KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

INSTITUTE OF DISTANCE LEARNING

THE RELATIONSHIP BETWEEN FINANCIAL LITERACY AND FINANCIAL FRAGILITY: THE MODERATION EFFECTS OF PSYCHOLOGICAL, ECONOMIC AND SOCIAL FACTORS

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement is made in the thesis.

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DEDICATION

I dedicate this body of work, first and foremost to God almighty without Him, I would not have come this far. Also, I dedicate it to my wife and family for their continuous support, patience, understanding and most of all the love without which the completion of this work would not have been possible.

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ABSTRACT

The research investigates how psychological, economic, and societal variables moderate the association between financial literacy and fragility. Quantitative methods improve precision and accuracy. The researcher also used a cross-sectional design to correlate study variables. Purposive sampling chose 400 responses. A pre-made questionnaire is usually utilized for data collection. SPSS 26 and Stata 15 are used for statistical analysis. Financial literacy is beneficial to financial fragility. Financial

fragility suffers greatly from financial confidence. Wealth boosts FR significantly. Race does not affect FR. The results show a favorable association between FR and wealthfinancial literacy. However, financial literacy and race interact significantly on FR. According to the results, financial fragility may be decreased by combining financial knowledge with financial confidence.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The ability to understand and manage one's financial situation requires financial literacy (Kaiser and Menkhoff, 2017). Consumers need financial literacy to make wellinformed and beneficial financial decisions. The extant body of scholarly work pertaining to financial literacy has examined the correlation between possessing knowledge and skills in money management and achieving improved outcomes in the realm of personal finance. Increases in retirement planning and savings (Grohmann, Klühs, and Menkhoff, 2018), decreases in debt levels (Zulaihati, Susanti, and Widyastuti, 2020), and overall increases in lifetime savings are just a few of the positive outcomes (Dewi, Febrian, Effendi, and Anwar, 2020).

In addition, the study shows that participants who had higher levels of financial literacy reported greater commitment to long-term saving and investment strategies (Kulathunga, Sharma, and Weerathunga, 2020; Sivaramakrishnan et al., 2017). Same way, customers who are well-versed in financial matters are less likely to be influenced by their coworkers, which could safeguard them against herd behaviour and the associated investing errors (Balloch et al., 2014; Widyastuti, Sumiati, Herlitah, and Melati, 2020). Shoppers who understand saving, investing, and loan prices may better organise their finances (Karakurum-Ozdemir, Kokkizil, and Uysal, 2019). Thus, financial literacy increases savings, market participation, and retirement savings plan maintenance (Calcagno, Alperovych, and Quas, 2020).

Behavioural finance research reveals that heuristics and biases cause consumers to make bad financial choices (Stolper, and Walter, 2017, Calcagno et al., 2020;

Karakurum-Ozdemir, 2019). Irrational thoughts and attitudes are widespread and longlasting money blunders (Morgan and Long, 2020). Financial literacy reduces behavioural biases including concern and emotional stress, according to studies (Baker et al., 2020). The research suggests that financially literate customers are less likely to make expensive behavioural biases and investment blunders, making them better equipped to save for their futures. The COVID-19 economic storm would be easier for financially smart clients. The survey found that financially aware clients are less likely to struggle.

The pandemic affects numerous facets of global society. Due to its widespread people had pay cuts and job losses, and have begun making withdrawals from their retirement accounts (Gunawan and Chairani, 2019). The COVID-19-caused economic downturn is anticipated to last for decades (Altig et al., 2020). People's financial stability has been eroded by the ongoing economic downturn. Experts claim that as a direct result of COVID-19, consumers' willingness to take on financial risk has plummeted (Heo et al., 2021). To restore financial stability, banks and financial institutions must find characteristics that may help clients react to unexpected financial shocks.

Financial resilience is the ability to recover from unforeseen events like job loss or handle other unanticipated costs (Gunawan and Chairani, 2019). Those who have built up their financial fortitude can weather any financial storm (Tuffour, Amoako, and Amartey, 2020). More than half of Ghanaians in 2010 were deemed financially unstable, defined as being unable to pay a GHC 500 emergency expense within the next 30 days (GSS, 2010). Financial insecurity has been measured by the equivalent of US$2,000 in studies conducted in Europe (Room and Merikull, 2017; Brunetti et al.,

2016). Academics/Researchers have proposed two approaches to preparing for financial shocks. One, mandating retirement and other savings programs to guarantee long-term financial security for individuals (Yuesti, Ni, and Suryandari, 2020). Two people would be better able to handle financial shocks if they were more financially literate (Yuesti, Ni, and Suryandari, 2020). Additionally, examines the economy throughout the outbreak. Initial costs associated with financial instability could be relatively large, particularly during COVID-19. As a result of being unable to pay for unexpected medical bills, individuals may accumulate debt or declare bankruptcy. Second, the pandemic's danger to health and job loss's impact on health insurance coverage have reduced the ability to pay for unexpected health expenditures (Yuesti et al., 2020). Consumers who cannot afford these fees risk their safety and well-being. In conclusion, COVID-19 poses serious health and economic risks. The findings suggests that financial knowledge may reduce COVID-19-related financial loss.

Innumerable factors may affect the outcomes of financial education. Based on Woolhandler and Himmelstein (2020) findings, the study proposes a taxonomy of consumer resources consisting of the following three groups: financial confidence, wealth, and race. The consumer may acquire (obtain through effort) the resource, or the consumer may have access to it automatically (at birth) (Woolhandler and Himmelstein, 2020). This research included both variables as the former is learnt behaviour and the latter is race-based. A consumer's wealth represents inherited and earned riches. To that end, we want to learn how factors like self-assurance, wealth, and race influence the correlation between financial knowledge and security.

1.2 Statement of the Problem

The COVID-19 pandemic has led to an economic crisis, critically impacting the financial security of the global working population. This phenomenon is particularly pronounced in the context of Ghana, where the long-term financial outlook for many has deteriorated, with increased likelihood of depleting retirement savings or accruing significant debt. Research has shown that financial literacy plays a pivotal role in enhancing economic security. For instance, Lusardi and Mitchell (2014) found that financial literacy significantly contributes to financial satisfaction, retirement savings, wealth accumulation, and even affects borrowing costs. Concurrently, studies by Kaiser and Menkhoff (2017) and Kulathunga et al. (2020) echo these findings, highlighting the importance of financial literacy in economic stability.

Despite the established importance of financial literacy, its impact on financial fragility, particularly in Ghana, has not been thoroughly investigated. Financial fragility, a condition characterised by the inability to manage unforeseen financial hardships, is a critical area of study due to its association with adverse outcomes like debt accumulation, poverty, and insolvency (Rabbani, Heo, and Grable, 2021). This condition is exemplified by the 2010 report from the Ghana Statistical Service (GSS, 2010), which revealed that over half of Ghanaians were unable to meet a sudden GHC500 expense within a 30-day period. The concept of financial fragility is not limited to Ghana; it has been explored in European contexts as well, with studies by Room and Merikull (2017), Brunetti et al. (2016), and Mavlutova et al. (2021) examining its implications across different economic landscapes.

In exploring the factors that influence financial literacy and, by extension, financial fragility, this study identifies key variables: psychological (financial confidence),

economic (wealth), and social resources. Foladare (1969) provides a framework for understanding these resources as either acquired through effort or inherited. The study also considers the role of consumer race as an attributed variable and financial confidence as a learned trait, recognizing that wealth can be a composite indicator of both inherited and earned resources.

Significant to this study is the exploration of racial and gender disparities in financial insecurity. Chhatwani et al. (2021) found notable differences in financial vulnerability among different racial and gender groups, with women and people of colour facing higher levels of financial insecurity. This study aims to examine if such disparities exist in Ghana, employing a multi-item scale to assess financial fragility, an advancement from the one-item scale used by Chhatwani et al. (2021).

Additionally, this research seeks to understand the relationship between financial literacy and financial volatility using logistic regression, considering the influence of cultural factors on financial conduct and knowledge (De Beckker et al., 2020). Cultural differences, as delineated by Hofstede (1980), between Western individualism and Eastern collectivism, may play a significant role in financial behavior and literacy. The study will investigate whether the findings from Ghana, with its unique cultural characteristics, can be generalised to other developing countries with similar Eastern cultural traits. Thus, this study examines how financial literacy influenced financial fragility and how psychological, economic, and social variables modulated this connection.

1.3 Objective of the Study

The primary goal of this study is to investigate the influence of financial literacy on financial fragility. Additionally, this research aims to explore the moderating effects of

psychological factors (such as financial confidence), economic factors (such as wealth), and social factors (such as race) on this relationship. The project examines the following particular objectives:

1. To examine the effect of financial literacy on financial fragility.
2. To investigate the effect of financial confidence, wealth, and race on financial fragility.
3. To examine the moderating role of financial confidence, wealth, and race, on the relationship between financial literacy and financial fragility.

1.4 Research Questions

1. What is the effect of financial literacy on financial fragility?
2. Does financial confidence, wealth, and race affect financial fragility?
3. Does financial confidence, wealth, and race moderate the relationship between financial literacy and financial fragility?

1.5 Significance of the Study

This research adds to financial fragility literature utilising many variables. A person must raise GHC500 every month to qualify. This amount is typical for auto repairs, medical bills, and other unforeseen expenses. These symptoms of financial fragility put people in danger of debt, destitution, and bankruptcy. Thus, economic instability affects consumers' thoughts and behaviours (Stella, Cervellati, Magni, Cillo, and Papa, 2022). Academics suggested additional research into financial instability at the Conference on Volatility and Imperfections in the Global Economy (Stella et al., 2022). This research shows that financial knowledge reduces pandemic financial fragility.

Financial managers must be numerate to navigate today's complicated markets.

Learning about money management, a human capital investment (Woolhandler and Himmelstein, 2020), may help individuals prepare for unforeseen circumstances. The results on financial literacy and fragility have substantial theoretical implications. The research will determine whether boosting self-confidence and wealth is more successful than money education. This will indicate whether the numbers support the racial border effect, which defied our predictions. This study will determine whether financial literacy and fragility differ by race. The literature on financial management admits that psychological elements alone cannot explain conduct. This research shows that psychological variables stabilise bank accounts. Extremely financially fragile people may borrow at higher rates and be more susceptible to interest rate swings. This research shows that working-age adults without financial means and high debt may suffer long-term repercussions. These economically insecure retirees will lack retirement money. The increasing risk of retirement bankruptcy would cost society. Early policy action to alleviate financial fragility among working-age persons may save retirement insecurity costs.

For managers, financial literacy and border financial fragility have major policy consequences. The study also demonstrates that financial self-confidence outperforms financial knowledge. Banks and financial organisations may prioritise financial education and confidence to improve matters. Financial instability may complicate debt acquisition. Financial management may aim to improve debt management.

Policymakers and financial institutions may raise knowledge of debt's short- and longterm effects to avert retirement bankruptcy.

1.6 Scope of the Study

The target population includes residents 20 years and above in the Accra metropolis.

The participants were provided the information that the survey was optional and that their identities would remain confidential. The study chose Accra Metropolis due to its unique traits, which make it a perfect representative sample of Ghana's populace. Capital city Accra is wealthy with high income and broad access to formal financial institutions. One difficulty this research encountered regarding the chosen population was a dearth of precise data on the whole target population. According to Waaswa (2021), this difficulty is encountered in the majority of research conducted in developing countries such as Ghana.

1.7 Summary of Methodology

The research included quantitative, descriptive, and ex post facto methods. Survey data are used to test the hypothesised model. This approach is suitable for financial literacy research because it makes it easy to gather primary data on a phenomenon that is hard to assess using secondary data (Bauer, Churchill, Mahendran, Walwyn, Lizotte, and Villa-Rueda, 2021). The poll comprises all Accra Metropolis inhabitants 20 and older. The respondents were chosen via purposive sampling. The researcher decided to provide the questionnaire to these respondents since they know about the phenomena. The respondents gave consent before the researcher interacted with them. First, respondents were told the survey's purpose and given the questionnaire. They were then told that the survey was optional and they may opt-out or vice versa. The questionnaire explanation helped researchers resolve all survey and questionnaire questions. The questionnaire was then given to all voluntary survey participants. The responders answered all questions in 20 minutes. In this study, eligibility was not a problem since the researcher purposefully picked only competent respondents. The survey has 400 participants. Scholarly sources provided this study's measuring items. The raw data was

carefully checked before analysis to remove any incorrect/incomplete redundancy. The expected maximisation technique was used to correct issues relating to missing data. The data was analysed with SPSS and STATA software to determine the logistic model.

1.8 Limitations of the Study

The research limits the topic to "examine the impact of financial literacy on financial fragility; the moderating effects of psychological factors, economic factors, and social factors". One limitation relates to the use of the straight inquiry approach to information gathering. This context draws findings and suggestions from respondent data. This indicates that the researcher has no control over the reliability of the results. Again, there is a potential that people may react with hesitation and scepticism. Researchers also face time and material restrictions. The final results and suggestions in this study are proportionate to the author's data, which answers the research questions. Despite these challenges, however, the researcher has given the best to ensure that this research work is standard and meets the requirements of writing set by the university.

1.9 Organisation of the Study

The study paper contains five parts. The introduction sets the stage for the investigation. This chapter presents the issue, aims, and research questions. Chapter one includes importance, scope, constraints, and a technique overview. The study's literature review is chapter two. The second chapter reviews ideas, theories, empirical research, and conceptual framework. The study's sampling, data gathering, data analysis, and other methods are covered in chapter three. The fourth chapter analyses the study's results and pertinent literature, and the last chapter provides a summary, conclusion, and future research.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter undertakes a comprehensive literature review to address the research question, “To what extent does financial literacy mitigate financial vulnerability amidst the COVID-19 pandemic in Ghana?” It is methodically structured into five key sections: Section 2.1 sets the foundation by exploring theoretical literature on financial literacy, its aspects, financial confidence, attitude, and fragility; Section 2.2 expands the discussion to encompass major economic theories, with a focus on Keynesian theory, contextualizing the study within broader economic thought; Section 2.3 synthesizes empirical findings from previous research, providing critical insights and evidence linking theory to practice; Section 2.4 delves into hypothesis development, examining the core themes of financial literacy and fragility and the moderating effects of financial confidence, wealth, and race; and Section 2.5 presents the study's conceptual framework, articulating the interplay of these various elements. This comprehensive review culminates in a summary that consolidates key themes and theories, laying a solid theoretical and empirical foundation for the research.

2.1 Conceptual Review

The conceptual review presents the definition of the study concepts and also discusses the concepts in the study in detail, revealing what previous research has conferred about the concepts and critically evaluating the opinions and arguments of different scholars. Discussion topics include financial literacy and its aspects.

2.1.1 Financial Literacy

Financial literacy, a term widely recognized for its importance in achieving financial well-being, is defined through a multitude of lenses in academic literature. The OECD (2018) describes it as a combination of attitudes, knowledge, skills, and behaviours essential for making responsible financial decisions, thus acknowledging its multifaceted nature. This broad definition encapsulates not only the practical aspects of financial management but also the underlying attitudes and behaviours that guide financial decision-making.

Ibrahim and Alqadyi (2013) narrow the scope of financial literacy to investors' ability to assess opportunities and risks, thereby emphasizing the decision-making aspect in improving financial well-being. This perspective focuses on the evaluative and analytical skills that form part of financial literacy. Similarly, Oteng (2019) presents a more pragmatic approach, associating financial literacy with everyday money management, suggesting its fundamental role in daily financial activities.

Amidst these various interpretations, Ocansey (2022) highlights the definitional discrepancies found in different studies, indicating that financial literacy is often contextually defined. This adaptability of the term signifies its relevance across diverse financial scenarios. Remund (2010) aligns with a traditional viewpoint, considering financial literacy as the ability to manage personal finances and make sound financial decisions, including understanding fundamental concepts like interest, investments, and cash flows.

The interchangeable use of terms like 'financial literacy', 'financial knowledge', 'financial education', and 'financial capacity' in academic discussions, as noted by

Yong, Yew, and Wee (2018) and Xiao (2014), though offering versatility, can sometimes lead to conceptual ambiguity. This terminological fluidity necessitates a clear understanding of the nuances of each term. Bapat (2020) differentiates between subjective and objective financial knowledge, with the former being an individual's perception of their knowledge and the latter being their actual knowledge. This distinction is vital in assessing the true extent of an individual's financial literacy.

Lusardi et al. (2017) underscore the predictive power of financial literacy, especially in explaining wealth disparities, thereby highlighting its significant impact on economic outcomes. This predictive aspect adds another dimension to the importance of financial literacy. The critical discussions around financial literacy's definitions and implications, such as those presented by Cude et al. (2019) and Kim et al. (2019), call for a reflection on the practical application of financial literacy education. Lusardi (2019) emphasizes the necessity of integrating financial literacy into early career education, suggesting its foundational role in shaping an individual's financial future.

Innovative educational methods, like the video intervention approach suggested by Kuntze et al. (2019), indicate the evolving strategies in imparting financial literacy, particularly to younger audiences. These methods underscore the need for dynamic and engaging ways to enhance financial understanding among various demographics.

In conclusion, financial literacy encompasses a broad spectrum of competencies, ranging from basic money management to sophisticated investment decision-making. Its dynamic nature calls for a comprehensive and flexible approach to financial education, tailored to meet the diverse needs of individuals in different economic situations.

2.1.2 Dimensions of Financial Literacy

2.1.2.1 Financial Knowledge

Financial knowledge, a subset of financial literacy, is a concept that is understood and defined in various ways by researchers, reflecting its multifaceted nature and the breadth of its applicability in personal finance management. Huston (2017) defines financial knowledge as the ability to comprehend business concepts and terminology. This definition underscores the importance of understanding basic financial principles and the language used in financial contexts, highlighting the need for a foundational level of financial education that equips individuals to navigate the financial landscape effectively.

Potrich, Kelmara, and Wesley (2016) take a more practical approach, viewing financial knowledge as the accumulated wealth that comes from the careful management of income, expenditures, and savings over a lifetime. This perspective ties financial knowledge directly to financial behaviours and outcomes, suggesting that effective management of personal finances through informed decisions is a crucial aspect of financial knowledge.

Lusardi and Mitchell (2008) offer a similar definition, focusing on the ability to manage earnings, expenses, and assets to maintain financial stability. This definition aligns closely with practical financial management skills, emphasizing the importance of budgeting, saving, and asset management as key components of financial knowledge.

Robb (2014) expands on this by detailing specific actions that constitute sound financial management, such as maintaining an emergency fund, regularly monitoring credit reports, avoiding overdrafts and revolving debt, preparing for retirement, and obtaining

sufficient insurance. This detailed approach provides a clear, actionable framework for what constitutes financial knowledge in everyday life.

The OECD INFE (2011) provides a metric for assessing financial knowledge, suggesting that an individual's ability to answer questions on simple and compound interest, risk and return, and inflation is a good predictor of their financial knowledge. This metric offers a quantifiable way to evaluate an individual's understanding of key financial concepts, providing a benchmark for financial education initiatives.

Tang and Peter (2015) suggest that financial knowledge can be acquired through experiences, observations, and conceptualisations. This broadens the scope of how financial knowledge is gained, encompassing not only formal education but also practical, real-world experiences and observations. Andreou and Phillip (2018) emphasise that financial knowledge involves both understanding financial information and possessing a basic grasp of concepts and products in the financial sector. This comprehensive definition highlights the need for extensive financial literacy that covers a wide range of financial products and concepts, enabling individuals to make informed decisions in various financial contexts.

In summary, financial knowledge is an essential component of financial literacy, encompassing the understanding of financial concepts, terminology, and the practical application of this knowledge in managing personal finances. The various definitions offered by researchers reflect the complexity and breadth of the concept, underscoring the importance of a comprehensive approach to financial education that addresses both theoretical understanding and practical application.

2.1.2.2 Financial Confidence

The concept of financial confidence, a key factor influencing financial decisionmaking, is explored and interpreted variably in the literature. This concept is distinct yet interrelated with financial literacy, affecting how individuals apply their financial knowledge in practical situations. Palameta et al. (2016) define financial confidence as the certainty an individual has in their ability to make prudent financial decisions. This definition emphasizes self-assurance in applying financial knowledge, suggesting that confidence is as crucial as knowledge itself in effective financial management.

The relationship between financial confidence and the application of financial knowledge is further explored by Atlas et al. (2019) and Hilgert et al. (2003). These studies suggest that individuals with higher financial confidence are more likely to put their knowledge into practice. Atlas et al. (2019) introduce an interesting perspective by asserting that the impact of financial knowledge on decision-making is transient and significantly dependent on financial confidence. This highlights the dynamic interplay between knowledge and confidence in financial decision-making.

The evidence regarding individuals' confidence levels in their financial literacy, however, shows inconsistency. Barber and Odean (2001) found that overconfidence leads investors to assume riskier stock positions, indicating that excessive confidence can lead to less prudent financial choices. Similarly, Camerer and Lovallo (1999) observed that overconfident business owners often invest in ventures with lower chances of success. These findings point to the potential pitfalls of overconfidence in financial decision-making.

Conversely, Hung, Parker, and Yoong (2009) argue that confidence in one's financial expertise is crucial for making wise financial decisions. This view posits that a certain

level of self-assurance is necessary for applying financial knowledge effectively. Parker and Stone (2014) further support this, finding that both perceived and actual knowledge positively influence retirement planning.

The relationship between actual and perceived financial knowledge has also been a subject of investigation. Lusardi and Mitchell (2011) found a positive correlation between these two aspects among U.S. individuals, suggesting that higher perceived knowledge often aligns with higher actual knowledge. However, Szykman and Agnew (2005) indicate that actual and perceived knowledge of investing vary significantly depending on individual characteristics, pointing to the complex nature of financial confidence and knowledge.

In essence, financial confidence is a critical aspect of financial behaviour, playing a significant role in how individuals apply their financial knowledge. The literature reveals a nuanced picture: while confidence can enhance the application of financial knowledge, overconfidence can lead to risky financial behaviours. Understanding the balance between knowledge and confidence, and recognizing the potential disparities between perceived and actual knowledge, is essential for effective financial decisionmaking.

2.1.2.3 Financial Behaviour

Financial behaviour, a concept integral to personal finance management, is defined and examined in various studies, each highlighting its critical role in shaping an individual's financial well-being. Zeynep (2015) offers a comprehensive definition of financial behaviour, describing it as the ability to evaluate and comprehend the cumulative impact of financial decisions on one's circumstances. This definition emphasizes informed decision-making in key areas such as cash management, protection

mechanisms, and budget planning. The focus here is on the broad perspective of financial choices and their long-term implications on an individual's financial health.

Supporting this view, Hung, Parker, and Yoong (2009) establish a direct link between financial literacy and financial behaviour. Their research suggests that a solid understanding of financial concepts and principles is a reliable predictor of prudent financial behaviour. This correlation underscores the importance of financial education in shaping responsible financial habits and decisions.

Sucuahi (2013) delves deeper into the components of appropriate financial behaviour, stressing that it involves making decisions that not only increase wealth but also reduce uncertainty for both individuals and corporations. Key aspects of such behaviour include the accumulation of financial assets, avoidance of excessive debt, planning for retirement, and safeguarding against significant life events. This perspective highlights the multifaceted nature of financial behaviour, encompassing a range of activities from asset building to risk management.

Together, these studies paint a picture of financial behaviour as a complex interplay of knowledge, decision-making, and long-term planning. The ability to make informed financial choices, influenced by a thorough understanding of financial principles, is central to achieving and maintaining financial stability and resilience. This body of research underscores the need for comprehensive financial education that empowers individuals to navigate the complexities of personal finance effectively.

2.1.2.4 Financial Attitude

Financial attitude, an important psychological component of personal finance management, is conceptualized and analyzed by various researchers, focusing on how

it influences financial decisions and behaviours. Latif, Razak, and Lumpur (2011) define financial attitude as the application of financial concepts in decision-making and resource management to generate and preserve wealth. This definition underscores the role of smart decision-making and effective management of resources in personal finance, suggesting that a positive financial attitude is crucial in leveraging financial knowledge for wealth creation and maintenance.

Eagly and Chaiken (1993) provide a broader psychological perspective by defining attitude as a psychological tendency expressed by evaluating a particular entity with some degree of favour or disfavour. In the context of financial attitude, this definition implies that individuals hold certain predispositions or biases towards financial management methods and practices. Such biases or inclinations can significantly influence how individuals approach financial decisions, ranging from everyday spending to long-term investment strategies.

Latif et al. (2011) further articulate the concept of financial mindset, emphasizing its role in using financial principles to create value through decision-making and resource management. This perspective highlights the importance of a mindset that is attuned to financial principles, suggesting that a strategic approach to financial decisions is integral to effective financial management.

Abiodun (2016) adds to this discussion by suggesting that an individual's financial outlook can be enhanced through education. This view posits that financial attitudes are not static but can be developed and improved through targeted financial education. Such education can equip individuals with the knowledge and skills needed to foster a more positive and proactive approach to managing their finances.

In summary, the concept of financial attitude encapsulates the psychological inclinations or biases individuals hold towards financial management. It encompasses the application of financial concepts in decision-making and resource management, with an emphasis on creating and preserving value. The research in this area highlights the significance of cultivating a positive financial attitude, suggesting that it can be nurtured and enhanced through education, ultimately leading to more effective and beneficial financial behaviours.

2.1.2.5 Financial Fragility

The concept of financial fragility, a pivotal term in economic theory, was first introduced by Hyman Minsky in 1972. It emerged from his analysis of John Maynard Keynes' work, specifically the General Theory published in 1936, and Minsky's efforts to apply these ideas to understanding financial crises.

Minsky's analysis posits that financial fragility is a gradual, evolving process that typically begins in the trough of an economic cycle. Schroeder (2009) elaborates on this, describing financial fragility as a condition where cash flows from assets are increasingly diverted towards servicing debt obligations. This shift in cash flow dynamics, occurring at both micro and macroeconomic levels, heightens an economy's vulnerability to financial shocks. The degree of financial fragility present at the time of a shock is directly proportional to the economy's susceptibility to adverse effects from that shock. Consequently, an economy with greater financial stability is better positioned to withstand financial disturbances compared to one with higher levels of fragility.

The phrase "little shock, large crisis," as articulated by Gorton and Ordonez (2014), encapsulates the essence of financial fragility. This concept illustrates the system's

vulnerability (encompassing financial markets or the macroeconomic environment) to even minor disruptions. Theoretical advancements in this domain, as contributed by scholars like Diamond and Rajan (2001), Lagunoff and Schreft (2001), and Allen and Gale (2004), reinforce the notion of financial systems' susceptibility to seemingly small shocks.

Nasica (2000) observes that the New Keynesian discourse on financial fragility often overlooks its historical context, even though it has become a prominent topic in economics and policy. This New Keynesian literature, representing the fourth generation of financial crisis literature, links banking, currency, and debt crises. Bernanke and Gertler (1990) were among the first in this school of thought to address New Keynesian financial fragility.

Yusof (2018) offers a more specific definition, characterising a financially unstable economy as one where the net worth of firm owners is inadequate for their investment goals. Weak mechanisms in financial intermediation – such as insufficient collateral and net worth – contribute to this fragility. Delli Gatti et al. (2005), building on the work of Greenwald and Stiglitz (1990, 1993), define financially fragile enterprises as those with high leverage (i.e., disproportionately low net worth) and elevated default risks.

In summary, financial fragility is a multifaceted concept that encompasses the increasing vulnerability of economies to financial shocks due to shifting dynamics in asset cash flow and debt obligations. The evolution of this concept within economic theory has been shaped by various scholars, each contributing to a deeper understanding of the conditions that precipitate financial crises and the role of financial stability in mitigating these crises.

2.2 Theoretical Review

2.2.1 Keynesian Economics Theory

The Keynesian theory was created by John Maynard Keynes in 1930. The Keynesian approach suggests using more government spending and/or lower taxes as fiscal prescriptions aimed to support economic development without causing inflation while the economy is deep in a recession, given that (as is normal during economic downturns) the economy is far from reaching full employment. These budgetary recommendations aim to encourage economic development without triggering price increases. This type of expansionary fiscal policy, which assumes that short-run price stability will be maintained, raises aggregate demand, which in turn raises income and employment levels, as well as consumption due to the impacts of multiplier effects. Shaheen (2019) finds strong empirical support for the effect of government spending on output, leading to specific conclusions about the transmission mechanisms of fiscal policy, the magnitude of the short-term multiplier produced by fiscal stimulus, and the effect of fiscal policy on long-term growth. On the other hand, according to Keynesian theory, tackling inflationary spirals by cutting public expenditure or increasing taxes comes at a significant price, specifically the engendering of more unemployment and lower economic growth. Both of these outcomes are undesirable. A wealth shock is sent to consumers when their permanent income is lowered through increased taxation to pay greater government expenditure. This results in customers cutting back on the number of goods and services they purchase. Baxter and King (1993) state unequivocally that lower actual wage rates are a consequence of the aforementioned factors. During the Coronavirus outbreak, many countries including Ghana had to purchase vaccines from third-party suppliers at a higher cost compared to the original production and sales cost. The country also implemented many policies to alleviate the

financial burden on the citizens, including free utility for six months. All these costs were borne by the citizens in the form of increased taxes. Many taxes included the COVID tax, and utility taxes among other taxes, all of which were catered for by the citizens of the nation. During the aftermath of the lockdown, there were increased prices of not only imported and exported goods but also locally manufactured goods. The war between Russia and Ukraine also caused major backlashes in many other countries. Russia and Ukraine collectively produce 28.9% of the global wheat exports and about 60% of the global sunflower oil stock. Many countries depend greatly on Russia to produce oil and gas and during the war; almost all these countries had to rely on limited stocks, which in turn caused procurement to be at fairly higher prices. Financial literacy is needed by all as a way to understand financial concepts and regulate financial resources properly and efficiently. Ample knowledge of financial literacy allows one to spend within reasonable bounds while getting the needed number of products.

2.3 Empirical Review

2.3.1 Financial Literacy and Its Impact on Financial Fragility

The interrelationship between financial literacy and financial fragility forms a crucial area of investigation in contemporary economic research. The seminal work of Chhatwani and Mishra (2021) is pivotal in understanding this dynamic. Their study, harnessing data from the American working-age population, robustly demonstrates that an increase in financial literacy can lead to a significant decrease in financial fragility, quantified at 9.1%. This finding is particularly relevant in the context of the economic downturns experienced during the COVID-19 pandemic, suggesting that financial competence and confidence are key in cushioning the impact of such unforeseen economic challenges.

Extending the discourse, Kim, Lee, and DeVaney (2022) contribute a nuanced understanding of the relationship between financial knowledge and fragility. Through a methodologically sound approach that incorporates educational levels within US zip code units as an instrumental variable, they establish a negative correlation between financial knowledge and financial fragility. This approach not only corroborates the findings of Chhatwani and Mishra but also underscores the influence of social and community factors on financial literacy. The inclusion of the neighbourhood effect in their analysis highlights the importance of the socio-economic environment in shaping an individual's financial knowledge and capabilities.

Moving beyond the American context, Hashim and Nor (2021) offer insights into the determinants of financial fragility among urban families in the Klang Valley. Their research underscores the importance of financial knowledge and behaviour in managing economic challenges. The study reveals that a significant portion of urban families possess the capability to manage emergency funds within the RM1000-RM2000 range, indicating the practical impact of financial literacy on economic resilience.

In a study that shifts focus to an older demographic, Bialowolski et al. (2022) illuminate the protective role of financial literacy against financial fragility among individuals aged 50-64. This research not only highlights the relevance of financial education in enhancing economic stability in later life but also points to the necessity of tailored financial literacy programs that address the unique needs of different age groups. The study's findings suggest that interventions aimed at improving financial literacy can have long-term benefits, contributing to a more financially secure and resilient population.

2.3.2 Multifaceted Influences on Financial Fragility

The exploration of financial fragility encompasses a diverse range of cultural and demographic dimensions, revealing the multifaceted nature of economic resilience and vulnerability. Research in this area has increasingly highlighted the importance of understanding the broader socio-economic and cultural contexts that shape financial behaviours and outcomes.

The study conducted by Yusof (2019) provides a comprehensive analysis of financial vulnerability, with a particular focus on Malaysia. This research sheds light on the significant impact of ethnic disparities on financial stability. By comparing financial fragility within Malaysia to other Asian countries, Yusof's work offers an in-depth understanding of how ethnic and socio-economic factors intertwine to influence financial resilience. This comparative approach is instrumental in revealing the nuanced ways in which cultural contexts can shape economic experiences and outcomes.

In a similar vein, the research by Greenwald (2021) in the American context delves into the disparities in financial instability among different ethnic groups, particularly highlighting the challenges faced by Hispanic/Latino populations. This study underscores the need to consider ethnic and demographic variables in the analysis of financial fragility. Greenwald's findings point towards the necessity of tailored financial policies and educational programs that are sensitive to the unique challenges faced by diverse demographic groups.

Further expanding the discourse, Lyons, Kass-Hana, and Liu (2021) examine the interplay between financial and digital literacy in fostering financial resilience. Their research spans across seven South Asian and Sub-Saharan African countries, offering a broad perspective on the role of literacy in economic stability. The study reveals critical

insights into how both financial and digital literacy contribute to enhancing economic diversity and stability. This is particularly relevant in the current digital age, where digital literacy is increasingly becoming as important as financial literacy in navigating the economic landscape. The research also identifies notable disparities in financial resilience across different geographical areas, genders, and income levels. Such findings highlight the need for financial education initiatives that are not only comprehensive but also contextually relevant, addressing the specific needs and challenges of various population segments. This approach underscores the importance of a multi-dimensional strategy in promoting financial literacy and resilience, one that is attuned to the complexities of global and local economic contexts.

2.3.3 Financial Fragility in Specific Contexts

Understanding financial fragility requires an examination of its manifestation in specific contexts, encompassing varied demographic groups and situations. This section delves into how financial fragility is influenced by unique circumstances, such as health crises, age, and socio-economic conditions.

The research conducted by Pandin, Ratnawati, and Yuhertiana (2021) provides valuable insights into the impact of health crises on financial fragility, focusing on East Java cancer survivors during the COVID-19 pandemic. Their study highlights the intricate relationship between health challenges and financial resilience. The findings reveal that individual financial activities, including financial structure, literacy, and behaviour, have a considerable impact on financial resilience during a health crisis. This underscores the importance of having robust financial strategies and literacy to navigate the economic challenges posed by health-related adversities.

In exploring the implications of age on financial stability, Lusardi et al. (2018) utilize data from the Health and Retirement Study to analyse debt levels among Americans approaching retirement. Their findings indicate that older Americans nearing retirement age exhibit higher levels of debt and financial instability compared to previous generations. This trend suggests a growing concern regarding the financial preparedness of individuals as they approach retirement, highlighting the need for targeted financial literacy and planning interventions for this demographic.

The study by Demertzis et al. (2020) offers a broader perspective on financial fragility in the context of the European Union (EU), particularly following the COVID-19 pandemic. Their research reveals that a significant proportion of EU households were ill-prepared for unexpected economic shocks, such as the pandemic. The study points to the varying degrees of financial fragility across different EU countries, with economically poorer countries exhibiting higher levels of vulnerability. This variation underscores the role of socio-economic factors in shaping financial resilience and the need for policy interventions that are tailored to the specific economic conditions of different regions.

In summary, the empirical review highlights the diverse ways in which financial fragility can manifest in different contexts, influenced by factors such as health crises, age, and socio-economic conditions. The studies reviewed here demonstrate the need for a context-specific understanding of financial fragility, which is crucial for developing effective strategies and policies to enhance financial resilience across various demographic groups and situations.

2.4 Hypothesis Formulation

2.4.1 Financial Literacy and Financial Fragility

Understanding and implementing basic finance concepts helps consumers make appropriate financial decisions (OECD, 2011). Financial literacy allows customers to make educated financial decisions that benefit them. Financial literacy research has largely examined how it improves financial results. Many research has linked financial literacy to varied outcomes. According to Lusardi and Mitchell (2014), financial knowledge increases retirement planning and saving. Financial literacy is negatively correlated with debt, according to Lusardi et al. (2011). Behrman et al. (2012) showed financial knowledge boosts lifetime savings. When clients understand the financial system, they are more likely to retain and expand their savings and investment accounts (Kitamura and Nakashima, 2021; Sivaramakrishnan et al., 2017). Financially savvy customers are less likely to be deceived by peers, which may protect them against herd investing (Huhmann, 2017). Finance-savvy people save, invest, comprehend debt payments, and plan for the future (Van Rooijet al., 2012). Financially educated persons are more likely to save, invest, and protect their retirement funds (Xiao and Porto, 2017; Ponchio et al., 2019; Clark et al., 2012).

Heuristics and biases cause customers to make inconsistent financial choices, according to behavioural finance research. Behavioural biases like mental accounting, representativeness, herding, overconfidence, emotional tendencies, and temperament can lead to costly financial mistakes that can affect retirement planning and savings (Benartzi and Thaler, 2007). Financial knowledge may reduce concern and mental stress (Baker et al., 2020).

The research reveals that financially savvy customers are less affected by behavioural biases and investing blunders and may save more. Thus, financially informed clients may handle unexpected financial charges in the case of a shock. The findings suggest that financially informed customers are less likely to be financially vulnerable.

H1: Negative financial literacy affects financial fragility.

2.4.2 The Moderating Role of Financial Confidence

Objective and subjective aspects of personal finance should be taken into account when assessing one's level of financial literacy. High subjective financial literacy, or financial confidence, makes consumers more willing to use their knowledge and expertise. Studies have revealed that financial knowledge and confidence affect financial choices separately and significantly (Alba and Hutchinson, 2000). Financial basics help customers analyse their alternatives and make smart decisions (Wang, 2009; Chang, 2004). Financial certainty is influenced by financial knowledge and confidence in one's financial judgements. The degree of financial confidence a person has affects their risktaking. Internal validation for freely available financial data comes from financial confidence (Wang, 2009). Financial literacy involves fact-based processing, whereas financial confidence requires independent access to financial education that influences how individuals feel about making personal financial choices (Wang, 2009). As financial confidence allows people to accept financially educated individual's financial actions, the researcher finds that financial literacy negatively impacts financial fragility.

H2: The weak correlation between financial literacy and vulnerability is mitigated by the presence of financial confidence.

2.4.3 The Moderating Role of Wealth

The accumulation of savings from one's current salary and the acquisition of assets through inheritance are the two primary components that make up a person's wealth (Modigliani, 1985). Wealth may be attained through one's lifetime efforts or given as a result of receiving financial resources through inheritance. Scholars believe that wealth may serve as a buffer against the effects of economic shocks by acting as a coping strategy that allows one to maintain their standard of living after being laid off (Hanspal et al., 2020). Millions of Americans suffered a rapid decline in income as a consequence of the increase in unemployment brought on by the pandemic. The March 2020 stock market crash shook incomes and damaged financial asset investors (Baker et al., 2020). Wealth may supplement financial literacy, since those who are financially knowledgeable tend to make prudent financial decisions (Van Rooij et al., 2012). Fiscally knowledgeable customers distinguish which properties and shares to sell for immediate needs and which to keep for optimum profits. Despite financial literacy, unwealthy individuals may struggle to meet unforeseen expenditures following a job loss. The study suggests that rich, financially aware clients are less prone to financial instability.

H3: Wealth mitigates the negative association between financial knowledge and vulnerability.

2.4.4 The Moderating Role of Race

The COVID-19 pandemic disproportionately affected blacks, who faced increased health and economic risks (Andrasfay and Goldman, 2021; Garcia et al., 2021). 20% of black-majority locations had 52% of COVID-19 infections and 58% of fatalities in April 2020 (Millett et al., 2020). Black unemployment has continuously been double that of whites (Fairlie et al., 2020). Blacks were hurt worse financially by the epidemic

since 44.9% of whites worked in high-skilled jobs. Fairlie et al. (2020). The punishment for financial mistakes would be far higher for black people due to this differential impact on their economic lives, therefore financial knowledge would safeguard them. Financially educated consumers have less information asymmetry, are less likely to be overindebted, and can better handle income fluctuations (Lusardi and Mitchell, 2014). Blacks would pay more for financial illiteracy than whites. Financial knowledgeable individuals may make prudent financial choices and protect themselves from unexpected financial losses. Black individuals who are financially savvy may handle racism and personal limits better. Researchers find that race moderates the theorised association. Blacks have a higher marginal value of financial literacy, therefore their negative correlation between financial fragility and literacy is stronger than whites'.

H4: Financial literacy and fragility are negatively correlated by race.

2.5 Conceptual Framework

The conceptual framework of this study is centered on exploring the relationship between financial literacy and financial fragility, while also examining the moderating effects of financial confidence, wealth, and race on this relationship. Financial literacy, defined as the capacity to understand and effectively utilize various financial skills, is hypothesized to inversely impact financial fragility, which represents the vulnerability of individuals or systems to financial shocks. The primary focus lies in investigating how an increase in financial literacy potentially leads to a decrease in financial fragility, suggesting that individuals with a higher understanding and application of financial knowledge are better equipped to withstand economic uncertainties.

In this context, the study also delves into the moderating roles of financial confidence, wealth, and race. Financial confidence, understood as the assurance individuals have in

their financial decision-making, is expected to strengthen the beneficial impact of financial literacy on reducing fragility, positing that individuals with both high literacy and confidence are likely to make more resilient financial decisions. Wealth, encompassing income and assets, is considered for its potential buffering effect, where greater financial resources might mitigate the effects of financial shocks, thereby influencing the literacy-fragility dynamic. Additionally, the variable of race is included to explore differential experiences of financial fragility across racial groups, considering how cultural, socioeconomic, and systemic factors associated with race might intersect with financial knowledge and vulnerability. Through understanding these interrelationships and their moderating effects, the study aims to offer a nuanced perspective on the dynamics of financial stability and the pathways through which education and knowledge in finance can contribute to mitigating financial fragility.

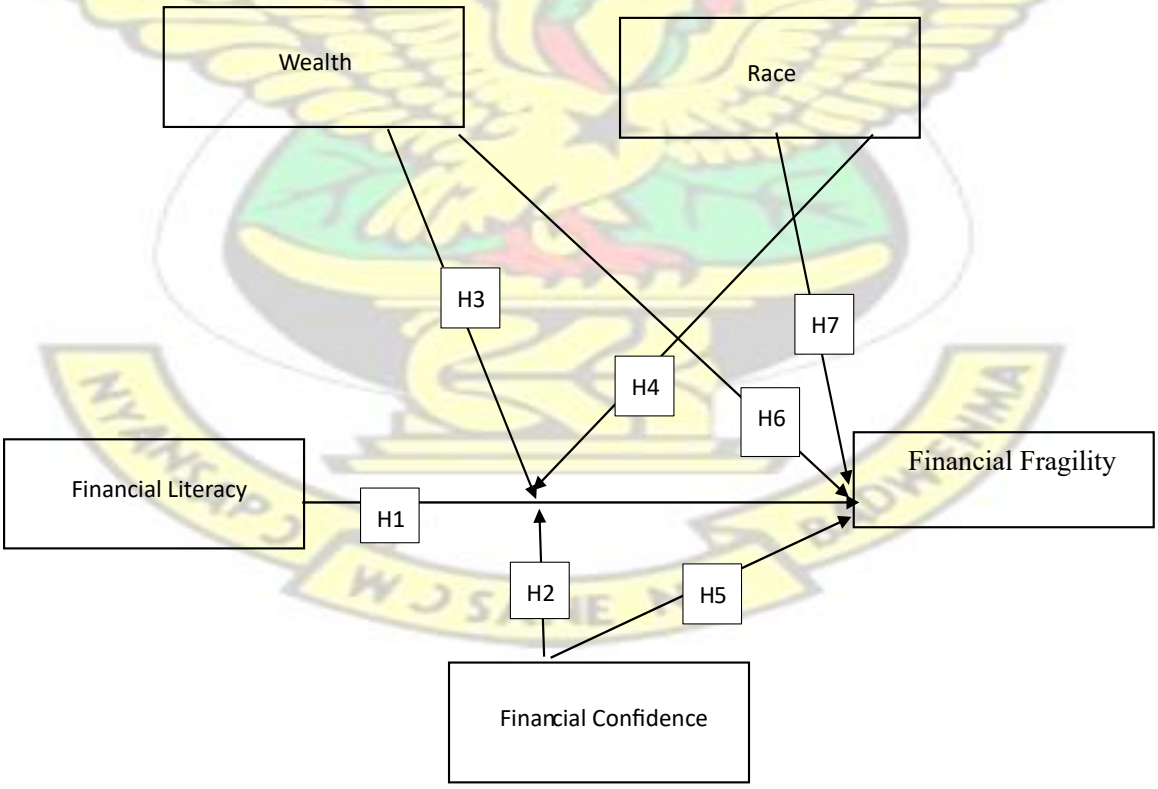
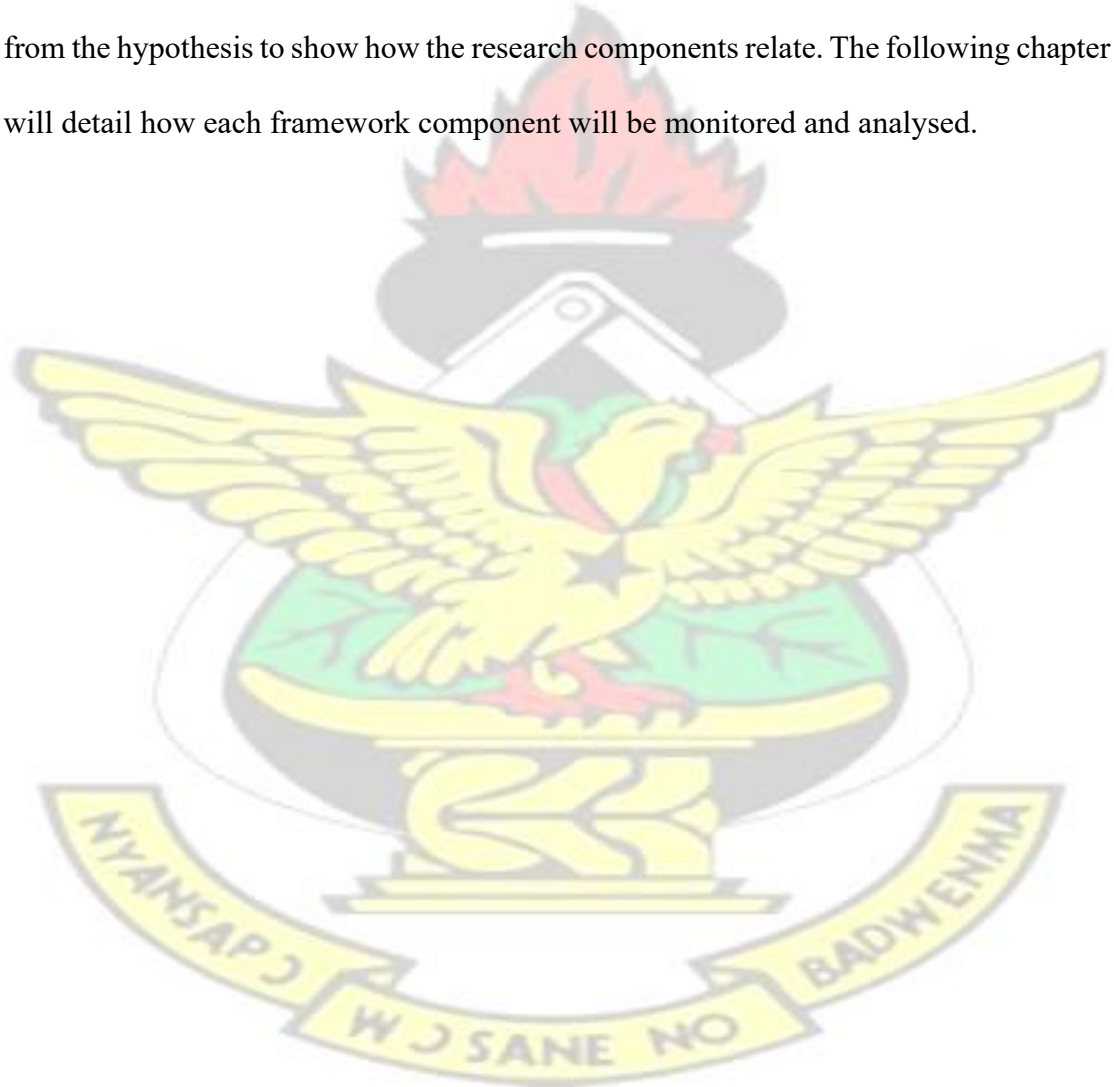


Figure 2.1 Conceptual Framework Source: Researcher's own

2.6 Summary

This component of the research critically examined financial literacy and its dimensions—financial knowledge, confidence, attitude and conduct, and fragility. The research uses the Keynesian economic theory to explain ideas and develop a link between constructions. Several studies have examined how financial literacy influences financial fragility and other dimensions. These research were examined in the empirical review and hypothesis formulation. The author then created a conceptual framework from the hypothesis to show how the research components relate. The following chapter will detail how each framework component will be monitored and analysed.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the research methodology employed in the study, detailing the procedures and approaches used to investigate the relationship between financial literacy, financial fragility, and the moderating roles of financial confidence, wealth, and race. It begins by describing the participant selection process, including the criteria for inclusion and the sampling method, ensuring a representative sample. The research design is then detailed, explaining the rationale behind its selection and how it aligns with the study's objectives. The instruments used for data collection are discussed, including their development, administration, and validity. This is followed by an explanation of the data analysis methods, specifying the statistical tools and software used, such as SPSS or Stata. The chapter concludes by addressing the ethical considerations of the study, ensuring adherence to ethical norms and standards, including participant consent, confidentiality, and data handling procedures. This comprehensive overview establishes the foundation for understanding the research processes and the validity of the findings.

3.1 Research Design

3.1.1 Research Paradigm

Understanding the research paradigm is essential for employing appropriate research procedures and philosophies; this is because all theories and research have underlying philosophical origins (Chhillar and Arora, 2020). Research and its philosophical underpinnings are intimately connected (Graue, 2015). According to Kumar and Bansal (2020), a researcher's worldview is shaped by the fundamental beliefs held. Although many researchers conduct studies without giving much thought to their philosophical

foundations, even a cursory familiarity with research philosophies is necessary to better understand the chosen research design and to pick the most relevant one for the issue at hand (Graue, 2015). One of the numerous philosophical vantage points is epistemology, which deals with the nature and development of knowledge. Kumar and Bansal (2020) argue that epistemological assumptions revolve around how knowledge is created, processed, and used. The epistemological view acknowledges that the scientific process may provide reliable knowledge through the testing of hypotheses (Henseler, 2018; Liao and Barnes, 2015). As a result, the epistemological stance suggests a worldview in which new information constantly supplements existing knowledge.

In the broad field of social research, two of the most renowned research paradigms that are inherently at odds with one another are positivism and interpretivism. A quantitative paradigm is used to describe the first stance, whereas a qualitative one is used to describe the second (Kim, Lee, and Hanna, 2020). While the quantitative paradigm focuses on hard data, the qualitative paradigm looks at how those numbers are interpreted by different people. Researchers must follow certain procedures while working under these presumptions. The positivist research philosophy is predicated on testing the viability of previously tested hypotheses in the context of the study (Kafari, 2019). It is only when there is actual evidence to back up the assumptions that the results may be considered relevant and credible. In other words, positivist researchers employ quantitative approaches to test hypotheses and accomplish their aims (Kafari, 2019). Researchers will avoid prejudice and provide objective assessments of the research situation if they remain detached from the study population, as required by the epistemological perspective (Creswell, 2014).

In contrast to positivism, the tenets of interpretivism allow for the detection of events in a setting of interest based on the subject's interpretations and meanings of those events. According to Cohen (2013), this philosophy provides a whole picture of the phenomena under study, which the researcher may then interpret to gain insight. Researchers are constrained in their methods by these presuppositions. Researchers using a qualitative approach believe, from an epistemological standpoint, that it is important to understand the actors and their social roles (Lusardi, Schneider, and Tufano, 2011) to recognise the participants' unique viewpoints by having an open discussion with them (Chhillar and Arora, 2020). Between these two extremes is a medium ground occupied by mixed techniques, often known as triangulation. Using these methods, the researcher finds that positivism, the ideology at the heart of quantitative research, is a good fit for this research question.

3.1.2 Research Approach

The present study used a quantitative methodology to inform the selection of sampling techniques, the development of research instruments, and the subsequent data analysis. Wee and Goy (2022) propose that a quantitative study is a research methodology that elucidates phenomena by means of collecting and analysing numerical data. When doing research, scholars use various methods of inquiry, such as experiments and surveys, to collect data using specified instruments that provide statistical information. This particular research strategy is often referred to as a quantitative approach (Kothari, 2012). According to Kothari (2012), it has been observed that the rationale for using the quantitative research technique is its ability to provide precise and quantifiable data that can be generalised to a larger population (Kim, Lee, & Hanna, 2020). In addition to this, it is very suitable for the examination and validation of pre-existing concepts,

elucidating the mechanisms and rationales behind the occurrence of events via the systematic testing of hypotheses formulated prior to the gathering of empirical data. Quantitative research is often seen as a logical method of investigation (Kafari, 2019).

Based on the aforementioned methods, it is possible to infer that the positivist research philosophy, which is the underlying philosophy for quantitative research, aligns well with the research study's aims. Quantitative methods of data collection were utilised in a single study due to the quantitative character of the research. This study develops hypotheses using various theories of financial literacy. Its purpose is to evaluate hypotheses formulated theoretically regarding the effects of a collection of study variable constructs, as well as to use reliability and validity to evaluate and generalise the results. The researcher optimised the principles of positivism philosophy from an epistemological standpoint.

3.1.3 Research Type

A research design specifies how a researcher will create and collect data to solve the research problem and attain the study goals. This research used descriptive and posthoc methods. Wong, Wong, and Boon-itt (2020); Shamsuddin, Jafar, Shawai, Yusuf, Lateefah, and Aminu (2017) define an ex post facto research as a study that evaluates a current situation and then searches for possible contributing elements. The ex post facto approach is suitable for this research since it is non-experimental and will examine causal links between the dependent and independent variables (Egbunike and Okerekeoti, 2018). This approach aims to show how factors affect each other (Potrich et al., 2016).

The quantitative study uses the approach to quantify attitudes, practises, and views by sampling the population. The quantitative study design collected primary data using

face-to-face questionnaires. The survey approach is efficient and affordable, allows privacy, and may provide more genuine replies than interviews. It has the possibility of eliminating prejudice owing to wording questions differently with diverse respondents (Kothari, 2012; Kafari, 2019).

Subsequently, the use of the quantitative technique was employed to help in understanding the underlying reasons of respondents to issues of how digital aspects affect customer behaviours, i.e., to expose the underlying demands that examine the changing requirements and wishes about the banking product in Ghana.

3.1.3 Data Process and Analysis

The choice of data analysis method greatly affects the quality of study findings, conclusions, and recommendations. This quantitative research study employed numerous quantitative methods to assess data and fulfil the first chapter's goal. All data was collated and structured in Microsoft Excel for analysis. After a careful review, incomplete surveys were removed. The research employed SPSS 26.0 and STATA. The research used SPSS to calculate frequencies, means, standard deviations, and independent sample t-tests. STATA was used for inferential statistics.

The greatest likelihood approach will be used in this research to estimate the parameters. This phenomenon is attributed to the resolution of the issue of heteroscedasticity often seen in other estimate techniques like the Linear Probability Model (LPM). The constraint imposed ensures that the conditional likelihood of people being included in the measure of financial fragility is bounded within the range of zero to one. The model's goodness of fit was evaluated by the administration of diagnostic tests, namely the Pseudo-R square and the Hosmer-Lemeshow tests. The researcher

also generated a table reflecting classification accuracy using STATA. This provided information regarding the sensitivity and specificity of the model.

3.1.4 Estimation Technique

The Logit mathematical model was used, there are just two values for the dependent variable in this study: zero and one. If he/she is financially fragile, we give it a one (1), but if he/she is not, we give it zero (0). Ordinary least squares (OLS) cannot be used with such a dependent variable due to heteroscedasticity issues and the inability to obtain probabilities that fall between 0 and 1. We need a discrete choice model like the logit model in this (Potrich et al., 2015; Chhillar and Arora, 2020), the regression relationship is expected to characterise an underlying response variable yi* in the Logit model.

$$y_i^* = \beta' X_i + u_i \qquad (3.1)$$

Where y_i^* is the dependent variable (for eg, the probability that he/she is financially fragility): X_i is $(1 \times k)$ vector of independent variables and moderator (such as household financial literacy, financial confidence, wealth, and race indicator: β is a $k \times 1)$ vector of parameters to be estimated: and u_i is the two-sided error term with zero mean and constant variance. The study does not observe y_i^* in practice. What the study observed is dummy variable y defined by;

y = 1 if $y_i^* > 0$ (i. e. if he or she is financially fragility) y = 0 otherwise (i. e. if he or she is not financially fragility)

From the relationship above we get

$$\Pr(y_i = \frac{1}{x_i\beta_i}) = (\frac{1-e-x*\beta}{1+e-x*\beta}) = \frac{e-x*\beta}{(1+e-x*\beta)} \qquad (3.2)$$

In this case, the regression model is given as;

$$y_i = 1 - f(X_i\beta) + u_i \qquad (3.3)$$

Where f is the cumulative distribution function of u. the prediction of the effect on the log-odds is given by

$$\vartheta = \frac{(log \frac{Pr}{1-Pr})}{\vartheta X_i} = \beta \quad (3.4)$$

Where

$$Pr = \frac{e^{\sum \beta i}}{1 + e^{\sum \beta i}} \quad (3.5)$$

The marginal effect is given by:

$$\frac{\partial Pr}{\partial x} = \beta_i [\Pr (1 - \Pr)] \quad (3.6)$$

3.1.5 The Empirical Model

The empirical model defining the effect of financial literacy on financial fragility as it addresses the first objectives of the study is as follows:

$$\log \left(\frac{Pr}{1-Pr}\right) = \beta_0 + \beta_1 FINL_1 + \beta_2 CONTROL_2 + u_I \quad (3.7)$$

Where FINL is the financial literacy, CONTROL is the control variables (i.e. education, marital status, and age), u_I is the error term.

Additionally, the study's second, third, and overarching goals are addressed by the introduction of a moderation variable and its interaction impact on the connection between financial literacy and financial fragility:

$$\log \left(\frac{Pr}{1-Pr}\right) = \beta_0 + \beta_1 FINL_1 + \beta_2 RA_2 + \beta_3 WLTH_3 + \beta_4 FINCON_4 + \beta_5 (RA * FINL) + \beta_6 (WLTH * FINL) + + \beta_7 (FINCON * FINL) + \beta_7 CONTROL_7 + u_I \quad (3.8)$$

A diagnostic test will be required to determine the model's reliability. Unlike a conventional regression model, the F-test cannot be used to determine the overall fit of a discrete choice model. The most frequently used diagnostic test in these situations is

the χ^2statistic (similar to the F-test), which is defined as follows using a likelihood ratio formulation:

$$X^2_{(n)} = -2log\ {}_L{}^{L_{U^R}} = -2(logL_R - logL_U) \quad (3.9)$$

Where $L_R\ and\ L_U$ denotes the restricted likelihood function and L U denotes the unrestricted likelihood function, respectively. The limited log-likelihood function is derived by estimating equation (3.9) with the limitation that all slope parameters are equal to zero and unfettered, as the parameters are unrestricted a priori. This means that in the former scenario, just the intercept term is estimated, whereas in the latter case, both the intercept and slope parameters are calculated. As with the log-likelihood ratio test in general, the above test assumes that if the a priori restriction is valid, the loglikelihood functions of the restricted and unrestricted equations should be identical, in which case the test statistic χ^2 (orλ, in the case of the generalised likelihood test) will be zero. However, if this is not true, the two likelihood functions diverge. Thus, the study can examine the degree of divergence between the confined and unconstrained likelihood functions at the 1% or 5% level of significance).

3.2 Population of the Study

The target population is a group or object from which event data may be collected (Rahman et al., 2021). The study's target demographic is Accra residents aged 20 and older to evaluate the impacts of financial literacy on financial fragility and the moderating effects of psychological, economic, and social variables. The research picked Accra due to its distinctive qualities, making it an excellent representative sample of Ghana's population. Capital city Accra is wealthy with high income and broad access to formal financial institutions. This study struggled with a lack of exact data on the target demographic. According to Rahman et al. (2021), this difficulty is

encountered in the majority of research conducted in developing countries such as Ghana. The same issue gets magnified in research that deals with community concerns such as the one at hand. As a result, the researcher was compelled to rely on his or her judgment and convenience to engage in as many interactions as possible.

3.3 Sample and Sampling Techniques

The sample size of a study depends on its qualities and methods, according to Kothari (2012). There are three main ways to calculate population sample size. Israel (1992) suggests using formulas to calculate sample size. The sample size is also determined using a published statistical table like Krejcie and Morgan (1970) and Cohen (2013, 2009). Finally, researchers may employ census methods to collect data from the whole population. Additionally, a rule of thumb for estimating research sample size. Kumar and Bansal (2020) suggest a 400-sample size for research data collection. Samuel, Ernest, and Awuah (2013) also recommended a 200-sample research. An suitable sample size is needed to effectively contextualise the investigation. This research used

Yamane's simplified formula (1967) to determine sample size. It is defined as:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = Expected Sample Size

N = Study Population

e = Margin of error and the confidence interval is 95%

Using the formula, the sample size is calculated below n=

$$2605000 / 1+2605000 (0.05)^2$$

$$= 2605000 / 6512.5$$

$$= 400$$

The formula determines the research sample size of 400. The researcher must pick a sampling technique after determining sample size. The ability to get information from an entire population would have been a dream come true for any researcher. Small-group research settings are ideal for achieving this situation. However, this census method is not always practical when the population of interest is large. It's also difficult, time-consuming, and expensive to reach out to potential volunteers. These challenges are why research with large populations, like the one being studied in this article, rely on sampling methods to choose an accurate cross-section of the target population (Fernandes, 2014; Wee and Goy, 2022).

Researchers have access to two distinct sampling approaches. The selection of a sampling strategy in a research study is contingent upon the research purpose, with researchers opting for either probabilistic or non-probabilistic sampling techniques. A probabilistic sampling technique ensures that each constituent of a population has an equal probability of being sampled (Fernandes, 2014). The selection probability determines the random selection of samples from a larger population. Probability samples include basic random, stratified, cluster, systematic, and multistage sampling. Non-probabilistic sampling does not guarantee equitable sample selection (Kumar and Bansal, 2020). It is the researcher's judgement, not likelihood. Convenience, quota, snowball, and purposive/subjective sampling are non-probabilistic approaches. This study employed the approach of purposive sampling to recruit competent respondents for its sample. The study utilised purposive or subjective sampling to acquire pertinent data from residents over the age of 20 who are aware of the phenomenon under investigation.

3.4 Data and Data Collection Instruments

Primary data and secondary data are the two basic types of information used in research. Secondary data is already collected for a different reason than primary data, which is first-hand information gained by the study. The research goal determines the data source. Due to the nature of this investigation, primary data is better for testing Chapter Two hypotheses. The goal is to acquire firsthand information about Accra citizens aged 20 and older's opinions. This research will collect data utilising a well-structured questionnaire.

3.4.1 Variables Description and Measurement

The questionnaire was adapted to investigate financial literacy's impact on financial vulnerability during the COVID-19 pandemic and psychological, economic, and social moderators. The questionnaire was two-part. Section A included participant demographics including affluence and race. However, Section B examined financial literacy, fragility, and psychology, especially financial confidence. This study utilises earlier research (Krische and Mislin, 2020; Podsakoff et al., 2003). These items were rated using the Likert and nominal scales, as Riitsalu and Murasaku (2019) and Krische and Mislin (2020) did. The technique largely uses closed-ended questions and a 5-point Likert scale and nominal measurement. The open-ended questions were used to gather data that predefined answers could not.

Again, numerous methods have been used to study financial fragility (Christelis et al., 2009). Lusardi et al. (2011)'s approach is the industry standard, hence this study follows it. The July 2020 UAS-250 wave collected financial fragility data. It was asked by

Lusardiet al. (2011): “How confident are you that you could raise GHC 2,000 in a month if needed?” One choice was “I am positive I could raise GHC 2000,” 2. “I could probably raise GHC 2000,” (3) “I could probably not raise GHC 2000,” (4) “I am certain I could not raise GHC 2000.” The first two possibilities were 0 (financially nonfragile), whereas the latter two were 1. Also, to reduce the possibility of bias, we discarded information containing “do not know” or “unsure” responses.

Table 3. 1 Variable Description

Variables	Operationalisation	Source	Literature source	Expected sign
	Dependent Variable			
Financial Fragility	Dummy financially fragile =1 and Financially non-fragile =0	Field Survey	Lusardiet al. (2011)	
	Independent Variable			
Financial Literacy	Likert Scale (where 1= strongly disagree and 5= strongly agree)	Field Survey	Babiarz and Robb, 2014	+/-
	Moderating Variable			
Wealth	The natural logarithm of the respondents' total wealth and wealth (log) is taken as a continuous variable in the analysis.	Field Survey	Riitsalu and Murasaku, 2019	+/-
Race	**Dummy** Ghanaian = 1 and Foreigner =0	Field Survey	Krische and Mislin, 2020	+/-
Financial Confidence	Respondent's answer to confidence in making financial decisions on a scale of 1–5 (5 highest confidence) **Control Variable**	Field Survey	Babiarz and Robb, 2014	
Age	The age of the respondents	Field Survey	Riitsalu and Murasaku, 2019	+/-
Education level	The level of education of the respondents	Field Survey	Riitsalu and Murasaku, 2019	+/-
Marital Status	Marital status of the respondents Married =1 and Unmarried =2	Field Survey	Babiarz and Robb, 2014	+/-

Source: Authors Computation (2022)

3.4.2 Data Collection Instruments

According to Kumar and Bansal (2020), data may be collected in several ways. They include electronic, telephone, and face-to-face interviews, surveys, observations (videos and audio), and encouraging approaches. These data-gathering approaches are important, but the survey questionnaire method was selected for this research since its purpose is to quantitatively assess variable interrelationships. Surveys provide data on a large group's opinions and traits (Malhotra and Birks, 2007). Positivism holds that surveys produce systematic observation utilising planned research questions to standardise and standardise (Graue, 2015). Surveys are the greatest way for academics to acquire primary data from a large population.

The researcher selects a representative sample with characteristics that match the wider community and uses well-developed standardised questionnaires to guarantee that all respondents react the same way, according to Babbie (2004). Standardised metrics make the survey technique strong, according to Malhotra and Birks (2007) and Fernandes, Lynch, and Netemeyer (2014). The data is generally quantifiable and easy to compare and analyse using various statistical methods (Creswell, 2014). Again, using a questionnaire for data collection simplifies tabulation and analysis and adds dependability (Smith and Albaum, 2005). According to Fernandes et al. (2014), this research employed a survey to obtain data from residents on financial literacy and fragility during COVID-19.

All participants will be briefed on the purpose and main topics before taking the questionnaire. Those participating will also be kept anonymous. Again, individuals will be informed that study participation is voluntary. Informed permission will be sought from survey participants. An Accra metropolitan resident will assent to the survey

before communicating with participants. Relevant literature will shape the questions. A one-month self-administered questionnaire will gather data. To maintain anonymity, participants will select between hand delivery or online format. Each questionnaire will be given in English. Researchers in this study used both online and offline channels to distribute questionnaires to the respondents who were identified to be residents in Accra between 20 years and above. The online survey was sent out through Google Forms, while the offline questionnaire will be administered in person to the respondents. The goal of combining traditional methods with digital ones is to get as many people as possible to respond. Due to the heterogeneous data used in this study, data aggregation (rWG and ICC tests) came first in the data processing phase, followed by checks for data quality and hypothesis testing.

3.5 Validity and Reliability of Constructs/Variables

Validity and reliability have been referred to as the reproducibility of measurement results. This refers to how consistently the instrument produces the same result when used multiple times (Babbie and Mouton, 2001). Issues with the instruments' internal consistency are an example of reliability issues, whereas difficulties with the questionnaire's questions being repetitive or systematic are examples of validity issues. The instruments are legitimate and reliable if their Cronbach alpha is greater than 0.70. The reliability of which was evaluated. The instruments tested were above the threshold of 0.70. This result confirmed the reliability of the study's measurement tool.

3.6 Ethical Consideration

In this circumstance, a person must uphold certain moral standards (Akaranga and Makau, 2016; Fouka and Mantzorou, 2011). The consent form explained the advantages and risks of involvement and asked all responders to participate in the research.

Selected responders may refuse the research. The researcher promised secrecy and anonymity in the permission form. It was also noted that respondents have the freedom to decide when, how much, and under what circumstances they provide information. In their interactions with subjects, the researcher refrained from engaging in any behaviour that could be construed as deceit. The researcher also avoided any instances of data manipulation and plagiarism.

3.7 Chapter Summary

This part focused on the research techniques that were employed. It depicts the research strategy and describes the participants and data that will make up the study. Methods for measuring the research instrument and sampling the population are discussed, and the chapter concludes with a list of recommendations for ensuring that ethical guidelines are adhered to.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter contains detailed presentation and discussion of data analysis and the results of this study. The findings are presented under the following major headings: preliminary analyses, demographic characteristics, descriptive and correlation statistics, logistic regression modelling, and a discussion of the findings.

4.1 Preliminary Analyses of Data

The section consists of response rate, common method bias, non-response bias, respondent's profile, and descriptive and correlation statistics. The examination and explication of the primary analysis of data quality are provided in Sections 4.1.1 – 4.1.5 correspondingly.

4.1.1 Response Rate

Reporting the percentage of the population that participated in the survey is a normal procedure. Divide the number of replies by the number of surveys received to get the percentage. It is infrequent to encounter surveys that achieve a response rate of 50% or higher. The data was gathered during the period spanning from February 4th, 2022 to March 22nd, 2022. The study's sample size was established at 399 individuals. As per prior scholarly investigations (López, 2022; Lavidas et al., 2022), an acceptable response rate for analysis is 99.75 percent out of a total of 399 questionnaires that have been evaluated and deemed pertinent.

Table 4. 1 Data Response Rate

Distributed	**Collected**	**Percentage of**
Response	399	**Usable** 99.75
Non-Response	1	0.25
Total	**399**	**100.0**

Source: Field Data, 2023

4.1.2 Test for Common Method Bias and Sampling Adequacy

Survey research must test for CMB in order to account for the possibility that relying on a single respondent can break the link between the dependent variable and predictors (Bahrami et al., 2022; Podsakoff and Organ, 1986). Consequently, incorrect assessments. Podsakoff et al. (2003) discovered CMB in social desirability or consistency. The quantity of data produced by CMB may be decreased by using other methods. The Exploratory Factor analysis showed that a single factor could explain less than half of the variation, supporting Harman's single-component technique. Principal component analysis explained 29.3% of variance.

Table 4. 2 Test for Common Method Variance (CMV)

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	% of Total	Cumulative %	Variance %	% of Total	Cumulative %	Variance %
1	4.987	29.333	29.333	4.987	29.333	29.333
2	3.043	17.900	47.233	3.043	17.900	47.233
3	1.242	7.309	54.542	1.242	7.309	54.542
4	1.124	6.610	61.152	1.124	6.610	61.152
5	.901	5.300	66.452			
6	.843	4.957	71.409			
7	.817	4.807	76.216			
8	.710	4.177	80.392			
9	.662	3.896	84.288			
10	.597	3.513	87.801			
11	.470	2.766	90.567			
12	.397	2.338	92.905			
13	.375	2.205	95.110			
14	.321	1.888	96.999			

15	.200	1.178	98.177
16	.180	1.062	99.239
17	.129	.761	100.000

Extraction Method: Principal Component Analysis.

Source: Field Survey (2023)

The samples were tested for accuracy using the KMO and Bartlett sphericity tests. Table 4.3 shows that Bartlett's test was significant and the Kaiser-Meyer-Olkin Examining Sufficiency score was 80.2% (χ^2= 3074.524, df: 136, p = 0.000). This demonstrates that the sampling was carried out appropriately.

Table 4. 3 Bartlett's Test of Sphericity and KMO Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.				.802
Bartlett's Test of Sphericity	Approx. Chi-Square	3074.524	df	136
	Sig.			.000

Source: Field Survey (2023)

4.1.3 Non-Response Bias

Investigating non-respondent bias was necessary for this study. A study's low reaction rate causes non-reaction inclination. Non-response bias, which reduces sample reliability and research generalisability, is brought on by low survey response rates. In order to prevent non-response bias, this study looked at early and late respondents. The same model input variables were required for "early responders" and "late responders" by Oppenheim (2001). This demonstrates that samples accurately reflect the population and that there is no non-response bias. 199 arrived late while 200 arrived early. Nonresponse bias was examined using T-tests (see Table 4.4). The study shows that the construct data for the first and last months are the same.

Table 4. 4 Independent-Samples t-Test for Non-Response Bias

Levene's Test for Equality of Variances	Group	Mean	F	Sig.	t
Financial Fragility	1	4.8	0.945	0.332	1.687
	2	4.49			1.687
Financial Literacy	1	4.03	1.467	0.227	2.307
	2	3.55			2.307
Financial Confidence	1	9.72	0.761	0.384	1.51
	2	9.15			1.51
Risk Tolerance	1	6.31	1.297	0.256	1.149
	2	6.04			1.149
Wealth	1	7.9	0.81	0.369	1.105
	2	7.56			1.105

Source: Field Survey (2023)

4.1.4 Respondent's Profile

This section provides demographic data about survey respondents to contextualise the research. Key information collected from respondents includes gender, age, educational level, working experience, position, and department of the respondents.

Variables	Categories	Frequency	Percent
Gender	Female	109	27.3
	Male	290	72.7
Age	18-30 years	145	36.3
	31-40 years	174	43.6
	41-50 years	68	17.0
	Above 50 years	12	3.0
Highest level of Education	Bachelor's Degree	177	44.4
	Basic level	23	5.8
	Graduate Studies (Master/ PhD)	119	29.8
	not educated	21	5.3
	Senior High School	59	14.8
Marital status	Married	249	62.4
	Unmarried	150	37.6
Country of Resident	Ghanaian	368	92.2

	Foreigner	31	7.8
Employment	Employed	319	79.9
	Unemployed	80	20.1
Income (Ghana cedis)	Above Ghc4000	40	10.0
	Below Ghc1000	80	20.1
	Ghc1000-1999	84	21.1
	to 2999	157	39.3
	to 3999	38	9.5
	Total	**399**	**100.0**

Table 4. 5 Respondent's Profile

Source: Field Survey (2023)

Table 4.5 revealed that 27.3% were females and 72.7% were males. In addition, 36.3% were between the ages of 18 to 30 years, 43.6% indicated 31 to 40 years, 17.0% indicated 41 to 50 years, and 3.0% indicated more than 50 years. According to the educational level, 44.4% had a bachelor's degree, 5.8% had a basic certificate, 29.8% had a Master's degree or PhD, 5.3% were not educated, and 14.8% had an SHS certificate. Also, 62.4% were married whereas 37.6% were unmarried. The result also indicated that the majority of the respondents were Ghanaian (92.2%) whereas 7.8% were foreigners. The table also looks at employment indicating 79.9%% were employed whereas 20.1% were unemployed. Table 4.5 also shows the income received by the respondents indicating 10.0% more than Ghc4000, 20.1% indicated less than Ghc1000,

21.1% indicated Ghc1000-1999, 39.3% indicated Ghc2000-2999 and 9.5% indicated 3000 to 3999.

4.1.5 Descriptive and Correlation Analysis

The research's variables are analysed statistically below. The standard deviation measures how well the mean values reflect the data, whereas the mean values summarise it (Field, 2009). Table 4.6 summarises the descriptive analysis. Table 4.6 shows the average mean from 3.22 to 3.86. Standard deviation ranges from 0.748 to 1.163. Probability theory and statistics assess real-valued random variable skewness relative to its mean. Sprawness may be positive, zero, negative, or undefined. Table 4.6 shows skewness from -0.073 to -1.596.

Table 4.6 also shows strong relationships between tax compliance, e-filling system, and economic activity. A correlation value of 0.0 implies no relationship, 0.30 suggests a moderate correlation, and 0.70-0.90 indicates a strong association. Table 4.6 shows a strong correlation between all parameters.

Table 4. 6 Descriptive and Correlation Analysis

Construct	Mean	SD	Skewness	1	2	3	4	5
Financial Fragility	3.22	1.163	-0.073	1.000				
Financial Literacy	3.64	1.013	-1.123	.828**	1.000			
Financial Confidence	3.85	1.048	-1.329	.831**	.891**	1.000		
Race	3.86	0.847	-1.136	.878**	.842**	.879**	1.000	
Wealth	3.74	0.748	-1.596	.906**	.888**	.906**	.899**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data, (2023)

4.2 Effect of Financial Literacy on Financial Fragility

Table 4.8 displays the results of a logistic regression study, with financial fragility (FR) serving as the dependent variable. Significant statistical model findings (p value 0.001) are shown by a full goodness-of-fit test. VIF readings were also analysed. The VIF ranged from 1.28 to 1.83, which is below the threshold set by O'Brien (2007). As a result, we did not encounter any problems associated with multi-collinearity. There was no error in our model definition, yet the standard errors are rather large. The estimated model is sufficient in most respects. Therefore, the proposed model may be used to achieve the desired interpretation.

This study evaluated the correlation between financial education and economic stability during the COVID-19 pandemic. The chances ratio of 0.979 in Panel B suggests that greater FL levels reduce FR risk. This means that one unit of FL decreases FR risk by 2.1%. Panel B control factors negatively correlate with FC and married status. After controlling for all covariates, Panel B shows a positive correlation between FL and FR. Therefore, Hypothesis 1 is supported.

4.3 Effect of Financial Confidence, Wealth, and Race on Financial Fragility

The second goal is to investigate how financial confidence, wealth, and race affect financial fragility. A unit increase in financial confidence reduces financial fragility log odds by 0.150. Financial fragility is 0.640 times more probable for people with strong financial confidence than those with lower confidence, leaving other factors equal. Financial confidence and fragility are significantly related at the 5% level. Wealth increases financial fragility by 0.117 log-odds per unit. Holding all factors equal, more

wealth is 1.890 times more likely to cause financial instability than lesser wealth. Wealth and financial fragility are strongly correlated at the 5% level. The coefficient of

-0.019 suggests that race (represented by "Race") has no influence on financial fragility log odds. The odds ratio of 1.946 implies that race does not affect financial fragility. Race did not significantly affect financial fragility in our investigation.

4.4 Moderating Role of Financial Confidence, Wealth, and Race

Final objective: To examine how financial confidence, wealth, and race affect FL and financial fragility in Ghana during the COVID-19 pandemic. The -0.406 connection suggests financial knowledge and confidence lower financial fragility log chances. Financial fragility log-odds decrease by 0.406 per unit increase in the interaction term (Financial Literacy * Financial Confidence). Holding other parameters constant, those with a stronger interaction effect are 0.960 times more likely to be financially unstable. Financial knowledge and confidence impact financial fragility, as shown by the 5% significance threshold. Financial fragility log-odds grow with financial knowledge and wealth (0.016 association). Financial Literacy * Wealth interaction term increases financial fragility log-odds by 0.016 per unit. Keeping other parameters equal, those with a stronger interaction effect are 1.016 times more likely to be financially unstable. Financial fragility is 5% associated with financial knowledge and wealth. The -0.556 connection suggests financial knowledge and race lower financial fragility log chances. Financial literacy * race interaction variable decreases financial fragility log-odds by 0.556 per unit increase. With everything characteristics constant, those with a stronger interaction effect are 0.946 times more likely to be financially fragile. A 5% disparity in financial literacy, racial diversity, and financial precarity is shown by the data.

Table 4. 7 Logistic Regression Results

	Panel A		Panel B		Panel C		Panel D		Panel E	
Variable	**Coefficient**	**Odds ratio**	**Coefficient**	**Odds ratio**	**Coefficient**	**Odds ratio**	**Coefficient**	**Odds ratio**	**Coefficient**	**Odds ratio**
Financial	0.049***	1.050***	0.004***	0.979***	0.095	1.188	0.154	1.103	-0.115***	0.900***
Literacy	(0.032)	(0.024)	(0.035)	(0.045)	(0.106)	(0.112)	(0.119)	(0.126)	(0.030)	(0.022)
Financial			-0.150**	0.640**	0.008	0.998	-0.210***	0.843***	-0.200***	0.830***
Confidence			(0.013)	(0.038)	(0.178)	(0.175)	(0.043)	(0.039)	(0.040)	(0.031)
Wealth			0.117***	1.890***	-0.276***	0.854***	-0.092	0.943	-0.297***	0.750***
			(0.134)	(0.104)	(0.052)	(0.051)	(0.118)	(0.087)	(0.050)	(0.042)
Race			-0.019	1.946	-0.171	0.875	-0.134	0.873	-0.850	0.520
			(0.947)	(0.917)	(0.254)	(0.209)	(0.242)	(0.224)	(0.680)	(0.391)
Marital			-0.556	0.743	-0.011	0.985	-0.009	0.887	-0.003	0.893
Status			(0.010)	(0.006)	(0.006)	(0.006)	(0.010)	(0.010)	(0.023)	(0.021)
Age			-0.066	1.523	-0.219	0.711	-0.210	0.837	-0.196	0.832
			(0.678)	(0.663)	(0.156)	(0.137)	(0.187)	(0.137)	(0.172)	(0.141)
Education			-0.056***	0.920***	0.415	1.243	0.183	1.102	0.291	1.317
			(0.312)	(0.287)	(0.450)	(0.499)	(0.366)	(0.421)	(0.345)	(0.456)
Financial Literacy*Financial Confidence					-0.406***	0.960				
					(0.001)	(0.001)				
Financial Literacy*Wealth							0.016**	1.016		
							(0.201)	(0.201)		

Financial Literacy*Race									-0.556 (0.017)	0.946 (0.017)
Constant	-2.742*** (0.001)	0.064*** (0.001)	-1.416*** (0.261)	0.243*** (0.261)	-5.678*** (0.001)	0.003*** (0.001)	-18.531*** (0.000)	108.960*** (0.000)	7.656*** (0.000)	78.839*** (0.000)
Observations	399	399	399	399	399	399	399	399	399	399

Source: Field Data, 2023

4.5 Diagnostic Tests

4.5.1 Goodness of Fit

The model explains 17.69% of the dependent variable variance, according to the pseudo R square value of 0.1769. This number indicates a reasonable fit, implying the model's independent variables somewhat explain the result. It also suggests that much variance remains unexplained.

The Hosmer-Lemeshow test statistic of 15.00 measures the disparity between observed and predicted values in the model. Comparing actual and predicted frequencies in various groups or categories determines fit. A higher Hosmer-Lemeshow statistic indicates a worse model-data fit. Thus, a score of 15.00 shows some model misfit, meaning that the actual and anticipated values diverge.

Table 4. 8 Goodness of Fit Model Fit

	Estimation
Pseudo R square	0.1769
Hosmer-Lemeshow	15.00

Source: Field Data, (2023)

4.6 Discussion of Findings

This research aims to determine how financial literacy affects COVID-19 financial fragility. This section discusses major findings in accordance with aims.

4.5.1 Effect of Financial Literacy on Financial Fragility

Examining the relationship between financial education and vulnerability during the COVID-19 epidemic. Research shows that Fl lowers FR. Studies in the field of psychological finance have shown that consumers' poor financial decisions may be attributed to a variety of heuristics and biases. Retirement planning and savings may be

hampered by mental accounting, herding, overconfidence, representativeness, emotional dispositions, self-attribution, and temperament (Zahera and Bansal, 2018).

FL reduces the likelihood of financial errors, which reduces behavioural biases and mental stress and worry. Higher FL levels reduce the risk of FR, according to research. Hamilton et al. (2019) found that those with greater FL had more emergency money and were less likely to struggle financially during economic downturns. Brown and Graf found in 2012 that those with greater FL were less likely to take on high-cost loans and more likely to save for retirement. Know your finances to avoid financial danger. Lusardi and Tufano (2009) found that those with higher FL have a financial strategy and can handle unexpected expenditures, reducing their financial insecurity. FR is more likely in those with lower FL levels. According to Lusardi, Schneider, and Tufano (2011), persons with low FL are more likely to go into debt, make financial mistakes, and have financial problems.

4.5.2 Effect of Financial Confidence, Wealth, and Race on Financial Fragility

Second, explore how wealth, race, and confidence affect financial instability. FC significantly harms FR, according to data. Wealth boosts FR significantly. Race does not affect financial instability. Riitsalu and Murakas (2019), Nejad and Javid (2018), and Alba and Hutchinson (2000) found that those with high subjective FL, or FC, prefer to use their existing knowledge and experience. Alba and Hutchinson (2000) found that FL and FC affect financial decision-making separately and significantly. According to past study (Wang, 2009; Chang, 2004), financial fundamentals help people evaluate alternatives and make educated decisions. An individual's financial stability depends on their FL and confidence in making smart financial decisions. The findings of Riitsalu and Murakas (2019) and Alba and Hutchinson (2000) corroborate this. Risky conduct

is affected by financial confidence. Intrinsic assurance is when a person's finances match financial facts. According to Bartscher et al. (2020), saving from income and inheriting assets make up an individual's wealth. A person might become wealthy via lifelong achievements or by inheriting money. Wealth is often thought to protect against economic shocks, according to Hanspal et al. (2020). Its coping ability lets people keep their lives after losing their employment. Millions of Americans lost money owing to the outbreak's unemployment spike. Baker et al. (2020) found that the March 2020 stock market drop hurt both people and those with large financial holdings. Hanspal et al. (2020) report considerable economic impacts from the COVID-19 pandemic.

Academic research suggests wealthier clientele may handle these disruptions better.

4.5.3 Moderating Role of Financial Confidence, Wealth, and Race

The ultimate goal of this research is to analyse the relationship between FL and financial fragility in Ghana during the COVID-19 epidemic and factors including financial confidence, wealth, and race. The statistics suggest that FR and wealth/FL are significantly related. FR and race-FL interactions are closely related. Financial awareness and FC may reduce FR, according to the findings. FC is highly linked to risk-taking, which is facilitated by autonomous financial knowledge. Financial status depends on internal evaluation (Nicolosi et al., 2009; Wang, 2009). According to Wang (2009), FL is essential for making informed financial decisions based on facts, whereas FC affects how readily financial decisions are accepted. Several academic studies have examined FC-FL relationships.

FC favourably affects emergency savings and FR, according to Lusardi and Mitchell (2014). The connection was only visible to financial experts. According to the survey, people with more financial knowledge and confidence preserved emergency money and

had less financial problems. Bucher-Koenen, Lusardi, Alessie, and van Rooij (2017) found that FL affected FR more among FC-rich people. According to study, those with more FC and knowledge had less financial problems. The findings suggest that highFC individuals may benefit more from FL skills because they are more likely to take financial risks and participate in complex financial activities. FL may not reduce financial risk for those with poor FC. Hanspal et al. (2020) suggest that financial stability may mitigate unexpected income shifts like quitting a job. Unemployment rose throughout the epidemic, shocking millions of Americans. According to Dev and Sengupta (2020), financial asset holders experienced income shocks and stock market declines in March 2020.

Spurk and Straub (2020) and Miguel and Mobarak (2020) showed that higher-income people can endure income shocks like the COVID-19 pandemic. The link between FR and wealth-FL has been extensively studied. Kim and Garman (2004) found a strong link between FL and financial fragility, especially among low-income people. Wealth lowers financial vulnerability while FL increases. Collins and O'Rourke (2010) showed FL helped low-income people. The research found that low-income people with high FL skills are more likely to save for emergencies and avoid financial troubles.

According to Cole and Shastry (2009), FL affected low-income people more. FLafflicted low-income people save and invest more. Regardless of financial competence, wealthier people may be less prone to financial volatility. Lusardi and Tufano (2009) found that FL reduces financial vulnerability. Emergency savings were found to be present in low-risk individuals who possess FL, according to Mandell and Klein's (2007) study. Emergency savings in high-risk individuals were not impacted by FL. Ong, Deng, and Huang (2015) found that FR was more impacted by FL among

individuals with low risk. Financial suffering was found to be reduced by good financial knowledge and low-risk tolerance, according to the research. According to this study, risk-averse individuals may derive greater advantages from FL. This is due to their higher savings and investment rates. Low-risk takers may place a higher value on FL compared to high-risk takers.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter summarises the results of the data analysis conducted in chapter four, as well as the conclusions taken from the findings, recommendations and proposals for further study.

5.1 Summary of Findings

The research examines how financial literacy affects COVID-19 financial fragility. Quantitative methods improve precision and accuracy. The researcher also used a crosssectional design to correlate study variables. Purposive sampling identified 399 responses.

5.1.1 Effect of Financial Literacy on Financial Fragility

This study evaluates COVID-19 financial literacy and fragility. FR is positively affected by FL, according to the findings. Individuals who possess greater FL are prone to experiencing reduced FR, as per this finding. Having a good grasp of financial concepts like budgeting, saving, and debt management can enhance financial wellbeing and decrease vulnerability to financial difficulties.

5.1.2 Effect of Financial Confidence, Wealth, and Race on Financial Fragility

Second, examine how race, wealth, and confidence impact financial instability. FC considerably adversely affects FR, according to findings. FC reduces FR. Confidence in financial talents, decision-making, and money management may boost FR and resilience. FR is significantly influenced in a positive way by wealth. Wealthy individuals are more likely to experience FR. The argument is that financial struggles can affect even affluent individuals due to poor management, investment errors, or other

factors. Race has no substantial influence on FR. This suggests that race has no effect on FR. The result is sample-specific and may not be applicable to other circumstances or populations.

5.1.3 Moderating Role of Financial Confidence, Wealth, and Race

The ultimate purpose is to examine how financial literacy, confidence, wealth, and race affect financial fragility during the COVID-19 pandemic in Ghana. The findings indicate that the correlation between wealth and FL in relation to FR is significant. However, the correlation between race and FL in relation to FR is noteworthy. FR is not reduced by wealth and financial knowledge. Having wealth and financial knowledge may not suffice in decreasing financial vulnerability. FR appears to be influenced by both race and FL. Financial knowledge may result in different levels of FR across different races, according to the suggestion. FR can be reduced by a combination of FL and FC, according to the findings. Understanding financial concepts and practises and having confidence in one's financial management may increase financial stability and longevity.

5.2 Conclusion

The research examines how financial literacy affects COVID-19 financial fragility. Quantitative methods improve precision and accuracy. The researcher also used a crosssectional design to correlate study variables. Purposive sampling identified 399 responses. A pre-made questionnaire is usually utilised for data collection. SPSS 26 and Stata 15 are used for statistical analysis. Financial literacy is beneficial to financial fragility. Financial fragility suffers greatly from financial confidence. Wealth boosts FR significantly. Race does not affect FR. The results show a favourable association between FR and wealth-financial literacy. However, financial literacy and race interact

significantly on FR. The findings suggest that financial knowledge and confidence may reduce financial instability.

5.3 Policy Implications and Recommendations

5.3.1 Industry or Practice

There is a crucial need for financial institutions to develop more user-friendly and accessible financial literacy programs. These should focus on practical aspects such as budgeting, saving, debt management, and investment strategies. Financial advisors and banks should offer personalised financial planning sessions to help clients develop confidence in managing their finances. Further, corporations and employers should integrate financial education into their employee welfare programs. Workshops and seminars on financial management can significantly enhance employees' financial literacy and confidence, thereby contributing to overall financial stability.

5.3.2 Policy

Policy recommendations should include governmental initiatives aimed at expanding and enhancing financial literacy programs through collaborations with educational institutions and financial organisations. Policies should also focus on creating equal opportunities for wealth growth, particularly in underserved communities, by implementing affordable housing schemes, providing accessible financing options, and supporting entrepreneurship. Recognising the importance of intersectionality, policies need to be tailored to address the specific challenges faced by different demographic groups. This could involve designing culturally appropriate financial education campaigns and assistance programs for disadvantaged populations. Additionally, continuous evaluation and adaptation of financial policies and programs are necessary. Governments and NGOs should assess the impact of financial literacy and

wealthbuilding programs, ensuring that they meet the evolving needs of individuals and communities.

5.4 Suggestions for Further Research

First, the sample size may limit its ability to be generalised to a larger population. Future studies might benefit from using a larger, more diverse sample to broaden the scope of these results. In addition, using a cross-sectional survey to determine causation is quite challenging. Future research must prioritise conducting longitudinal studies to assess the long-term effects of financial literacy on FR. The research used a quantitative approach. Similar studies may benefit from including qualitative data. Since other possible variables might contribute to FR, the study's capacity to show causality between financial literacy and FR may be restricted. Future studies must control external factors that might worsen financial vulnerability, such as unemployment or health problems. The effectiveness of financial literacy programmes in reducing financial vulnerability during economic downturns is an important topic for further study.

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APPENDICES

SURVEY QUESTIONNAIRE

Dear Sir/ Madam,

My name is Damanyi Gideon a student at the Kwame Nkrumah University of Science Technology (KNUST). This survey instrument has been designed to enable me to research the topic: **"The relationship between financial literacy and financial fragility: the moderation effect of psychological, economic, and social factors."** Any information provided will be used for academic purposes ONLY. There are no risks associated with your participation, and your responses will remain confidential and anonymous.

SECTION A: RESPONDENT'S BIOGRAPHY AND COMPANY PROFILE

When completing this questionnaire, please tick **[√]** in the applicable box or provide an answer as applicable.

Please answer the following questions:

1. *Gender*: Male ☐ Female ☐
2. *Age*

   18-30 years ☐ 31-40 years ☐ 41-50 years ☐ above 50 years ☐
3. *Level of Education*

   Junior High School ☐ Senior High School ☐ Diploma ☐ Bachelor's Degree

   ☐ Graduate Studies (Master / PhD) ☐ Others ☐ For Others,

   Please specify…
4. *Marital Status*

   Married ☐ Unmarried ☐
5. *Country of Resident*

   Ghanaian ☐ Foreigner ☐
6. *Monthly Income of the respondents*

   Less than 1000 ☐ 1000 to 1999 ☐ 2000 to 2999 ☐ 3000 to 3999 ☐ above 4000 ☐
7. Employment Status

   Employed ☐ Unemployed ☐

SECTION B: Financial Literacy, Financial Fragility, and Financial Confidence

Please answer the following questions on financial literacy: On a scale of 1 to 5 ***(1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*)** indicate your opinion ***by ticking √ where appropriate*** in the following statements.

Item	Statement	1	2	3	4	5
FINL1	I have a written financial objective of what I want to achieve in a year					
FINL2	I prepare a written budget for income and expenditure					
FINL3	Employers are responsible for providing the majority of funds that you will need for retirement.					
FINL4	Your bank will usually call to warn you if you write a check that would overdraw your account					
FINL5	You should have an emergency fund that covers two to six months of your expenses					
FINL6	If you buy certificates of deposit, savings bonds, or treasury bills, you can earn higher returns than on a savings account, with little or no added risk.					
FINL7	Making payments late on your bills can make it more difficult to take out a loan					
FINL8	The finance charge on your credit card statement is what you pay to use credit.					
FINL9	If you expect to carry a balance on your credit card, the APR is the most important thing to look at when comparing credit card offers					
Financial Fragility						
How sure are you that you could come up with GHC 2,000 if an unexpected need emerged within the next month						
FR1	I am positive I could raise GHC 2000	☐				
FR2	I could probably raise GHC 2000	☐				
FR3	I could probably not raise GHC 2000	☐				
FR4	I am certain I could not raise GHC 2000	☐				

	Financial Confidence					
Please answer the following questions on Financial Confidence: On a scale of 1 to 5 ***(1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree)*** indicate your opinion ***by ticking √ where appropriate*** in the following statements.						
FC1	I am confident that I know about different financial services and products and I understand how they all work					
FC2	I am confident that I can get the right support to meet my needs					
FC3	I always know how much money I get and how much I need to pay the bills each week/month					
FC4	I am good at budgeting and managing my money					
FC5	I feel confident that I can keep up to date with my rent payments					
FC6	I am confident that I can keep on top of my other household bills e.g. electricity/gas					
FC7	I am confident that I can sort out any money problems myself					
FC8	I feel able to cope with the stress and worry caused by money problems					
FC9	I know how to go about getting professional help and advice on problems					
FC10	I feel confident that I can cope with changes to my income/outgoings (like when getting or leaving a job/training)					
FC11	I enjoy dealing with financial matters.					
FC12	I tend to trust professional financial advisers and accept what they recommend.					
FC13	I frequently get financial advice from my friends and family					
FC14	I have got a clear idea of the sorts of financial products that I need					
FC15	I know enough about investments to choose ones that are suitable for my circumstances					
FC16	I always research my choices thoroughly before making any financial decisions.					
FC17	Always consult my family/spouse before making any important financial decisions					

Thank you for participating in the survey.