study examined risk behaviour among individuals, further research should consider the perception of brokers towards shares trading of individual and institutional investors to facilitate the formation of DSE policies and regulations. Assessment of factors affecting individual and institutional trading behaviour can broaden the perspective and improve trading at DSE.

This study used seven years of monthly data for each stock market indicator in stock market capitalisation trend, which may limit the study's scope in coverage and time. Future studies may use daily panel data for a given period and assess the contributions of stock market indicators to the specific capital formation of firms. The aim is to examine variables affecting the performance of firms, not the whole market, for the economic growth of firms and Tanzania at large.

APPENDICES

Appendix I: Questionnaire

My name is Christina Alfred Mwakabumbe, a PhD student at Moshi Co-operative University. I prepared this questionnaire to collect information on determinants of individual investors' participation in the stock market in Tanzania. The main objective of this study is to assess the level of awareness of individuals along with social, economic, demographic and risk factors that affect individuals' direct participation in the stock market. To achieve the objectives, I kindly request you to assist me by filling out this questionnaire. As a researcher, I assure you that the information collected will only be used for academic purposes. Thank you for your time.

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GENERAL INFORMATION (For participants and non-participants)

PART I: PRELIMINARY INFORMATION

S/No	Item	Description
1.	Questionnaire No.	
2.	Residence (Region)	
3.	District Name	
4.	Respondent's contacts (option)	

PART II: DEMOGRAPHIC INFORMATION (Binary Regression Model)

1. Age (Years) _____

2. Sex: Male
 Female

3. Marital Status: Single Married
Divorced Widow/widower

4. Religion: Christianity Islam Hinduism
Buddhism Judaism
Confucianism Others

.....
5. Health: Excellent Very Good Good Average Poor

6. Education level:

- Non-formal education Primary Ordinary Secondary
 Advanced Secondary Vocational training Diploma
 Degree Postgraduate degree

PART III: SOCIO-ECONOMIC FACTORS

7. What is the source of your income?

- Government employee Private sector employee Self-employed
 Company owner School owner Farming
 Old age pension fund Family support Dividend/capital gain
 Own small Business Others (*Specify*) _____

If employed, please specify the institution _____

8. Income per annum? (Please **tick** the appropriate answer.)

S/N	Amount (TZS)	Tick <input type="checkbox"/>
1.	50,000 - 500,000	
2.	500,000 - 1,000,000	
3.	1,000,000 - 5,000,000	
4.	5,000,000 - 10,000,000	
5.	10,000,000 - 30,000,000	
6.	30,000,000- 50,000,000	
7.	50,000,000 – 100,000,000	
8.	> 100,000,000	

9. Do you have a friend, family member or co-worker who owns shares?

- i. Yes ii. No

10. From selected forms of savings, please select any form of savings you or your family use;

- i. Savings accounts ii. Current account iii. Fixed deposit account
 iv. Savings in Co-operative Societies v. VICOBA
 vi. Mobile phone savings vii. Home Savings

11. From selected forms of investments, please select any form of investment which you or your family use;

- i. Government bonds ii. Corporate bonds iii. Mutual Funds(UTT)
 iv. Shares v. Fixed assets (houses, farms, machines, etc.)
 vi. Others (Please mention) _____

12. Are you involved in any social group or saving association? If Yes, mention it

- i. Yes ii. No
 a) VICOBA b) Women social group c) Men social group
 d) Sports clubs e) Regional groups f) WhatsApp social groups

13. How often do you have access to newspapers, television, and social media?

- Very often Less Often Often/Sometimes Not at all

PART IV: LEVEL OF AWARENESS OF INDIVIDUAL INVESTOR

14. How do you know the Dar es Salaam Stock Exchange?

- i. Unknown ii. Barely known iii. Known
- iv. Well-known v. Very well known

15. Cycle any activities performed by DSE that you are aware of

- i. Provision of information iv. Listing of companies
- ii. Mobilisation of resources v. Security trading
- iii. Training/awareness creation vi. Supervision of listed companies

16. Do you have any knowledge of accounting and finance?

- i) Yes ii) No

If yes, cycle the type of financial knowledge you have.

- i. Financial analysis ii. Financial accounting iii. Financial reporting
- iv. Budgeting and forecasting v. Managerial accounting

17. Did you receive any training or awareness seminars related to the stock market and share ownership? If Yes, please explain:

.....

.....

.....

In measuring how individuals perceive risk, a table below has been prepared. Please select your answer by putting a **tick** in the box to indicate your views on risk and return in the stock market business. The standard ‘5-Point Likert Scale’ will be used as defined below:

1	2	3	4	5
Strongly disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly agree (SA)

S	Statements for respondents rating the scale provided	SD	D	N	A	SA
1.	I invest in different types of assets to reduce the risk associated with them.					
2.	With limited cash, an investor prefers to invest in safer assets than risky ones.					
3.	Investing in fixed assets is preferred because it is less risky.					
4.	Young people invest in highly risky assets.					
5.	Older people who invest in safer assets					
6.	I always prefer risky businesses because they are associated with high returns.					

If you are a shareholder, please proceed with the coming questions, but if you are not a shareholder, skip to page 8.

18. From which company did you buy your shares/bonds _____

19. For how long have you been trading in the stock market? (in years) _____

20. Cycle any benefit or challenge you face by holding or trading shares.

Benefits

- i. High return
- ii. Safe investment
- iii. Increases in share price
- iv. Can be used as collateral
- v. Can be transferred

Challenges

- i. High transaction costs
- ii. Risky investment
- iii. Require high know
- iv. Price changes frequently

Others.....

21. How do you get information about your company's shares or bonds?

- i. Through brokers
- ii. From the company
- iii. Internet
- iv. Media
- v. Friends
- vi. DSE
- vii. Mobile phone
- viii. Others (Specify) _____

22. Do you use mobile DSE applications to access information about the stock market?

- Always Sometimes Not at all I don't know it.

23. What do you consider before trading your securities?

- i. Market Price
- ii. Time/Maturity
- iii. Advice from friends
- iv. Economic changes
- v. Performance of the company
- vi. I do not trade

24. As a shareholder, how do you participate in your company?

- i. Little or no influence on activities
- ii. Informed participation
- iii. Consulted but not informed
- iv. Democratic vote
- v. Make a decision
- vi. Help implement decision

PART V: RISK PERCEPTION

25. How many shares/bonds do you own? (in TZS) _____

26. How often do you trade your shares per year?

- Very often Often Rarely Not at all

Please mention how many times _____

27. How often do you buy your shares per year?

- Very often Often Rarely Not at all

Please mention how many times _____

28. How often do you sell your shares per year?

- Very often Often Rarely Not at all

Please mention how many times _____

In measuring how individuals perceive risk, a table below has been prepared. Please select your answer by putting a **tick** in the box to indicate your views on risk and return in the stock market business. The standard '5-Point Likert Scale' will be used as defined below:

1	2	3	4	5
Strongly disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly agree (SA)

S	Statements for respondents rating the scale provided	SD	D	N	A	SA
1.	Bonds have low risk and, therefore, are more preferred.					
2.	Shareholding through mutual funds has a low risk.					
3.	I prefer companies which provide high dividend returns because they will have fewer associated risks.					
4.	I buy my shares using brokers because they advise the best, safer assets for me.					
5.	Low transaction costs related to trading shares, associated with less risk					
6.	DSE regulates transaction costs incurred by individuals and, therefore, reduces risk					

PART VI: DEPENDENT VARIABLE

Individuals participate in the stock market by acquiring shares and holding them for dividends or continuous buying and selling, and others do not buy at all. '5-Point Likert Scale' will be used, as shown in the table below. Please, select your answer by putting a **tick** in the box to indicate your views on the type of individuals' participation in the stock market.

1	2	3	4	5
Strongly disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly agree (SA)

S	Statements for respondents rating the scale provided	SD	D	N	A	SA
1.	I prefer buying shares and holding them for annual returns (dividends).					
2.	As an investor, I buy and sell shares continuously, depending on the price for capital gain.					
3.	I do not buy shares or bonds because the return is minimal compared to other assets.					
4.	I have been trading in the stock market for so many years.					

For non-participants, please answer the following questions.

29. Cycle any benefit or challenge that you think you can face if you decide to invest in shares.

Benefits

- i. High return
- ii. Safe investment
- iii. Increases in share price
- iv. Can be used as collateral
- v. Can be transferred

Challenges

- i. High transaction costs
- ii. Risky investment
- iii. Require high knowledge
- iv. Price changes frequently
- v. Requires high income

Others.....

30. Would you have invested in stocks and bonds if you had enough financial resources? Why?

- i. Yes
- ii. No

- a) It is easy to trade
- b) High return
- c) It is safe

31. Are there any reasons why you are not trading shares and bonds? If Yes, please state

- i. Yes
- ii. No

- a) Time constraints
- b) Limited knowledge
- c) Limited fund
- d) Other reasons _____

Appendix II: Key Informants Interview Guide

**Determinants of Stock Market Participation among Individual Investors in
Tanzania**

Interview Guide for Key Informants of DSE

Researcher: Christina A. Mwakabumbe

University: Moshi Co-operative University

Contacts: +255 767 863 583 /+255 625 918 164

Email: calfred2011@gmail.com / christinaalfred82@yahoo.com

Date of Interview

Organisation

1. How do you define individuals' participation in the stock market?
2. How do individuals engage in the stock market?
3. What kind of security do most individual investors own?
4. What is the percentage of individuals' participation in the stock market?
5. Compared to previous years, are individual investors increasing or decreasing?
6. What do you think affects individuals' participation in the stock market?
7. How do you think individual participants term their participation in the stock market?
8. What are the challenges faced by DSE based on individual participation?
9. What can be done to motivate individuals to participate at DSE?
10. What factors do individuals consider before trading shares?

Appendix III: Paper 3 Appendices

Assumptions of MLR and Model fit tests

i) Correlation test results

		Years of trading (Experience)	Amount Invested	Other assets
Years of trading (experience)	Pearson Correlation	1	0.417**	0.058
	Sig. (2-tailed)		0.000	0.418
Amount Invested	Pearson Correlation	0.417**	1	-0.095
	Sig. (2-tailed)	0.000		0.180
Other Investments	Pearson Correlation	0.058	-0.095	1
	Sig. (2-tailed)	0.418	0.180	
	N	200	200	200

No correlation = No multicollinearity

ii) Multicollinearity results

Variable	Unstandardised Coeff.		Standardised Coeff.			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	2.392	0.587		4.072	0.000		
Years of trading (experience)	-0.010	0.014	-0.058	-0.745	0.457	0.817	1.224
Amount invested	0.003	0.000	0.071	0.906	0.366	0.812	1.231
Other investments	-0.031	0.015	-0.148	-2.078	0.039	0.980	1.021

iii) Model Fit Results

Model Fitting Information

Model	Model Fitting Criteria		Likelihood Ratio Tests		Sig.
	-2 Log-Likelihood		Chi-Square	df	
Intercept Only	187.363				
Final	125.644		61.718	16	0.000

iv) The goodness of- fit test results

Goodness-of-Fit

	Chi-Square	Df	Sig.
Pearson	67.933	68	0.479
Deviance	69.613	68	0.423

v) Pseudo R-Square test

Pseudo R-Square

Cox and Snell	0.266
Nagelkerke	0.318
McFadden	0.172

vi) Reliability Statistics

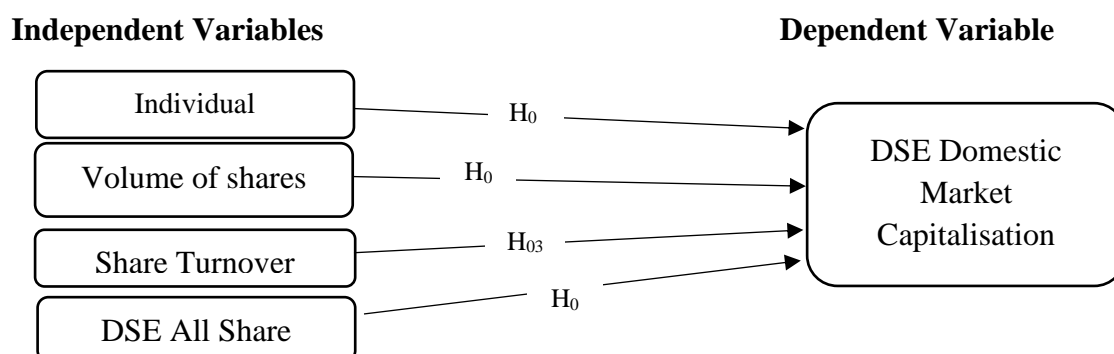
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.809	0.810	14

vii) Other investments

Type of Security	Per cent
Own Government bonds	50
I invest in mutual funds	41
I invested in non-current assets	9

Appendix IV: Paper 4 Appendices

CONCEPTUAL FRAMEWORK

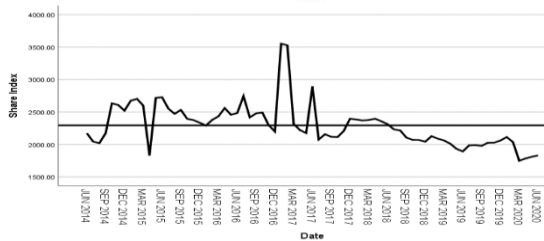
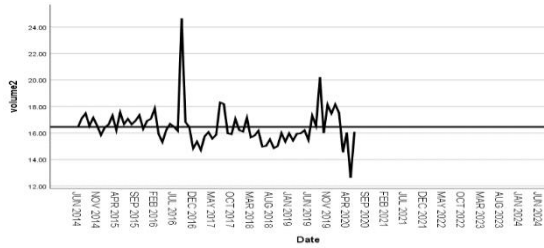
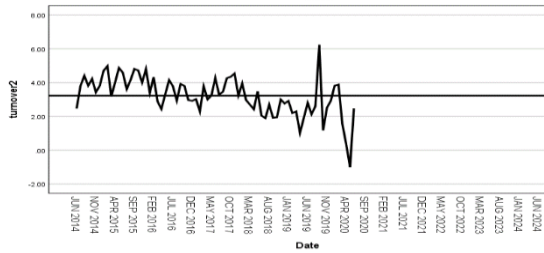
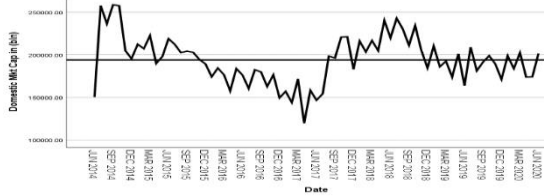
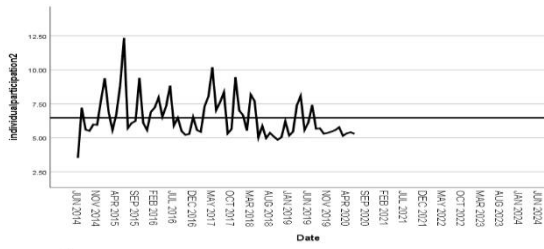


I. Summary of Mean Values for each variable

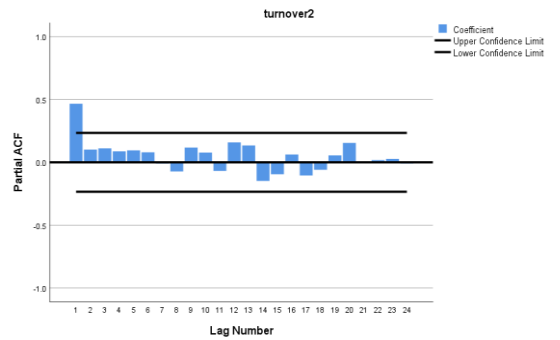
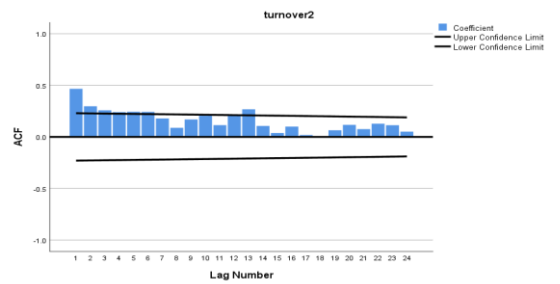
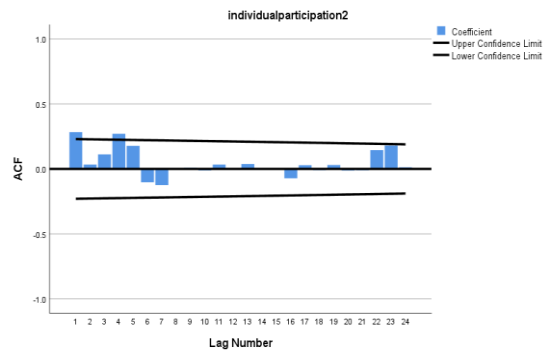
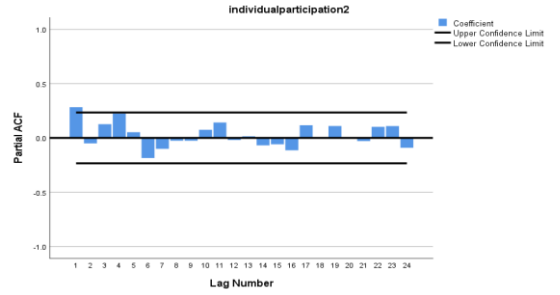
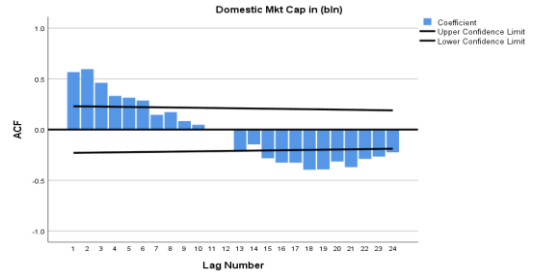
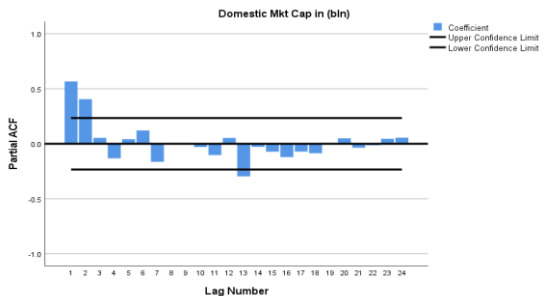
Variable	Obs	Mean	Std. Dev.	Min	Max
Individual Participant	73	4900.521	3949.153	34	26,458
Domestic Mkt Cap (bln)	73	194036.13	27872.413	119934.4	258643.92
Turnover (bln)	73	44.911	64.713	37	505.59
Volume (Million)	73	715	588.3	307984	502.9
All share index	73	2293.708	333.304	1747.7	3549.44

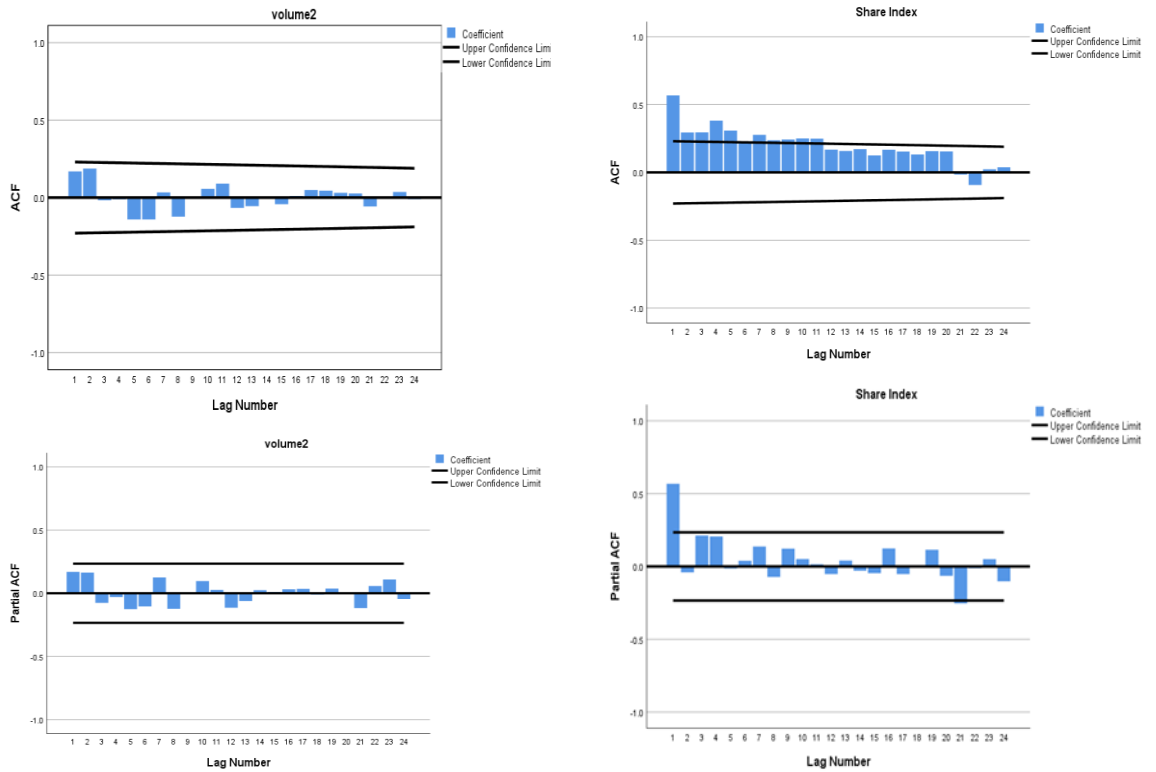
Source: Secondary data

III: Stationarity test



ACF and PACF





VI: Model Identification

Table 1: Normalised BIC

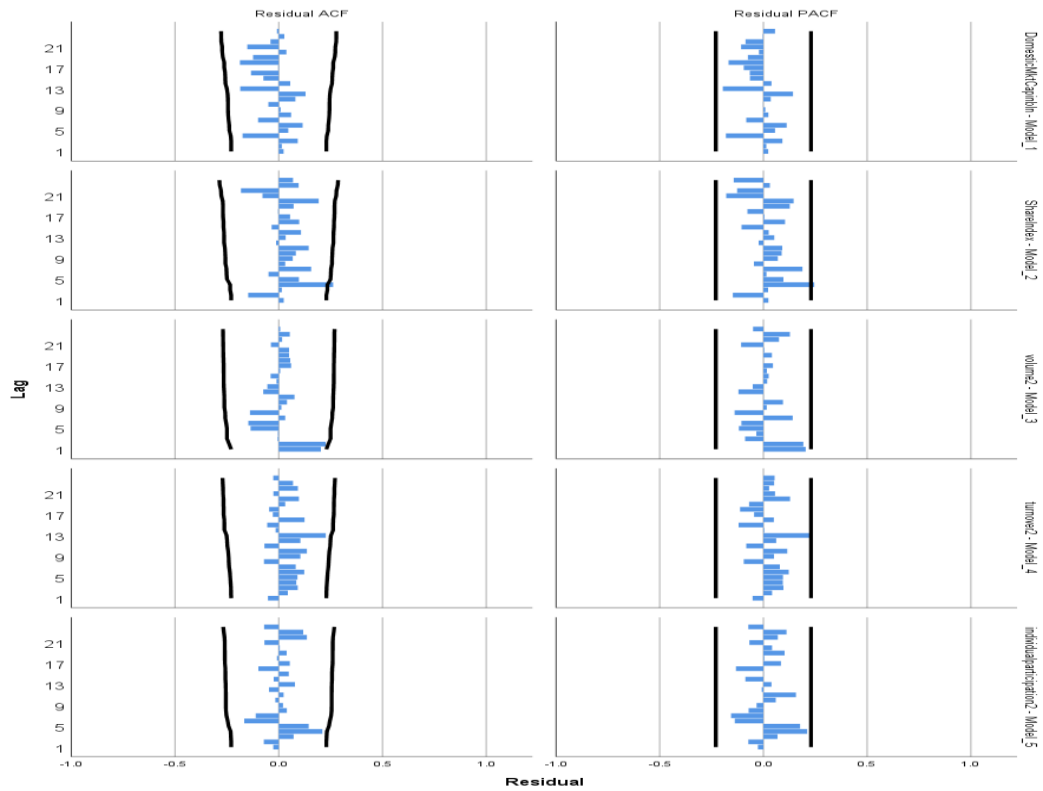
Model	Model Fit Statistics		
	R-squared	Normalised BIC	Sig.
Domestic Mkt Cap-Model_1	0.401	20.163	0.388
Share Index-Model_2	0.331	11.347	0.554
Volume 2- Model_3	0.013	0.793	0.711
Turnover 2-Model_4	0.219	0.181	0.584
Individual participation 2-Model_5	0.089	0.831	0.811

Table 2: Model Description (Best Fit)

Model Description	Model Type
Domestic Mkt Cap in (bln)	ARIMA (2,0,0) (0,0,0)
Share Index	ARIMA (1,0,0) (0,0,0)
Volume 2	ARIMA (0,0,0) (0,0,0)
Turnover 2	ARIMA (1,0,0) (0,0,0)
Individual participation 2	ARIMA (1,0,0) (0,0,0)

Table 3: Parameter estimation

ARIMA Model Parameters			Estimate	SE	t	Sig.
Domestic Mkt Cap	No	Constant	193722.730	9039.370	21.431	0.000
	Transformation	AR Lag 1	0.282	0.103	2.725	0.008
		Lag 2	0.460	0.106	4.324	0.000
Share Index	No	Constant	2283.201	74.517	30.640	0.000
	Transformation	AR Lag 1	0.576	0.098	5.864	0.000
Volume 2	Natural	Constant	2.798	0.010	293.241	0.000
Turnover 2	No	Constant	3.206	0.223	14.361	0.000
	Transformation	AR Lag 1	0.465	0.105	4.432	0.000
Individual part. 2	Natural	Constant	1.840	0.035	52.178	0.000
	Logarithm	AR Lag 1	0.332	0.112	2.954	0.004

V: Diagnostic Checking**1) Test of Residual ACF & PACF****2) Portmanteau test**

Portmanteau test for white noise

Portmanteau (Q) statistic = 12.1638

Prob>Chi2(25) = 0.9852

Appendix V: Sample Size per District

Sample per district = $\frac{\text{District working population}}{\text{Regional working population}} \times \text{Total Sample}$

$$\text{Kinondoni} = \frac{734,482}{3,599,412} \times 400 = 82$$

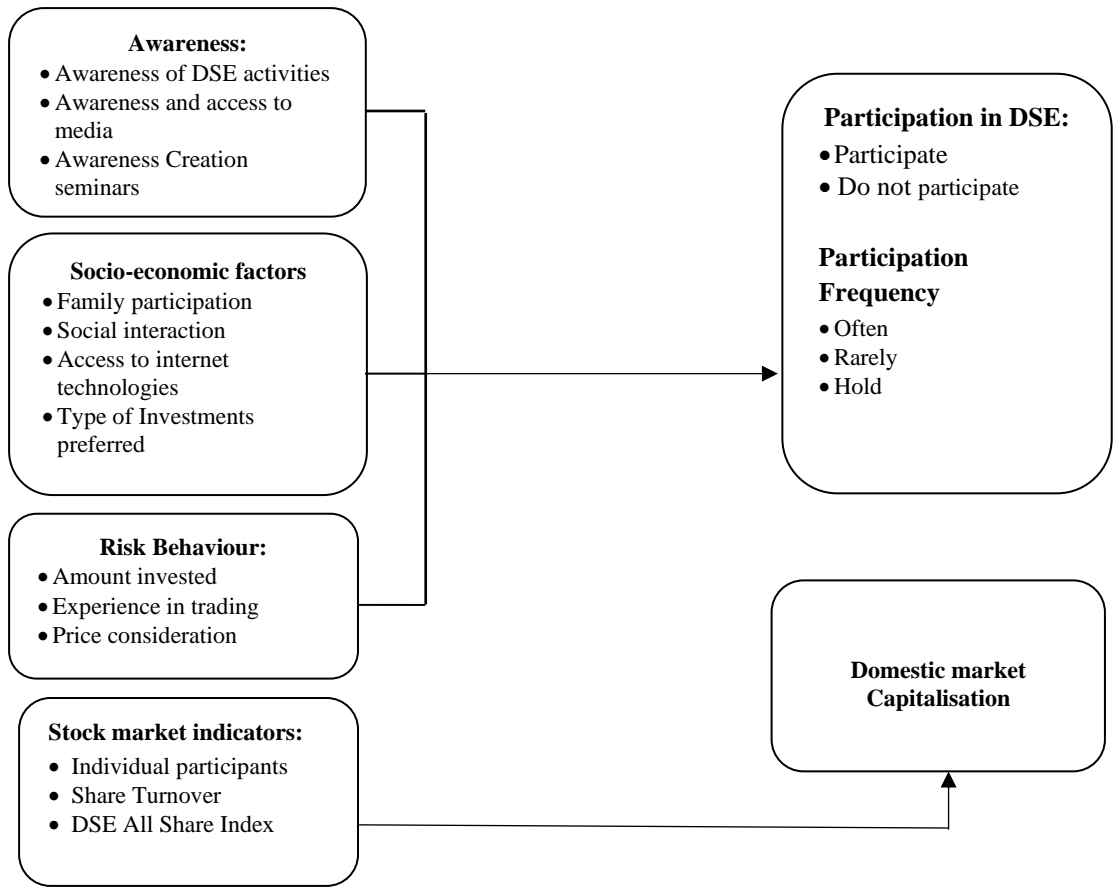
$$\text{Ilala} = \frac{1,045,201}{3,599,412} \times 400 = 116$$

$$\text{Temeke} = \frac{955,025}{3,599,412} \times 400 = 106$$

$$\text{Ubungo} = \frac{705,962}{3,599,412} \times 400 = 78$$

$$\text{Kigamboni} = \frac{158,741}{3,599,412} \times 400 = 18$$

Appendix VI: Resultant Conceptual Framework



Appendix VII: Introduction Letter from the University

MOSHI CO-OPERATIVE UNIVERSITY (MoCU) CHUO KIKUU CHA USHIRIKA MOSHI

Sokoine Road,
P.O. Box 474,
Moshi, Tanzania.
Tel:+255 272754401
Fax:+255 272750806
e-mail: vc@mocu.ac.tz
Website: www.mocu.ac.tz



OFFICE OF THE VICE CHANCELLOR
P.O. Box 474,
Moshi, Tanzania.
Tel: +255 27 2751833
Fax: +255 27 2750806
E-mail: vc@mocu.ac.tz

Our Ref. No: MoCU/UGS/3/41
Your Ref. No:

Date: 24 Januari, 2020

Katibu tawala
Mkoa wa Dar es salaam
DAR ES SALAAM

**YAH: KIBALI CHA KUFANYA UTAFITI KWA WANATAALUMA NA WANAFUNZI WA CHUO
KIKUU CHA USHIRIKA MOSHI (MoCU)**

Madhumuni ya barua hii ni kumtambulisha kwako Ndugu, Christina A. Mwakabumbe mtafiti/mwanafunzi wa Chuo Kikuu cha Ushirika Moshi ambaye kwa sasa anatarajia kufanya utafiti katika eneo lako.

Maombi haya yamezingatia Waraka wa Serikali wenye Kumb. Na. MPEC/R/10/1 wa tarehe 7 Julai, 1980 pamoja na Hati Idhini ya Chuo Kikuu cha Ushirika Moshi (MoCU). Moja ya majukumu ya Chuo ni pamoja na kufanya utafiti na kutumia matokeo ya tafiti hizo katika kufundishia. Aidha, wanafunzi hufanya utafiti kama sehemu ya masomo yao wakiwa Chuoni.

Ili kufanikisha utekelezaji wa tafiti hizo, Makamu wa Mkuu wa Chuo hutoa vibali vya kufanya utafiti nchini kwa wanafunzi, waalimu, na watafiti wake kwa niaba ya Serikali na Tume ya Sayansi na Teknolojia.

Hivyo basi, tunakuomba umpatie mwanafunzi/mtafiti aliyetajwa hapo juu msaada atakaohitaji ili kufanikisha utafiti wake. Gharama za utafiti atalipia mwenyewe. Msaada anaohitaji ni kuruhusiwa kuonana na viongozi na wananchi ili aweze kuzungumza nao na kuwauliza maswali aliyoy nayo kuhusiana na utafiti wake.

Madhumuni ya utafiti wa mwanafunzi/mtaalumu aliyetajwa hapo juu ni: "The Determinants of Individual Investors Participation in Stock Market in Tanzania."

Sehemu atakazofanyia utafiti huo ni: Dar es salaam.

Ikiwa kuna Sehemu ambazo zinazuiliwa, ni wajibu wako kuzuia zisitembelewe. Muda wa Utafiti huo ni kuanzia tarehe 31/01/2020 hadi 31/02/2021

Ikiwa utahitaji maelezo zaidi tafadhali wasiliana nami.

Wako katika ujenzi wa Taifa,


Prof. F.T.M. Kilima
/MAKAMU MKUU WA CHUO

Nakala kwa: Mtafiti




Vision: To become a Centre of Excellence in Co-operative Education and Training
Centre of Excellence in Co-operative and Business Management Training of the East Africa Community of Africa

Appendix VIII: Permits from Regional and District Offices

The United Republic of Tanzania
Prime Ministers' Office
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

ILALA DISTRICT
Phone Address:
Phone No: 2203185/2203182
In reply quote: Ref. No: AB.60/87/01/

Municipal Director,
P. O. Box 20950,
Ilala,
DAR ES SALAAM.

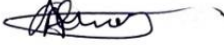


DISTRICT COMMISSIONER'S OFFICE
ILALA DISTRICT
P. O. Box 15486,
DAR ES SALAAM
Date: 28/1/2020

RE: RESEARCH PERMIT

Prof./Dr./Mr./Mrs./MS./Miss: CHRISTINA ALFRA MUKABELANGI
from The MOSH CO-OPERATIVE UNIVERSITY, she/he has been
permitted to undertake a field work research on "DETERMINANTS OF
INDIVIDUAL INVESTORS' PARTICIPATION IN STOCK MARKET IN TANZANIA"
....." The
case study at Ilala District from 1ST FEBRUARY 2020 to DECEMBER, 2020.....

Therefore, you are asked to give the said researchers necessary assistance and
Cooperation.


District Administrative Secretary
ILALA

Copy:

Principal/Vice Chancellor,
MOSH CO-OPERATIVE
UNIVERSITY (MOSH)

THE UNITED REPUBLIC OF TANZANIA
President's Office
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DAR ES SALAAM REGION
Phone Number: 2203158
Fax number: 2203158
email: ras@dsm.go.tz
website: www.dsm.go.tz



REGIONAL COMMISSIONER'S OFFICE,
3 RASHID KAWAWA ROAD,
P.O. BOX 5429,
12880 DAR ES SALAAM

In reply please quote:
Ref. No.

28TH JANUARY 2019

District Administrative Secretary,

..... ILALA

P. O. Box

DAR ES SALAAM.

RE: RESEARCH PERMIT

Prof/Dr/Mrs./Ms/Miss CHRISTINA ALFRED MWAJIBUMBE is
student/Research from MASHI CO-OPERATIVE UNIVERSITY (MOCU) has been
permitted to undertake research on DETERMINANTS OF INDIVIDUAL
INVESTORS' PARTICIPATION IN STOCK MARKET IN TANZANIA

From 1ST FEBRUARY 2020 to 31ST AUGUST 2020.

I Kindly request your good assistance to enable her/his research.

.....
For; REGIONAL ADMINISTRATION SECRETARY
DAR ES SALAAM

Copy: Municipal Director,

..... ILALA

DAR ES SALAAM.

Principal/Vice Chancellor
MOCU (Moshi Co-operative University)

HALMASHAURI YA MANISPAA YA ILALA

BARUA ZOTE ZIPELEKWE KWA MKURUGENZI WA MANISPAA



SIMU NA. 2128800
2128805
FAX NO. 2121486

OFISI YA MKURUGENZI
IMTAA WA MISSION
S.L.P 20950
11883 - DAR ES SALAAM

3/1/20

KUMB. NA. IMC/AF.3/31

MTEMDAJI WA KATA
KATA YA KIVUKOHU
DAR-ES-SALAAM

YAH: RUHUSA YA NDUGU ..CHRISTINA ALFRA Mwanachuo KUFANYA
PROJECT/FIELD/RESEARCH

Tafadhali rejea somo tajwa hapo juu.

Mtajwa hapo juu ni mwanachuo katika Chuo cha MASHI CO-OPERATIVE UNIVERSITY

ambaye amekubaliwa kufanya Project/Field/Research juu ya

BEITRAMWANI OF INVESTMENT INVESTOR'S PARTICIPATION ^{IN STOCK MARKET} katika ofisi yako kuanzia

tarehe 1st February 2020 hadi tarehe 31st December 2020

Hivyo mpokee na kumpa ushirikiano kulingana na mahitaji yake.

Ninakutakia kazi njema.

Kny: MKURUGENZI WA HALMASHAURI
MANISPAA YA ILALA

OFISI YA MKURUGENZI
IMTAA WA MISSION
S.L.P 20950
11883 - DAR ES SALAAM

Appendix IX: Paper 1 Published with PAJBM

The Pan-African Journal of Business Management, Volume 6(1), December, 2022

Individual Investors' Awareness and Participation in the Dar es Salaam Stock Exchange, Tanzania

Christina Mwakabumbe¹

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calfred2011@gmail.com

Sylvia Temu²

² University of Dar es Salaam

Isaac Kazungu³

³ Moshi Co-operative University,

ABSTRACT

Participation of individual investors in Dar es Salaam stock markets stands at 1%, which is very low compared to Kenya, which is currently at 4%. Thus, the study evaluated the level of awareness of individuals that explained their low participation in the Dar es Salaam stock exchange. Primary data were collected from 200 participants and 200 non-participants and analysed using descriptive statistics and binary logistic regression. Findings revealed that non-participant individuals had a low level of awareness regarding DSE and its activities compared to individual participants. Regarding voting and decision-making by shareholders, only 13% of participants were aware of this right. Financial awareness was also found out to be low among individuals. Binary logistic results indicated that awareness of DSE, awareness creation seminars and access to media were likely to influence individuals' participation decisions. Thus, the study concluded that the level of awareness among individuals was deficient and affected their participation in the stock market. Therefore, the intensification of public awareness through seminars by DSE is essential. Also, DSE should increase the use of mobile trading platform and internet technologies to disseminate awareness information on investment opportunities for participation decision.

Keywords: Individual, investors, awareness, stock exchange, Dar es Salaam, individual investors awareness.

Appendix X: Paper 2 Published with JPL

Journal of Policy and Leadership (JPL)

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www.jpl.mzumbe.ac.tz



Influence of Socio-Economic Factors on the Participation of Individual Investors in Dar es Salaam Stock Exchange

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² Department of Accounting University of Dar es Salaam Business School, E-mail: sylviatemu2014@gmail.com

³ Department of Marketing Procurement and Supply Management, Moshi Co-operative University, E-mail: isaackazungu@gmail.com

ABSTRACT

Individual participation in the emerging stock market, such as the Dar es Salaam Stock Exchange (DSE), is growing, although it covers only 2 per cent of the working population in Tanzania. This study examined socio-economic factors that explain individual participation decisions in DSE. Data were collected from 200 participants and 200 non-participants using a questionnaire. Quantitative data were analysed using descriptive statistics and a binary logistic regression model, while qualitative data were analysed using thematic analysis. Results indicated that individuals participate in different social and economic groups, which motivates them to invest. The BLR results indicated that social interaction, income, and internet technologies are the potential to influence individuals' decisions to participate in the stock market. Conclusively, social interactions, access to the internet and investment preference have a high likelihood of influencing individuals' investment decisions. These results are consistent with socioeconomic and cultural risk theories showing that the intermix of economic and social factors influence individuals' investment decisions. However, these theories do not include internet technologies. In this vein, the inclusion of these technologies in determining the influence of an individual's participation in the stock market is necessary. These results call for the government to strengthen supervision and quality monitoring of social group operations and management of funds. Furthermore, the study advocates DSE to use technology enablers such as the internet and social media to reach many individual investors.

Keywords: Individual Investors, socio-economic, participation, DSE

Article info

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30/09/2022



Individual Investors' Risk Behaviour and Share Trading Frequency: Evidence from Dar es Salaam Stock Exchange

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²University of Dar es Salaam Business School, Dar es Salaam, Tanzania

*Corresponding Author: christinaalfred82@yahoo.com

Abstract

Objective – This paper examines the risk behaviour of individual investors in the Dar es Salaam Stock Exchange (DSE), Tanzania. Furthermore, it aims to analyse how risk behaviour variables influence individuals' trading frequency of shares at the DSE.

Design/methodology –The study uses cross-section data from a structured questionnaire distributed to 200 individual investors selected with a snowball sampling procedure. It further used descriptive statistics and multinomial logistic regression (MLR) to analyse the risk behaviour of individual investors and their impact on share trading frequency.

Results – The study reveals that share prices, investment experience, and amount of funds invested depict the risk aversion behaviour of individual investors and thus influence their share trading frequency at DSE. However, individuals' risk perception did not significantly influence share trading frequency.

Research limitations/implications –The study used individual investors to assess risk behaviour in trading frequency. However, individuals have limited risk awareness and analysis knowledge and use brokers and financial analysts.

Novelty/Originality –Individual investors' risk behaviour in relation to share trading at DSE received attention for the first time in this paper. The study proposes to DSE improve policies and training programs relating to individuals trading and risk management to stimulate active share trading among individual participants in exchange for improved liquidity and contribution to economic growth.

Keywords: DSE, individual, investors, risk, trade

1. Introduction

Stock markets play a significant role in bringing together buyers and sellers of equities, bonds and other securities. The debate on risk and investment decisions in global stock markets raises questions on how it affects Tanzania's stock market. According to Cheng (2019), economic changes tend to influence individuals' financial risk, thus affecting individual investment intentions. Economic changes touching on individual stock market involvement include a drop in wealth, negative company returns, a drop in market capitalisation and number of investors (Buccioli & Miniaci, 2017). The consequences associated with the economic changes affect the expected returns, investment decisions and trading behaviour of individual investors, whereby the past trading experience influences it (Vidanalage & Shantha, 2019; Rossi, 2016).

The willingness of an individual to take risks in making financial decisions is among the economic factors highlighted to affect investment (Svetlova & Thielmann, 2020). Therefore, risk behaviour is considered an influential factor in investment decisions as investors strive to reduce risk in making investment decisions. (Shehata et al., 2021; Ngadino, 2019). Consequently, share trading, whether done manually or electronically (Cardoza, 2019), both mean contains different kinds of risk, although risk relating to electronic trading seems to increase. Impliedly, risk behaviour is not the only

Appendix XII: Paper 4 Published with ORSEA

<https://doi.org/10.56279/orseaj.v13i1.5>

Mwakabumbe, C. A., Temu, S. S. & Kazungu, I.

1

Stock Market Indicators and Domestic Market Capitalization of Emerging Markets

Christina Alfred Mwakabumbe¹, Sylvia S. Temu², and Isaac Kazungu³

Abstract

Market capitalisation plays a significant role in the performance of emerging stock markets. This study, therefore, analysed the trend of Dar es Salaam Stock Exchange's (DSE) indicators on its domestic capitalisation. Specifically, the study analysed trends of stock market indicators, namely, individual participation, share volume, share turnover, and DSE All Share Index. Time series monthly data from 2014 to 2020 were analysed using the ARMA model. The study further examined how the stock market indicators influence the domestic market capitalisation (DMC) of DSE using the ARMAX model. Results indicated that individual participation, turnover, and the DSE All Share Index significantly influenced DMC. However, the volume of shares traded did not influence DSE's domestic market capitalisation. Hence, DSE's performance is associated with share turnover, price, and public participation. Thus, the study urges stock brokers to reduce transaction costs to attract individual investors. It also recommends that DSE encourage new listings to trigger trading and increase the market share index. This study's results can help the government improve policies and plans to increase public participation, reduce income inequality and improve the economy.

Keywords: Market Capitalisation, Share volume, DSEI, Individual participation

Introduction

Market capitalisation plays a significant role for an investor in determining stocks, risk, and firm performance before investment (Pavone, 2019). Capital is also among the key components in generating a country's economic output (Idenyi *et al.*, 2017). Thus, among the key indicators measuring the market's capitalisation performance includes the share index, the number of transactions (volume), turnover, total equity and share price (Indrayana *et al.*, 2020; Abdel & Al-Afeef, 2020; Idenyi *et al.*, 2017). Consequently, the Government of Tanzania introduced different policies and programmes to foster participation, leading to increased market capitalisation and economic growth. The programmes introduced included Improved Business Climate (IBC) and Local Investment Climate (LIC), aiming at creating a conducive investment environment for local and international investors. It introduced the policy requiring private mobile telecommunication companies to issue at least 25% of their authorised share capital through IPO to local shareholders (URT, 2016). These changes also increased the number of listed companies at DSE, the number of brokers, public participation and public-owned companies (Kamazima & Omurwa, 2018).

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