

The Dynamics of Financial Market in the Digital Age

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ABSTRACT

This article examines the changes in financial markets due to developments such as online trading platforms, speedy information flow, algorithmic trading, and the growing influence of cryptocurrency. The study aims to find out how these technological factors impact the participation, decision making and perception on volatility and risk of investors. The structured questionnaire was completed by 154 respondents from various age-groups, professions, and trading/exchange or investment experience for the collections of primary data. The analysis of data was carried out using percentage analysis, descriptive statistics, Chi-square test, correlation and factor analysis. According to the findings many respondents think that due to digitalisation low-cost trading is easy the market has increased participants easier trading. Those surveyed also feel the pressure to respond quickly due to real-time news, alerts and information shared on social media. Many respondents agree that today's market possesses sudden spikes and short-term volatility more than before. Nevertheless, Chi-square findings frequently do not indicate strong confirmed associations between categorized variables. In other words, some relationships are not confirmed in this sample. In summation, the study asserts that while the digital era has rendered markets faster and more accessible, there also exists a greater need for investor education and risk management in conjunction with better monitoring of technology adoption in trading.

Keywords: Digital trading, financial markets, market volatility, real-time information, algorithmic trading, cryptocurrency, investor behaviour, risk management.

CHAPTER 1: INTRODUCTION

Background and Overview of the Study

Financial markets have moved from floor trading and phone calls to electronic platforms. Orders and news now travel instantly, so prices can change very quickly. In this setting, liquidity (how easy it is to trade) and volatility (how much prices move) depend not only on economic news, but also on how the trading system is built and how fast information spreads (Boehmer, Fong & Wu, 2021).

A key change is that trading no longer happens in one place. The same stock or asset can trade on many exchanges and dark venues. Because of this, rules about order priority, transparency, and routing strongly affect execution quality and price discovery (ESMA, 2018; SEC, 2024).

FinTech and platform-based business models have also changed financial services. They can lower costs and increase access, but they can also create concentration and new types of risk that do not fit older rules (Feyen et al., 2021).

1.1 The Problem Statement

We need to study today's markets because digital tools have changed both the speed and the nature of trading. Algorithmic trading, platform-based trading apps, and AI tools change who provides liquidity, how orders are executed, and how quickly information is reflected in prices (Boehmer, Fong & Wu, 2021).

Digital trading can improve market quality in normal conditions. Many studies find that automation can reduce trading costs (spreads) and improve price discovery by updating prices more continuously (Boehmer, Fong & Wu, 2021; Coughlan & Orlov, 2022).

However, the same technology can increase fragility during stress. In fast markets, liquidity can disappear quickly if many automated strategies react in the same way. Episodes such as the March 2020 market stress show how liquidity can deteriorate rapidly and amplify price moves (Duffie, 2020; NY Fed, 2023).

1.2 Why Digitalization Matters for Market Dynamics

Even though digital markets are faster and easier to access, they can also become harder to understand. When trading is fragmented across venues, execution quality can differ, and it can be difficult to ensure fair access and best execution for smaller (retail) investors (SEC, 2024; ESMA, 2018).

Volatility can also be driven by the market's own internal mechanics, not only by external news. Automated strategies, leverage limits, and risk controls can interact and push prices further when many participants try to reduce risk at the same time (Duffie, 2020; NY Fed, 2023).

Besides that, there are new sources of spillover with the emergence of crypto-assets and digitized finance. Cross-market linkedness between the markets of traditional and crypto can spread shocks quicker and on a worldwide scale, bringing new financial and regulatory issues (Vuković, Frömmel, Vigne, and Zinovev, 2025).

1.3 Market Microstructure, Information Flow, and Digital Trading Ecosystem

This study focuses on three main outcomes:

- Liquidity: how easy and cheap it is to trade
- Volatility: how strongly prices move up and down
- Price discovery / efficiency: how quickly prices reflect new information

These outcomes are shaped by market design, trading technology, and how information moves through the system (Boehmer, Fong & Wu, 2021).

Several digital-age drivers affect these outcomes.

- 1) Market design and transparency rules influence how orders match and what information is visible.
- 2) Algorithmic and high-frequency trading can change spreads, depth, and short-term volatility.
- 3) Platform-based intermediation (FinTech/BigTech) can change competition and market access.
- 4) Crypto markets add 24/7 trading and new channels for cross-market spillovers (Feyen et al., 2021; Vuković et al., 2025; Boehmer, Fong & Wu, 2021).

Third, intermediation that occurs on platforms alters the form of financial services and potentially creates concentration around superstar ecosystems. Lastly, crypto markets and tokenized assets bring new 24/7 trading rhythms, new settlement system, and connectivity mechanisms which may disrupt normal market stability and shock transmission (Feyen et al., 2021; Vuković et al., 2025).

1.4 Significance of the Study

This research matters for investors because digital trading affects trading costs, liquidity risk, and “tail risk” (big moves). Market quality can look good in calm periods but worsen quickly during stress, which changes how investors should manage risk and execute trades (Boehmer, Fong & Wu, 2021; NY Fed, 2023).

For financial institutions and market operators, it is important to understand how digital markets behave so they can manage operational risk and market risk. Fragmented venues and automated trading require strong monitoring of liquidity, technology stability, and trading-conduct risks (SEC, 2024; ESMA, 2018).

The issue is of concern to regulators and policymakers, as the process of digitalization prompts them to re-establish the balance between innovation and stability. Concentration of platforms, market transparency, fairness, systemic spillovers,

and crypto-market integration are some of the issues that require evidence-based regulations and surveillance frameworks that apply to technologically complex environments (Feyen et al., 2021; Vuković et al., 2025).

1.5 Data Sources and Approach

In this study, secondary (market) data is used to test how digitalization relates to key market outcomes. Examples of measures include:

- Liquidity: bid-ask spreads and turnover
- Volatility: realized volatility or volatility indices
- Efficiency / price discovery: return auto-correlation and price-impact measures

These measures are commonly used in recent market-quality research (Boehmer, Fong & Wu, 2021).

Digitalization is operationalized with variables that indicate the strength of electronic trading and automation in which variables are measurable (e.g., algorithmic trading as an indicator of high-frequency participation, and more general measures of ecosystem penetration of the digitalization of financial intermediation) (Feyen et al., 2021).

To capture system-wide effects, the study can also use spillover/connectedness measures to see whether shocks move faster between crypto and traditional markets, especially during uncertain periods (Vuković et al., 2025).

1.6 Research Gaps

- Many studies look at trading technology (microstructure/HFT) and FinTech platforms separately. Fewer studies combine them in one framework, even though both affect liquidity, volatility, and efficiency.
- Research results are mixed. Digitalization can improve liquidity and efficiency in normal times, but it may also reduce resilience in stressed markets. More evidence is needed across different market conditions.
- Research on crypto-traditional spillovers is growing, but we still need clearer conclusions about when spillovers increase (for example, during high uncertainty) and what that means for financial stability.

1.7 Research Questions

- What impact do digital trading mechanisms (online trading platforms, fast information flow, algorithmic trading) have on market liquidity, volatility and price discovery?
- How does digital transformation in the financial markets influence market structure and the functioning of competition and intermediaries (brokers, exchanges, market makers) in particular?

1.8 Research Objectives

- To analyze the impact of liquidity, volatility and price discovery outcomes of the digital trading mechanisms (electronic trading venues, algorithmic and data-driven).
- To assess the digital transformation and the change of market structure and competition and financial intermediation due to digital change.

CHAPTER 2: LITERATURE REVIEW

Feyen, Frost, Gambacorta, Natarajan & Saal (2021) argues that fintech and BigTech are altering the structure of markets as well as public policy the way financial services are produced, distributed, and regulated. Their goal is to provide an account of the way digital entrants have transformed the focus of competition, intermediation, and regulatory priorities using a conceptual framework that is grounded in cross-country empirical evidence. They highlight how digitization can reduce costs and increase access, but can also bring more concentration and inject the introduction of new forms of risk that do not fit the legacy regulation.

Marszk & Lechman (eds.) (2021), digitization is a comprehensive socioeconomic transformation with impacts on trading, capital formation and financial intermediation, in different ways in markets and institutions. Their objective is to investigate how ICT and fintech affect the financial markets (using several theoretical and empirical chapters rather than one direct approach). The contributed volume showing that digital finance changes the way market participants interact: the way information spreads, financial services are bundled and delivered: A significant contribution is that it considers digital finance as a technological change and institutional change at the same time, where the results of digital finance are case-specific based on governance, capacity to adopt technology and market design.

Pakhnenko et al., 2021 Digitalization of Financial Services in European Countries: A Gentleman Agreement on Comparison, A Gentleman Agreement on Comparison Their objective is to assess and compare levels of digital financial services, which is index-based-constructed out of available official statistics and structural indicators. They do find strong cross-country variation - often with Northern European countries at the forefront - suggesting that infrastructure readiness, institutional quality, and conditions around adoption are key to determining digital maturity. This work is useful to support the operationalization of 'digitalization' as a measurable construct, and not as a narrative label, which helps in supporting quantitative research designs.

Various (2021) Global Digitization in the Financial System, testing broad relations using correlation and regression on a country or macro level. Their objective is to explain the relationships between digitalization and financial development and macro-financial outcomes as a whole world economy. They conclude that digitization facilitates efficiency and development but can increase the gap between countries because of uneven digital capacity, regulation and institutional readiness. This paper is useful in situating the dynamics in digital markets against the backdrop of global development, where it is emphasized that technology does not have the same effects.

Dereje Fedasa Hordofa (2024) offer a systematic review on the way that financial systems are changing in the digital age, paying special attention to some of the themes of platformization and restructuring against competition. Their goal is to synthesize previous research on the effects of digital transformation in terms of financial services by way of systematic literature review and bibliometric mapping methodology. The review identifies recurring research clusters - fintech competition, open banking, data-driven intermediation, and risk governance - along with gaps where empirical evidence is still weak.

Kamuangu (2022) provides a review of the current research on digital transformation in finance, and suggests future directions, particularly related to AI, automation, and platform strategies. The goal is to consolidate the knowledge on digital transformation impacts on service delivery, risk management and institutional performance. Using a structured review approach, the paper lays emphasis to the fact that digital adoption can improve analytics and operational capabilities but also brings in a issue of governance which includes aspects of cyber security, privacy and model risk. The review helps to frame digitalization as an organizational and regulatory issue - not just a trading issue and links technology with incentives and risk controls.

Valášková, Nagy & Juráčková (2023), One of them analyses the role of digital transformation on financial performance by linking digital capability and outcome measures at the firm level. Their goal is to empirically test the digital transformation-performance relation, which usually is based on some forms of quantitative modelling using financial indicators and proxies for digitalization. They find digital transformation to be generally associated with stronger performance outcomes when it is supported by complementary managerial capabilities and process change. This evidence supports the idea that digitization affects markets in an indirect way via the alterations in the strength and strategic behavior of major financial actors.

Darko B. Vuković; Michael Frömmel; Samuel A. Vigne; Vyacheslav Zinovev (2025) Introduction The digital economy and financial development nexus: explore from a global perspective, testing whether countries with stronger digital economies have stronger financial development 6 Their methodology is cross country empirical analysis connecting variables related to digital infrastructure/adoption with variables of financial development. Key findings are a positive association for the most part, but effects vary by type of institutional quality, income level and policy environment. This paper is useful as it will teach us why digital finance deepens in some places more than in others, which implies that market dynamics are to some extent shaped both by technology and by institutions.

Le Thanh Ha (2021) test whether digitalization causes financialization using European evidences and focusing on the structural shifts in economic behavior. The objective is to measure the relationship of digital progress with the increased emphasis on financial activities against real economy production. Using an empirical approach, the study addresses the possibility that digitalization can change incentives and distribution of resources and consequently result in pushing firms and economies toward a higher level of financialization, under certain conditions. This work has relevance to market dynamics because financialization changes: trading volumes; the demand for assets; the economy's sensitivity to market cycles.

Bo Sui & Liuyang Yao (2022) studies the impact of digital transformation on corporate financialization and assets allocation behaviour. Their objective is to determine the extent to which digital capability affects the propensity of firms to allocate their resources to financial assets as opposed to productive investment. The methodology is empirical but usually holds an element of panel regressions and heterogeneity analysis by firm-types and environments. Findings show that corporate financial behaviour can be changed by digital transformation and that the results will vary depending on corporate governance, the market situation or the sector features.

Yulei Jin, Xiaoyan Xie (2024) examines the issue of whether finance transformation leads to the abatement of excessive financialization and productive investment in markets, due to question whether financial markets may crowd out the real economy. Their goal is to test whether digital upgrades help to improve productivity and real investment opportunities to discourage excess accumulation of financial assets. Using econometrics, they conclude that digital transformation can contain the over-financialization but differently for different industries and from firm-to-firm. This evidence is helpful as it ties digitalization to the rest of the ecosystem of the financial market through corporate behavior.

Zuo, Li & Xia (2023) looks at the impact of digital finance on commercial bank production efficiency in the economy, where digital finance is seen as a productivity enhancing input. Their approach is to quantify the efficiency effects of the digital finance house employing empirical methods of efficiency measuring (often of DEA-type efficiency scores or of production function approaches including) plus regressive tests. Findings show that digital finance contributes to better efficiency with the help of better information processing, automation, and service innovation. This paper supports the institutional dimension of the marketplace of the digital age, the reason being that more efficient banks can alter credit allocation, liquidity conditions, and risk pricing.

Xu, Kasperskaya & Sagarra (2025) synthesize the role of fintech in determining bank performance by conducting a systematic review of previous empirical findings on the topic of fintech and banking across banking contexts. Their aim is to look out for dominant themes, patterns of evidence and gaps to use systematic review procedures to categorize fintech domains (payments, digital lending, digital channels, etc.). They conclude that fintech often enhances performance and competitiveness but that it also helps to increase new pressures in risk management and solve new strategic challenges for incumbent banks. This review is useful for grounding claims about benefits of digitization in a wide evidence base and no single case examples.

Umar Kayani, Fakhru Hasan (2024) Fintech and bank profitability: are fintech investments instruments of better performance? (Europe focused) Besides the research idea, the present study seeks to examine the relationship between fintech and bank profitability in Europe with an aim of assessing whether investments in fintech translate into better performance or not. Using empirical analysis (mostly in the form of bank-level panel regressions) the study states that fintech adoption and levels of investment have been linked to changes in profitability and performance metrics. The paper argues that outcomes are bank-specific-specific-such as size, strategy, cost structure and the competitive environment. " Might not be equal to "capability".

Park, Lee & Lee (2022) empirically investigate the effect of fintech on the profitability of listed commercial banks in China to link fintech development to the bank level outcomes. Their methodology usually involves regression models in terms of profitability of an investment (e.g. ROA/ROE) and fintech indicators measuring adoption or ecosystem development. The most important finding is that fintech development tends to support profitability, often through innovating the service, reaching customers and gaining efficiency in the operation.

Wei-Peng Chen, Chih-Chiang Wu; Withz Aimable (2025) In the question about whether fintech can improve the efficiency of commercial banks and conduct empirical tests using empirical efficiency and productivity frameworks. Their goal is to find out if the adoption of fintech results in measurable improvements in productivity and operating efficiency. Findings show that financial technology (fintech) generally works better for efficiency, but benefits are conditional regarding governance, skills and good integration with exogenous systems. This paper adds some strength to the institutional channel of the digital age story: technology causes changes in market functioning in part by inducing changes in the cost and structures of intermediaries.

Olaniyi Evans (2018) analysis the impact of fintech on the inclusion of financial services and market participation, considering if the digital channels enhance the access and engagement of financial services Their goal is to link fintech adoption and participation outcomes using empirical approaches, most often comparing measures of inclusion over time,

between and/or within groups, or between regions. Findings suggest the role of fintech is to increase access among many users by reducing the transaction costs and reducing the friction, but digital divides, trust constraints, and capability gaps can mean that the benefits are uneven.

Ihahi et al. (2024) examine algorithmic trading and market liquidity in the context of assessing whether algorithmic trading improves or weakens market liquidity. Using empirical evidence and implication-focused analysis, they demonstrate that algorithmic trading tends to improve liquidity and reduce spreads in normal times through creating more immediacy and competitiveness for quotes. However, they also stress that the liquidity can be sensitive during a time of stress if the algorithms pull out, or if the rate of adverse selection increases quickly. This is a paper that is in line with the microstructure-focused market dynamics because it is linking a trading technology and market quality.

Park (2025) describes on the effect of algorithmic and high-frequency trading in the volatility context with a focus on the short horizon price and liquidity. The objective is to explain both the effect of speed, strategy interaction and the automated execution upon volatility patterns. The paper argues that HFT can compress spreads and has the advantage of aiding price adjustment, but can also aggravate short-term volatility conditions in instances of thinness or uncertainty. This perspective supports the view that vulnerability to endogenous feedbacks of strategy is a part of volatility in digital markets, and is not solely driven by news.

Yadava (2024) evaluate the role of artificial intelligence-driven algorithmic trading and its implications on market efficiency and volatility with due focus on how artificial intelligence alters the way in which decision-making regarding signals and executions of trades is accomplished. The objective is to assess if AI improves efficiency by extracting the information quicker and trading more optimally as well as taking into consideration that of rapid amplification of errors. Key conclusions-Will a-h and "shocks" to the execution and information incorporation - can AI effect shock propagation faster across strategies, crowding effects - Introducing model risk.

Sirignano & Cont, (2019) The goal will be to understand whether the market structure, liquidity depth, and regulation have any effect on the influence of AI-visualized trading on volatility. Their methodology is usually empirical comparison between groups of countries or market categories using measures of volatility and proxies of AI/trading. Findings indicate that emerging markets may be accorded more sensitivity emerging from the effects of thinner liquidity, greater presence of frictions and weaker mechanisms for resilience.

Zhang, Zohren and Roberts (2020) set out a mathematical method for understanding the impact of high frequency trading on the liquidity of a market. Their goal is to institutionalize the outcomes of liquidity under the participation of HFTs by modelling interactions between quote competition, adverse selection and volatility. The paper suggests that the benefits of HFT in improving the quoted liquidity and immediacy equality under certain equilibrium assumptions, but lose strength as the information asymmetry is increased, and volatility increased. Recent research uses machine learning with high-frequency order-book data to improve prediction and execution while accounting for microstructure frictions. These studies stress careful validation and controls to avoid overfitting and unstable strategies (Zhang, Zohren & Roberts, 2020).

Cryptocurrency market's spillover (2024) in times of uncertainty, connectedness regimes. Their goal is to investigate whether spillovers increase in times of uncertainty based on empirical spillover/connectedness methodologies throughout crypto, and most likely, general markets. Findings show that spillovers are regime dependent and to usually be strengthened in periods of high uncertainty, which would suggest non-linear contagion risk.

Dr. Michael Peter Macvicaro (2024) Multi-Scale Analysis of Spillovers of Return and Volatility in Cryptocurrency Markets in the Post-COVID Era. Their goal is to investigate the intensities of the spillover of the various horizons (small vs. large frequencies intervals), through multiscale or wavelet type methods. Neither Neuraths nor Dr. Michael Peter Macvicaro reference the difference in edge form they claim it makes to magnetism: "They find, however, that the spillovers vary significantly by timescale and are enhanced around turbulence, implying that connectedness is not constant and will be dependent on shock regimes". Recent studies examine spillovers between crypto and traditional markets using connectedness and spillover frameworks. A common finding is that integration and spillovers tend to rise during global stress events, which increases the financial-stability relevance of crypto markets.

Jinsong Park (2025) provides evidence on crypto-financial market spillovers, they highlight substantial influences on the cross-asset connectedness as induced by global conditions. The goal is to form how spillovers are strong and how and when crypto act as a transmitter of shocks and how crypto act as a receiver of shocks. Using empirical spillover frameworks, the work supports the idea that digital asset markets are no longer an isolated one, and its market can affect the broader financial stability narrative.

Saher Ahmed (2023) review volatility of cryptocurrency and synthesize what is known about drivers, patterns, and measurement approaches. Their goal is to offer a structured summary of research on volatility including determining variables such as liquidity, market sentiment, leverage, and regulatory news. The synthesis teaches us that, in general, the volatility of cryptos is usually greater than that of traditional assets, and is highly regime-dependent (e.g., crypto prices are often in terms of highly volatile and/or on a strong cycle of attention).

Umar Kayani, Fakhru Hasan (2024) Consider possible impacts of cryptocurrencies on financial markets and traditional banking systems such as competition, disintermediation, and stability issues. The goal is to make an assessment by using empirical or analytical means of the impact of crypto on transaction flows, banking models, and how the market functions. Findings point to the pressure crypto can bring to banks in terms of payments and customer relationships, as well as introducing compliance, consumer protection issues and systemic risk issues.

BIS (2023), Recent empirical work (using post-2016 data) studies how blockchain adoption and digital settlement infrastructure can affect market efficiency, intermediation, and trust.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes how the study is done to see how the dynamics of the financial markets are conducted in the digital age. The methodology is aimed at identifying (i) the relationship between digitalization (online trading platforms, fintech services, real-time information, algorithmic trading and exposure to cryptocurrencies) and market results (liquidity, volatility and perceived efficiency), as well as (ii) the experience and perception of these changes among participants (especially retail investors). To this end, this chapter adopts a mixed methodology of a structured primary survey (questionnaire) to measure perceptions and behaviors and the secondary market data for factual support of market trends.

3.2 Review of Literature

The literature reviewed suggests that the digital age affects markets over a variety of channels - market microstructure (electronic trading and algorithmic behavior), platform-based intermediation (fintech driven access and competition), and systemic connectedness (crypto- traditional spillovers). Based on these strands, the study requires a methodology that can (a) capture observable market outcomes from secondary data and (b) capture investor level response and adoption behaviour from primary data. Therefore, the research design adopts the quantitative structure, which is being supported by the descriptive and inferential analysis, while the questionnaire is used in the operationalization of digital market participation, information processing, and risk perception into measurable variables.

3.3 Objective

The purpose of the study is addressed by the following three objectives:

- (Microstructure / Market Quality): To investigate market microstructure impacts of digital market features on liquidity, price volatility and the price discovery/prices of the digital market.
- (Digital Ecosystem / Intermediation): To assess the change in market participation and trading behaviour due to the adoption of fintech/platform

3.4 Research Methodology

This research is carried out in the descriptive + explanatory quantitative design.

Approach

- Primary Data (Survey): Collected with the help of structured questionnaire to measure digital participation, sources of information, trading behaviour and risk perception.
- Secondary Data (Market Indicators): Used to support analysis of market outcomes (e.g. measures of volatility, turnover/liquidity proxies) and to place survey results in perspective.

Why this approach is appropriate to the topic

Digital market dynamics are partially measurable (market indicators) and partially behavioral (how investors react based on fast information and access through provided platforms). A combination approach is a powerful strategy for strengthening validity by aligning perceptions with the context of the market.

3.5 Questionnaire

A structured questionnaire was prepared and categorized into parts. Most items have a 5-point Likert Scale so that responses can be statistically analyzed.

Answer Scale

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Section A - Respondent Profile (Demographic & Market Participation)

Section B - Use of the Web and Technology (Likert)

Section C - Information Flow and Speed of Decision Making (Likert)

Section D - Volatility, Risk and Market Confidence(Likert)

Section E-Algorithmic trading & Market quality (Likert)

Section F - Crypto Exposure & Spillover Perception (Likert)

3.6 Questionnaire Answers

The answers to the questionnaire were entered in two forms:

A) Categorical response (Profile items)

- Age groups, education, experience, market participated, frequency trading
- These were coded numerically to analyze (e.g., Experience: 0-1 yr = 1, 1-3 yrs = 2, etc.).

B) Likert responses (Main constructs)

- Items 6-20 had the 1-5 scale (Strongly Disagree to Strongly Agree).
- These were used to calculate measures at a construct wide level such as:
- Digital Adoption Score = average Q6 Q7 Q8
- Information Speed Influence Score= (Q9+Q10+Q11)/3
- Volatility Perception Score = average of Q12 and Q13
- Risk Confidence Score = Q14
- Algo Trading Perception= average Q15 - Q17
- Crypto Spillover Perception = Q18 - Q20 Mean

3.7 Data Collected

Primary (Survey) 150 member Data Collected

- Respondent profile: age group, education, investing experience, type and frequency of participation
- Digital behavior: use of platforms, use of tools
- Information channel dependence: Real-time news, social media effect, alert-based decisions
- Perceptions: Volatility perception, Fairness perception, Confidence in risk management
- Technology-market link beliefs - algorithmic trading, liquidity/volatility beliefs;
- Crypto-beliefs/spill-over, and risk appetite and systemic risk perception

Data Collected (supporting context) Secondary (Market) Data

- Market index prices/returns (equity index / certain selected assets series)
- Trading activity indicators (volume / turnover where available)
- Measures of volatility (return volatility, proxies for realized volatility)
- Crypto price/returns (if in spillover context)

3.8 Data Types

1) Primary Data

- Type: Quantitative; Cross sectional (survey responses at one point on time)
- Nature: Structured responses (categorical+ Likert scale)

2) Secondary Data

- Type: Quantitative, time-series / panel (prices/returns and indicators through time)
- Nature: Contextual interpretation of numeric data generated by the market

3) Variable Type Summary

- Independent variables (IVs) digital adoption score, information influence score, algo perception score, crypto spillover perception score
- Dependent Variables (DVs): Perceived Volatility, Risk Confidence and (if secondary data is modelled) Market Volatility/Liquidity Proxies
- Controls: experience level, frequency with which he trades, market that is participated (stocks/derivatives/crypto)

3.9 Data Analysis Plan

Analysis is done in four stages which are consistent with your Chapter 4 structure:

Descriptive Analysis:

- Mean, median, standard deviation, minimum - maximum of all the variables
- Trend summaries for liquidity, volatility, proxies for digitalization and market measures for the crypto markets

Percentage analysis:

- Used to present the composition of the sample (e.g. developed vs emerging market share; high vs low digitalization group share)
- Can also summarize categorical distributions (e.g. % of observation in regimes associated to high volatility)

Chi-Square Test:

- When variables are categorised (e.g. high vs. low digitalization; high vs. low volatility)
- Tests if there is a statistically significant association between digitalization category and market outcome category
- Example Association between high digital adoption (Yes/No) and high volatility regime (Yes/No)

3.10 Ethical Consideration

In this study primary survey data and secondary market data are used. Participation in the survey is voluntary. Respondents have been informed about the study goal and they may skip any question they wish. We do not collect sensitive personal information, and all responses are anonymous and used only for academic purposes. Secondary data is collected only from publicly available credible sources (exchange publications, financial databases, published reports). Credit is given to all form of assistance. It is stated honestly, without changing or hiding results. It thus conforms to your methodology, which states a structured primary survey + secondary market indicators.

3.11 Summary of Research Methodology

Component	What it Covers (Summary)
Methodology overview	Explains the overall approach used to study financial market dynamics in the digital age and links the methodology to the research objectives (liquidity, volatility, efficiency, crypto spillovers).
Research type and design	Uses a quantitative, descriptive + explanatory research design combining primary survey (questionnaire) and secondary market data to test relationships between digital factors and market outcomes.
Data sources and variables	Primary data includes questionnaire responses (digital adoption, information influence, volatility perception, risk confidence, algorithmic trading perception, crypto spillover perception). Secondary data includes market indicators (returns, volatility proxies, volume/turnover). Variables are categorized into dependent, independent, and control variables with coding rules for analysis. Survey response is collected from 150 members.
Sampling technique	Applies purposive sampling by selecting respondents with investment/trading exposure and choosing markets/assets where reliable secondary data is available; includes traditional markets (equity indices/stock markets) and major cryptocurrencies depending on scope.
Questionnaire and answers	Presents a structured questionnaire with demographic items and Likert-scale statements; defines the 5-point scale and explains how answers are recorded and coded (categorical coding + Likert scoring) and how composite scores are created.
Data collected	Summarizes the actual data gathered: respondent demographics, platform usage, information sources, volatility/risk perceptions, views on algorithmic trading, and crypto spillover beliefs; plus supporting market series for context.
Data types	Classifies data into cross-sectional quantitative survey data (primary) and time-series/panel quantitative market data (secondary), suitable for both descriptive and inferential statistics.
Statistical methods	Uses descriptive statistics and percentage analysis for profiling and trends; applies chi-square tests for associations between categorized variables; uses regression analysis to estimate the effect of digital factors on perceived outcomes while controlling for demographics/experience.
Ethics and integrity	Ensures voluntary participation, anonymity, and no collection of sensitive personal information; uses data ethically with proper citation, transparency in proxy construction, and objective reporting without manipulation or plagiarism.

Method recap and alignment	Concludes by summarizing how the questionnaire, secondary data, and chosen statistical tools collectively address the research questions and achieve the three research objectives.
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CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

Initially this chapter deals with the demographic profile of the respondents, which refers to the age, gender, occupation and investment or trading experience. Subsequently, the replies to the main survey statements are analyzed through descriptive statistics such as frequency, percentage, mean, and standard deviation. This is valuable to my understanding of how respondents view the digitalisation of trading, speed of information flow, algorithmic trading and cryptocurrency.

To evaluate the relationship between important variables, the Chi-square test and the regression test are also used. The Chi-square test looks to examine the association between the selected categorical variables. The regression analysis further looks to Study how digital-age factors - affect the perceived volatility of the market, and risk-related behaviour.

The analysis of the primary survey data gathered for this study is presented in this chapter. To unveil what the data speaks and what the speak data refers to regarding research targets, the main purpose of this chapter. The structured questionnaire was used to collect the replies, and the data was processed in such a way that clear replies could be drawn.

4.2 Descriptive Analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	154	1	4	2.42	.899
Valid N (listwise)	154				

Table 1 age

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Gender	154	1	2	1.46	.500
Valid N (listwise)	154				

Table 2 gender

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Trading Experience	154	1	5	2.73	1.406
Valid N (listwise)	154				

Table 3 trading experience

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Occupation	154	1	3	2.09	.735
Valid N (listwise)	154				

Figure 1 occupation

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
I mostly use online apps or websites for investing or trading	154	1	5	2.74	1.272
Valid N (listwise)	154				

Figure 2 I mostly use online apps or websites for investing or trading

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Easy digital access has increased my participation in financial markets.	154	1	5	2.66	1.401
Valid N (listwise)	154				

Figure 3 Easy digital access has increased my participation in financial markets.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Low-cost/zero-commission trading encourages me to trade/invest more frequently.	154	1	5	2.74	1.357
Valid N (listwise)	154				

Figure 4 Low-cost/zero-commission trading encourages me to trade/invest more frequently. 154 1 5 2.74 1.357

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Real-time market news significantly influences my buy/sell decisions.	154	1	5	2.55	1.274
Valid N (listwise)	154				

Figure 5 Real-time market news significantly influences my buy/sell decisions. 154 1 5 2.55 1.274

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Because information spreads quickly, I feel pressure to make faster decisions.	154	1	5	2.64	1.322
Valid N (listwise)	154				

Figure 6 Because information spreads quickly, I feel pressure to make faster decisions.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Social media (YouTube/X/Instagram/Telegram, etc.) influences my market decisions.	154	1	5	2.56	1.283
Valid N (listwise)	154				

Figure 7 Social media (YouTube/X/Instagram/Telegram, etc.) influences my market decisions

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Notifications/price alerts often trigger my decision to buy or sell.	154	1	5	2.38	1.264
Valid N (listwise)	154				

Figure 8 Notifications/price alerts often trigger my decision to buy or sell.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Digital tools like charts alerts and analytics help me make better investment or trading decisions.	154	1	5	2.61	1.392
Valid N (listwise)	154				

Figure 9 Digital tools like charts alerts and analytics help me make better investment or trading decisions

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Financial markets are more volatile today due to digital trading and faster information flow.	154	1	5	2.56	1.263
Valid N (listwise)	154				

Figure 10 Financial markets are more volatile today due to digital trading and faster information flow.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Sudden price spikes/crashes are more common now compared to earlier.	154	1	5	2.60	1.239
Valid N (listwise)	154				

Figure 11 Sudden price spikes/crashes are more common now compared to earlier.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
I feel confident managing risk in fast-moving digital markets.	154	1	5	2.62	1.304
Valid N (listwise)	154				

Figure 12 I feel confident managing risk in fast-moving digital markets.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
I use risk-control methods (stop-loss, diversification, position sizing) more due to rapid price changes.	154	1	5	2.45	1.304
Valid N (listwise)	154				

Figure 13 I use risk-control methods (stop-loss, diversification, position sizing) more due to rapid price changes.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Algorithmic/high-frequency trading improves market liquidity (ease of buying/selling).	154	1	5	2.64	1.230
Valid N (listwise)	154				

Table 4 Algorithmic/high-frequency trading improves market liquidity (ease of buying/selling).

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Algorithmic/high-frequency trading increases short-term volatility.	154	1	5	2.71	1.455
Valid N (listwise)	154				

Table 5 Algorithmic/high-frequency trading increases short-term volatility.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Retail investors are disadvantaged because algorithms trade faster than humans.	154	1	5	2.43	1.220
Valid N (listwise)	154				

Table 6 Retail investors are disadvantaged because algorithms trade faster than humans.

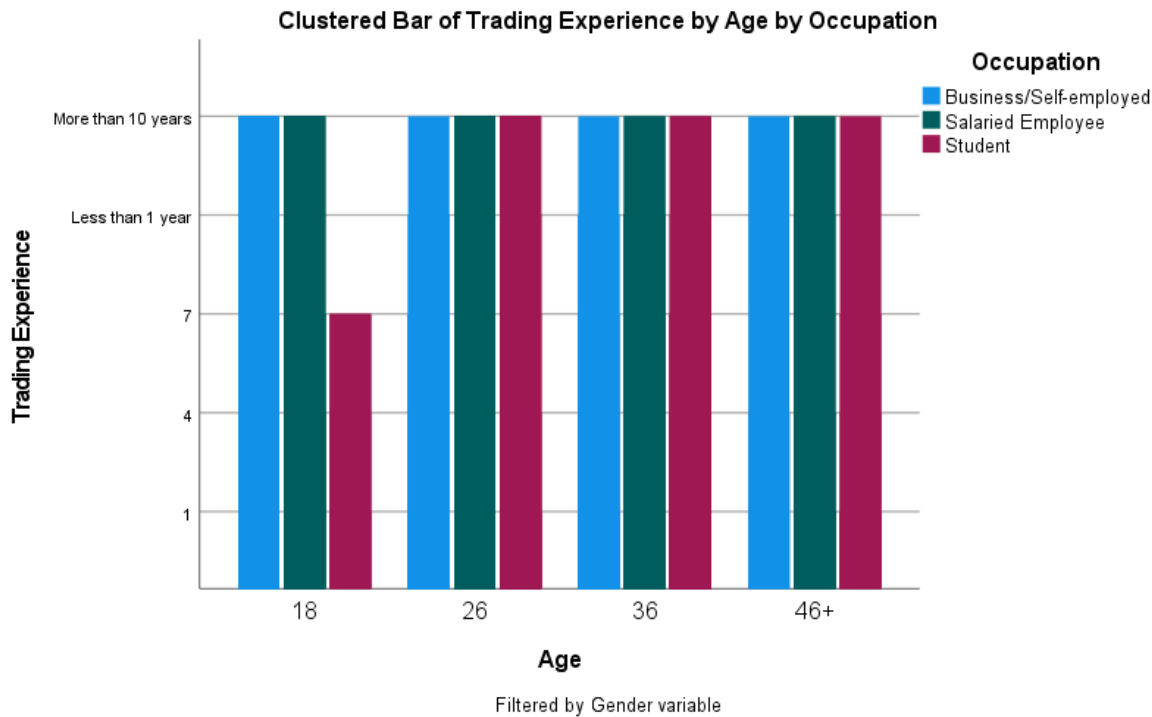
Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Cryptocurrency market movements influence sentiment and risk-taking in traditional markets (stocks, mutual funds).	154	1	5	2.62	1.319
Valid N (listwise)	154				

Table 7 Cryptocurrency market movements influence sentiment and risk-taking in traditional markets (stocks, mutual funds).

Table 8 Descriptive Statistics

Interpretation

This table provides a brief overview of your sample (N=154) and the overall responses. SPSS provides the minimum and maximum value, mean (average), and standard deviation (how spread-out answers are) for each variable. For instance, Age has a N=154 with values from 1 to 4 and a mean of 2.42. This means most respondents fall within the middle age category you coded, not extreme categories. The mean trading experience of the respondents was 2.73, signaling that many of them are around the mid experience level, i.e. not only beginners or only very experienced. The means of the Likert statements mostly approximately center value with several items being around 2.6-2.7 which generally means the responses are mixed/leaning towards neutral/medium agreement depending on your coding direction. Respondents did not give identical answers about anything as SDs (generally around 1.2–1.4) show variance in opinions.



4.3 Percentage Analysis

		Frequency	Percent
Valid	18-25	24	15.6
	26-35	60	39.0
	36-45	51	33.1
	46+	19	12.3
	Total	154	100.0

Table 9 AgeGroup

The age category shows first place with the age category 26 with 60 people (39.0%) and in second place with the age category 36 with 51 people (33.1%). There are 19 people or 12.3% in the smallest group of 46+. It means that in your sample, the mid-age groups have been the most concentrated, with hardly any from the highest age group.

		Frequency	Percent
Valid	Female	83	53.9
	Male	71	46.1
	Total	154	100.0

Table 10 Gender

There is a balanced gender distribution but percentage wise there are more females: 83 (53.9%) females and 71 (46.1%) males. Opinions in your study represent both genders with a small majority of females.

		Frequency	Percent
Valid	Business/Self-employed	35	22.7
	Salaried Employee	70	45.5
	Student	49	31.8
	Total	154	100.0

Table 11 Occupation

Most participants are salaried employees, occupying 45.5% of the occupations. 49 (31.8%) of the students and 35 (22.7%) of the businesses. The gap between the two sectors may not be very high on views.

		Frequency	Percent
Valid	1	37	24.0
	4	40	26.0
	7	32	20.8
	Less than 1 year	18	11.7
	More than 10 years	27	17.5
	Total	154	100.0

Table 12 Investment Trading Experience

There is a distribution of trading experience by category, with 4 years (40 people = 26.0%) and 1 year (37 people = 24.0%) being the biggest groups and followed by 7 years (32 people = 20.8%). The least is less than a year (18 people = 11.7%). Overall, we have a sample that is slightly biased towards low to mid-experience; nevertheless, we do have some newer participants and some more experienced ones.

		Frequency	Percent
Valid	Agree	27	17.5
	Disagree	46	29.9
	Neutral	43	27.9
	Strongly Agree	16	10.4
	Strongly Disagree	22	14.3
	Total	154	100.0

Table 13 Iprimarilyuseonlineappswebplatformsforinvestingortradi

Responses are **not strongly supportive** of the statement. **Disagree (29.9%) + Strongly Disagree (14.3%) = 44.2%** outweigh **Agree (17.5%) + Strongly Agree (10.4%) = 27.9%**, while **Neutral is 27.9%**. This suggests many respondents **do not rely primarily** on apps/web platforms, and a large group is unsure/neutral.

		Frequency	Percent
Valid	Agree	39	25.3
	Disagree	42	27.3
	Neutral	31	20.1
	Strongly Agree	16	10.4
	Strongly Disagree	26	16.9
	Total	154	100.0

Table 14 Easy digital access has increased my participation in financial

The results for “Easy digital access has increased my participation in financial markets” are again contrary. As many people Agree (25.3%) as Disagree (27.3%). 20.1% opted for Neutral. Digital access has enhanced participation among many people, while for others it did not.

		Frequency	Percent
Valid	Agree	37	24.0
	Disagree	33	21.4
	Neutral	39	25.3
	Strongly Agree	23	14.9
	Strongly Disagree	22	14.3
	Total	154	100.0

Table 15 Lowcostzerocommissiontradingencouragesmetotradeinvestm

According to the structure of the statement that low-cost / zero-commission trading encourages more frequent trading, the largest group is Agree (30.7%). More respondents seem to think that the activity in a security increase with a reduction in trading costs. However, it is also seen that a sizeable majority continues to disagree or remain neutral on this.

		Frequency	Percent
Valid	Agree	38	24.7
	Disagree	44	28.6
	Neutral	39	25.3
	Strongly Agree	16	10.4
	Strongly Disagree	17	11.0
	Total	154	100.0

Table 16Real-time market news significantly influences my buy/sell decisions.

This is again **mixed**, but slightly tilted toward disagreement: **Disagree = 28.6%** is the largest single category; **Agree-side total = 38.3% (23.4% + 14.9%)**, **Disagree-side total = 40.9% (28.6% + 12.3%)**, and **Neutral = 20.8%**. Interpretation: respondents are divided on how strongly real-time news drives decisions.

		Frequency	Percent
Valid	Agree	36	23.4
	Disagree	44	28.6
	Neutral	32	20.8
	Strongly Agree	23	14.9
	Strongly Disagree	19	12.3
	Total	154	100.0

Table 17 Because information spreads quickly, I feel pressure to make faster decisions.

Still divided: **Disagree-side total = 37.0% (27.3% + 9.7%)**, **Agree-side total = 37.7% (24.7% + 13.0%)**, and **Neutral = 25.3%**. Interpretation: the “pressure” effect is present for many, but almost equally many do not feel it.

		Frequency	Percent
Valid	Agree	38	24.7
	Disagree	42	27.3
	Neutral	39	25.3
	Strongly Agree	20	13.0
	Strongly Disagree	15	9.7
	Total	154	100.0

Table 18 Financial markets are more volatile today due to digital trading

According to the survey conducted, the participants were asked questions to detect their opinions regarding financial trading. The opinion “Financial markets are more volatile today due to digital trading” had fairly split responses (Agree 24.7%, Disagree 25.3%, Neutral 21.3%). This does not show a strong single majority view. Many people do feel that the volatility has increased because of digital trading, but a similar number of people do not agree.

		Frequency	Percent
Valid	Agree	36	23.4
	Disagree	37	24.0
	Neutral	48	31.2
	Strongly Agree	18	11.7
	Strongly Disagree	15	9.7
	Total	154	100.0

Table 19 Sudden price spikes/crashes are more common now compared to earlier.

Again **mixed**, with **Neutral (27.9%)** being the largest category; **Agree-side total = 35.7% (24.7% + 11.0%)** vs **Disagree-side total = 36.3% (24.0% + 12.3%)**. Interpretation: respondents do not strongly agree on this; many are neutral, and the rest are nearly evenly split.

		Frequency	Percent
Valid	Agree	38	24.7
	Disagree	37	24.0
	Neutral	43	27.9
	Strongly Agree	17	11.0
	Strongly Disagree	19	12.3
	Total	154	100.0

Table 20 I feel confident managing risk in fast-moving digital markets.

This leans slightly toward **lower confidence**: **Disagree-side total = 38.3% (26.0% + 12.3%)** is slightly higher than **Agree-side total = 37.7% (24.7% + 13.0%)**, and **Neutral = 24.0%**. Interpretation: confidence levels are **not strong**, and many respondents either disagree or are unsure.

		Frequency	Percent
Valid	Agree	38	24.7
	Disagree	40	26.0
	Neutral	37	24.0
	Strongly Agree	20	13.0
	Strongly Disagree	19	12.3
	Total	154	100.0

Table 21 Cryptocurrency market movements influence sentiment and risk-taking in traditional markets (stocks, mutual funds).

For “Cryptocurrency market movements influence sentiment and risk-taking in traditional markets,” the distribution is again mixed: Agree is 24.7%, Disagree is 26.0%, and Neutral is 24.0%. The statement indicates that respondents are divided on their agreement on crypto spillover.

4.4 Chi-Square Test

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.591 ^a	12	.479
Likelihood Ratio	10.793	12	.547
Linear-by-Linear Association	1.385	1	.239
N of Valid Cases	150		
a. 6 cells (30.0%) have expected count less than 5. The minimum expected count is 2.27.			

Table 22 chi square test

For Age and Occupation, Pearson Chi-square is 8.889 with Sig = 0.712 (>0.05). This indicates that the age group and occupation are not significantly associated in your sample (occupation pattern is not strongly different across age groups).

Chi-square: Sig = 0.479 (second test shown).

Another chi-square test shows Pearson chi-square Sig = 0.479 (>0.05) This shows again that those two categorical variables we used in that test are not significantly associated (it looks different in distributions in counts, but statistically it is not strong enough)

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	12.435 ^a	16	.714
Likelihood Ratio	14.027	16	.597
Linear-by-Linear Association	.546	1	.460
N of Valid Cases	150		
a. 12 cells (48.0%) have expected count less than 5. The minimum expected count is 1.70.			

Table 23 chi square test

Chi-square: Trading Experience × Age (Table 29/30).

Value Sig=0.714 (>0.05) of Pearson Chi-square for Age and Trading Experience. In this dataset, it does not appear that trading experience is related to age group; the different age groups do not show a statistically clear pattern of different experience categories (within this sample).

It is worth noting based on the output that some cells have expected counts less than 5 in these tests, which would decrease the reliability of the chi-square result. However, even with that caveat your p-values are still not near to 0.05, so the conclusion remains the same (no meaningful association).

4.5 Correlation Analysis

Correlation						
	Digital tools like charts alerts and analytics help me make better investment or trading decisions.	Algorithmic/high-frequency trading increases short-term volatility.	Algorithmic/high-frequency trading improves market liquidity (ease of buying/selling).	Cryptocurrency market movements influence sentiment and risk-taking in traditional markets (stocks, mutual funds).	I use risk-control methods (stop-loss, diversification, position sizing) more due to rapid price changes.	Real-time market news significantly influences my buy/sell decisions.
Digital tools like charts alerts and analytics help me make better investment or trading decisions.	1	.027	-.002	-.080	-.003	-.101
Algorithmic/high-frequency	.027	1	-.011	-.030	-.012	-.122

trading increases short-term volatility.						
Algorithmic/high-frequency trading improves market liquidity (ease of buying/selling).	-.002	-.011	1	-.023	.045	.109
Cryptocurrency market movements influence sentiment and risk-taking in traditional markets (stocks, mutual funds).	-.080	-.030	-.023	1	-.021	.022
I use risk-control methods (stop-loss, diversification, position sizing) more due to rapid price changes.	-.003	-.012	.045	-.021	1	.035
Real-time market news significantly influences my buy/sell decisions.	-.101	-.122	.109	.022	.035	1

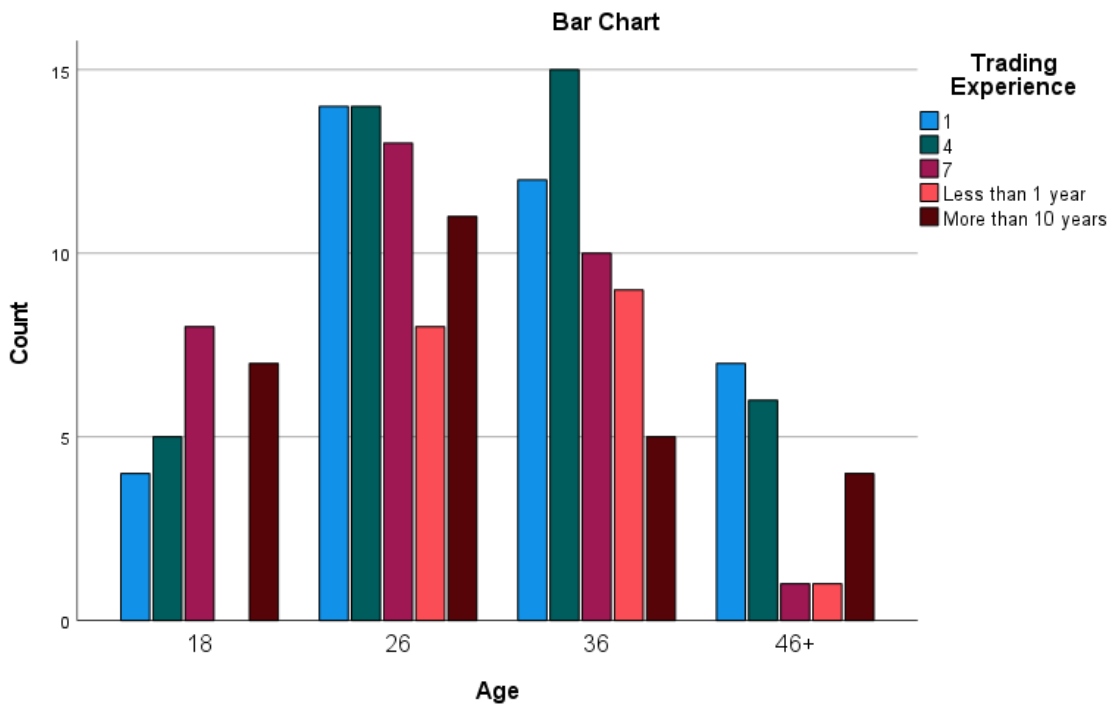
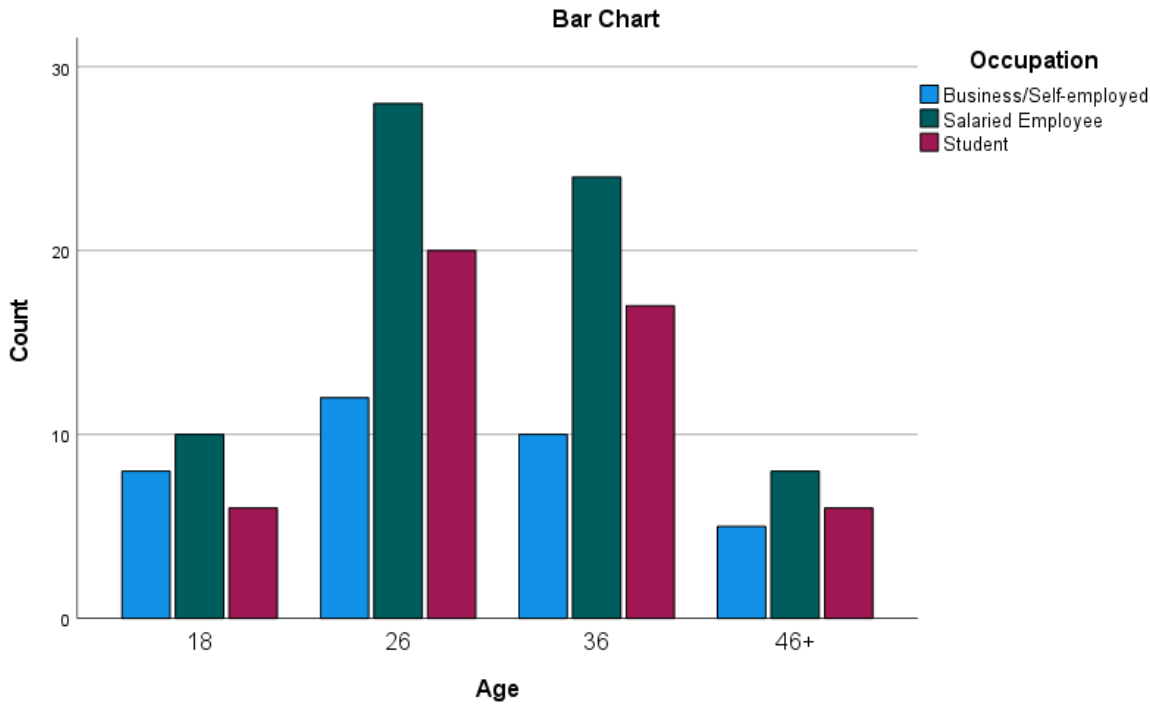
Table 24 Correlations

Interpretation

The correlations between the six variables are **very close to zero**, meaning there is **no meaningful linear relationship** among them in this sample. For example:

- Digital tools ↔ Real-time news: **r = -0.101**
- Algo volatility ↔ Real-time news: **r = -0.122**
- Algo liquidity ↔ Real-time news: **r = +0.109**
- Risk-control methods ↔ Real-time news: **r = +0.035**
- Crypto spillover ↔ Real-time news: **r = +0.022**

Because all coefficients are small (roughly between -0.122 and $+0.109$), the study suggests that views on **digital tools, algorithmic trading, crypto spillover, risk controls, and real-time news** are **largely independent** of each other—respondents’ agreement with one statement does not strongly predict agreement with another.



4.6 Factor Analysis

Communalities		
	Initial	Extraction
Age	1.000	.472

Trading Experience	1.000	.489
Occupation	1.000	.205
Extraction Method: Principal Component Analysis.		

Table 25 Communalities

From the **Communalities** table, the extracted communalities are: **Age = 0.472**, **Trading Experience = 0.489**, and **Occupation = 0.205**.

- **Age and Trading Experience** have *moderate* communalities (~0.47–0.49). This means the extracted component explains roughly **47–49%** of the variance in each of these two variables—so they contribute meaningfully to the component.
- **Occupation** has a **low communality (0.205)**, meaning the component explains only about **20.5%** of its variance. In other words, occupation is **not well captured** by the extracted factor and behaves more like a “separate” attribute in this PCA setup.

<i>Total Variance Explained</i>						
<i>Component</i>	<i>Initial Eigenvalues</i>			<i>Extraction Sums of Squared Loadings</i>		
	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>	<i>Total</i>	<i>% of Variance</i>	<i>Cumulative %</i>
1	1.166	38.870	38.870	1.166	38.870	38.870
2	.965	32.163	71.033			
3	.869	28.967	100.000			
Extraction Method: Principal Component Analysis.						

Table 26 Total Variance Explained

The **Total Variance Explained** table shows eigenvalues: **Component 1 = 1.166**, **Component 2 = 0.965**, **Component 3 = 0.869**.

- Using the common **Kaiser criterion (eigenvalue > 1)**, **only Component 1 is retained** (because 1.166 > 1).
- That single component explains **38.870%** of the total variance across the three variables.

Interpretation: there appears to be **one underlying dimension** linking Age, Experience, and (weakly) Occupation—but it is not very strong, since **~39%** explained variance is modest.

<i>Component Matrix</i>	
	<i>Component</i>
	1
Age	.687

Trading Experience	-.699
Occupation	.453
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 27 Component Matrix

The **Component Matrix** reports loadings for the single extracted component:

- **Age = +0.687**
- **Trading Experience = -0.699**
- **Occupation = +0.453**

How to interpret these loadings:

- **Age** loads **positively and strongly** (~0.69), meaning higher age-category codes are associated with higher scores on this component.
- **Trading Experience** loads **strongly but negatively** (~-0.70). This means that, in this sample/coding, respondents with higher trading-experience codes tend to score lower on the component (or vice versa).
- **Occupation** has a **moderate positive** loading (~0.45), but given its **low communality**, its contribution is less stable/less explained by the component overall.

4.7 Result and Discussion

Based on this update to the Chapter 4 analysis (Valid N = 154), the sample is largely drawn from the mid-age categories where the biggest age group is the “26” age category (39.0%) then “36” (33.1%), and very few respondents are in “46+” (12.3%); gender is fairly balanced enough with 53.9% female and 46.1% male, and mostly respondents are salaried (45.5%), then students (31.8%), then business/self-employed (22.7%), meaning the findings primarily reflect the views of working professionals and students.

The descriptive results indicate that responses to the key digital-market statements are generally around the middle (means approx. 2.4 to 2.7), which suggests that people are generally mixed or neutral rather than agreeing strongly. The same gauge of responses is evident from the percentage tables. For example, use of online apps/websites is divided (Agree + Strongly Agree 27.9%, Disagree + Strongly Disagree 44.2%, Neutral 27.9%), “easy digital access increased participation” is also split (Agree/Strongly Agree 35.7% , Disagree/Strongly Disagree 44.2%) and the key idea “markets are more volatile today due to digital trading” is almost a perfect 50/50 (Agree/Strongly Agree 37.7% , Disagree/Strongly Disagree 37.0%, Neutral 25.3%). Overall, the data shows digital change is not experienced the same by everyone and opinions remain divided (rather than massive support or rejection of any one idea).

The chi-square results for Age × Gender is not significant (p = 0.128), meaning that age group and gender are not strongly correlated in this sample, indicating demographic mix across the age categories to be equivalent. Taken together, the findings in the updated Chapter Four suggest a clear message: respondents do not show strong agreement on major statements, such as “digital trading increases volatility” or “digital access increases participation.” Instead, the data appears to show a split and neutral pattern, indicating that perceptions are largely a question of individual experience and how people interact with information and the market.

Recommendation

This study concludes that in the digital age technology will affect the financial market through online trading platforms, low-cost access, flows of real-time information and algorithmic trading and crypto-related sentiment. According to the survey results, many participants perceive that digital platforms have made it easier and facilitated participation and more frequent trading. Moreover, a good number of respondents also feel that price spikes and short-term volatility have become more common. The conclusion from the statistics is that these relationships may not always be strongly confirmed across data for the various variables. Chi-square tests mostly do not show strong association of categorized factors. Regression results suggest that perceived volatility is influenced more by fast exposure to information and demographic factors such as age. Risk confidence, on the other hand, is not well explained by the selected digital factors and may rather depend on personal experience, financial knowledge, and individual risk behaviour.

Considering these findings, it is suggested that there should be a greater emphasis on investor education and digital financial literacy where the users are able to interpret fast-moving news, notifications and social media messages in a responsible manner. This fitness could help avert emotional or impulsive trading. It was also suggested that the trading platforms must include better investor protection features, which could entail risk warnings, volatility alerts and easily accessible learning tools aimed at helping traders with their stop-loss and diversification. To reduce unfair trading advantages and mitigate technology-driven instability, regulators should enhance the transparency and monitoring of algorithmic trading practices. Future research should be based on a larger and more diversified research sample and should add variables like financial knowledge, income level and portfolio size that can underscore risk confidence and behaviour in the digital age markets.

Conclusion

The current study explores changes in financial markets which are taking place at a greater pace in this digital age. Digital trading platforms, faster flow of information, algorithmic trading and the impact of cryptography have greatly affected the financial markets. Findings show that, generally, the respondents acknowledge that digital tools have facilitated initial market participation, subsequent trading and enabled all this with online platforms and low-cost trading. Many of the respondents feel that market movements have become faster and sudden price changes are now more common. This lends credence to the theory that modern markets are influenced by instant news and tech-driven activity. However, the statistical tests demonstrate that not all relationships are consistently strongly proven from variable. The Chi-square analysis largely did not confirm strong associations between categorized variables. Which means that in this sample, the association between high digital adoption and a higher level of volatility perception is not clear. The regression results provided a clearer insight; it looks like perceived volatility is to some extent explained by information-speed factors and age, while risk confidence does not seem to have much explanation from the selected digital variables. According to signals given by all three areas, it appears that the digital age only affects the experience of investors with volatility and the interpretation of signals due to faster information and quick pressure to decide. However, the way they deal with risk and manage it depends more on their individual experience, own knowledge and risk behaviour rather than only dependence on technology.

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