Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

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ABSTRACT: This study investigates the influence of Market and Price Risk Management (MPRM) on Financial Risk Management (FRM) by considering Institutional Risk Management (IRM) as a mediating variable within Ghana's agricultural sector. This study evaluates the effectiveness of risk-management strategies in reducing financial instability among stakeholders. A quantitative research design was utilised, employing structural equation modelling (SEM) to analyse survey data from agricultural firms and financial institutions.

These findings indicate that MPRM significantly improves FRM, suggesting that effective market risk management bolsters financial stability. Furthermore, IRM exhibited a partial mediating effect, indicating that strong institutional frameworks enhance financial resilience. The findings indicate that the role of institutions in mitigating financial risk is essential, supporting Institutional Risk Theory and Risk Management Theory while contesting Agency Theory, which emphasises shareholder-centric risk strategies.

This study presents originality through the integration of institutional risk as a mediating mechanism, providing new insights into the risk dynamics within emerging economies. Practical implications include the enhancement of regulatory policies, the improvement of financial literacy programs, and the adoption of structured hedging strategies to stabilise agricultural financial markets. These findings enhance the discussion of risk management policies, regulatory interventions, and financial sustainability in developing economies.

KEYWORDS: Market and Price Risk Management, Financial Risk Management, Institutional Risk, Structural Equation Modeling, Agricultural Finance

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I. INTRODUCTION

Agriculture is a vital sector in Ghana, contributing approximately 20% of the nation's GDP and employing nearly half of its population (GSS, 2024). Despite its significance, the sector remains vulnerable to external shocks, particularly market price volatility, which directly impacts farmers' income and financial stability (Adabor & Essah, 2024; Sogah et al., 2024; Ferreira et al., 2022). Financial risk management strategies such as credit risk analysis and liquidity management are essential for addressing these challenges (Ahinsah-Wobil, 2024). However, market price risk-management tools, including hedging and futures contracts, are underutilised because of limited institutional frameworks and inadequate farmer education (Asiedu et al., 2024).

Institutional risk management, including regulatory frameworks, government policies, and institutional interventions, plays a pivotal role in bridging this gap. Effective institutions ensure market stability and enhance financial systems (Adeniran et al. 2024). While the global literature (Khatri et al., 2024; Jun, 2024; Ashraf et al., 2024; Yazdani et al., 2021) acknowledges the importance of institutional risk management, its application in Ghana's agricultural sector remains relatively underexplored. This study investigates how institutional risk management mediates the relationship between market and price, and financial risk management, focusing on Ghana's unique economic and institutional context.

Despite the availability of market and price risk management strategies, Ghanaian farmers often lack the resources and institutional support needed to effectively leverage these tools (Boakye et al., 2024a). Weak institutional frameworks exacerbate

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

financial risks, leaving agricultural stakeholders vulnerable to economic shocks (Forkuor et al., 2022). Existing research (Houwayji, 2024; Dailibas et al., 2024; Wever et al., 2024; Oudat & Ali, 2021; Saunders et al., 2021) has largely focused on the direct effects of market price or financial risk management, neglecting the critical mediating role of institutional mechanisms. This study seeks to address this gap by exploring the interplay between these dimensions in Ghana's agricultural sector.

The main objective of this study was to assess the impact of market and price risk management on financial risk management among agricultural stakeholders in Ghana. We analysed the mediating role of institutional risk management in this relationship. This study seeks to answer the following questions:

 i. What is the impact of market and price risk management on financial risk management?

 ii. To what extent does institutional risk management affect financial risk management?

 iii. How does institutional risk management mediate the relationship between market price and financial risk management?

This study contributes to the literature on risk management by highlighting the mediating role of institutional frameworks in developing economies. It offers practical recommendations for policymakers, financial institutions, and agribusinesses to strengthen risk-management strategies and ensure greater financial resilience in Ghana's agricultural sector. Research on market price and financial risk management often emphasises the role of institutional frameworks. For example, Adeniran et al. (2024) argue that institutional risk management enhances financial stability by providing regulatory oversight and market intervention. Similarly, Batra et al. (2024) highlight that robust institutional frameworks mitigate financial risk, particularly in volatile markets. However, these studies often fail to consider the systemic challenges prevalent in developing economies such as corruption, inadequate infrastructure, and limited financial literacy.

Abdulai et al. (2020a) contend that institutional interventions in Ghana's agricultural sector are often undermined by weak governance and resource constraints. Abdulai et al. (2020b) point out that market and price risk management strategies, such as hedging, are inaccessible to smallholder farmers because of their high costs and complex operational requirements. Furthermore, existing frameworks tend to prioritise large agribusinesses over small-scale farmers, exacerbating inequalities within the sector. This study critiques these perspectives by integrating institutional risk management with localised approaches such as community-based risk-sharing models. By addressing systemic inefficiencies and tailoring interventions to the unique needs of Ghanaian farmers, this study seeks to provide a holistic understanding of risk management dynamics.

2. LITERATURE REVIEW

2.1 Theoretical Framework

This study is underpinned by Institutional Theory, which examines how institutional structures, rules, and norms influence organizational and individual behaviour in market environments. The theory posits that institutions, defined as formal and informal rules governing social interactions, provide stability, reduce uncertainty, and enhance economic efficiency (Peters, 2022). This framework is particularly relevant to the Ghanaian agricultural sector, where weak institutional frameworks contribute to market failure and hinder effective risk management.

Institutions shape the economic behaviour of stakeholders by defining the rules of engagement (Hussain et al., 2023). Strong institutional frameworks facilitate market price risk management and financial stability by providing oversight and support. Institutional inefficiencies can intensify market volatility, making risk-management tools less effective (Abaidoo & Agyapong, 2024). Institutional Theory is crucial for this study, as it provides a lens to examine how institutional mechanisms mediate the relationship between market and price risk management and financial risk management. By addressing systemic inefficiencies, the theory highlights pathways to strengthen institutional frameworks and improve risk-mitigation strategies in developing economies such as Ghana. Despite its relevance, critics argue that Institutional Theory often overlooks grassroots-level challenges and stakeholders' adaptability in resource-constrained settings. For example, Maolani (2024) highlighted that institutional interventions may fail in contexts with high levels of corruption and poor governance, thus undermining their intended effects.

2.2 Empirical Review

Market and price risk management encompasses strategic approaches designed to reduce the negative consequences of price volatility on stakeholders, particularly in agricultural markets (Lou 2024). Strategies such as futures contracts, price stabilisation funds, and hedging mechanisms have proven effective in developed economies in ensuring market stability and protecting the financial interests of farmers and other stakeholders (Ren, 2024). For instance, futures contracts allow producers and buyers to lock prices, mitigating the risks associated with fluctuating market conditions (Lu, 2024). Similarly, price stabilisation funds serve as buffers and provide financial resources during periods of extreme price instability (Lalloo, 2024). Despite the efficacy

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

of these tools, their application in Ghana remains limited because of systemic challenges, including financial illiteracy, weak institutional support, and insufficient regulatory frameworks (Abdulai et al. 2020a).

Previous studies reinforced these observations. For example, Bannor and Gyekye (2022a) employed a mixed-methods approach involving surveys and case studies to analyse the adoption of hedging tools by smallholder farmers in Ghana. The findings revealed that only 12% of farmers were aware of futures contracts and less than 5% actively used them. Similarly, Qange et al. (2024a) identified institutional barriers such as inadequate policy enforcement and a lack of accessible financial products tailored to smallholder farmers as critical factors limiting the effectiveness of market price risk management. Samal and Das (2024) further noted that price stabilisation funds, although conceptually sound, often fail in execution because of mismanagement and corruption. These findings highlight the urgent need for targeted interventions, including financial education programs, enhanced institutional frameworks, and policies aimed at improving access to risk-management tools. Addressing these gaps is critical for equipping Ghanaian farmers with effective market and price risk-management strategies, thereby fostering financial resilience and agricultural sustainability.

Financial risk management involves strategic practices designed to maintain liquidity, profitability, and solvency, thereby safeguarding stakeholders' financial stability in volatile markets (Murugan, 2023a). Effective financial risk management enables agricultural stakeholders to mitigate risks arising from credit shortages, price fluctuations, and macroeconomic shocks (Murugan 2023b). Studies indicate that weak financial risk management frameworks significantly heighten farmers' vulnerability to economic shocks in Ghana (Boansi et al., 2023). For instance, Figurek et al. (2023), using a survey-based quantitative approach, found that over 70% of smallholder farmers lacked access to structured financial risk management tools, exposing them to severe income variability during market downturns.

Similarly, Nutassey et al. (2024) utilised a mixed-methods approach and reported that poor financial literacy and inadequate credit systems impede the adoption of risk-mitigation practices, such as insurance and savings mechanisms. The findings of Nyebar et al. (2024) also emphasise that weak institutional support contributes to a lack of affordable risk management products, exacerbating the financial precarity of agricultural stakeholders. These studies underscore the necessity for robust financial frameworks, tailored training programs, and policy interventions to promote financial resilience and reduce systemic vulnerabilities within Ghana's agricultural sector.

Institutional risk management plays a pivotal role in mitigating risk by ensuring the establishment of robust policies, regulations, and governance structures that are essential for effective risk control (Adeniran et al., 2024). Previous studies emphasise the importance of a well-structured institutional framework to effectively manage risks, particularly in sectors such as agriculture, where exposure to external shocks is high. For instance, argued that without a robust institutional framework, agricultural producers in Ghana are vulnerable to risks such as price volatility and climate change, which affect their productivity and profitability. Using a mixed-method approach, they found that regions with stronger institutional governance reported better resilience to market risk. Similarly, Addo et al. (2021) suggest that regulatory bodies in Ghana prioritise risk management strategies that address disparities in resource allocation. Their qualitative study indicated that the absence of equitable access to risk-management tools exacerbates vulnerability among small-scale farmers. Collectively, these studies highlight the need for institutional frameworks that promote equity and risk resilience.

Qange et al. (2024b) and Bannor and Gyekye (2022b) show that despite the availability of risk management tools such as futures contracts and price stabilisation funds, the awareness and adoption rates among farmers are alarmingly low. For example, only 12% of farmers are aware of futures contracts and less than 5% actively use them. The key reasons cited were financial illiteracy, weak institutional support, and a lack of tailored financial products for smallholder farmers. These studies do not fully explore the root causes of this limited awareness and adoption, or suggest targeted interventions that could enhance farmers' engagement with risk management tools. However, this study examines the barriers to the adoption of these tools in greater detail, exploring the roles of financial literacy, institutional support, and accessible financial products. Additionally, this study also assesses the impact of targeted interventions, such as financial education programs and policy reforms, on improving the adoption rates of these tools among farmers. By doing so, this study provides a more comprehensive understanding of the adoption process and offers practical solutions.

Abaidoo and Agyapong (2024) and Abdulai et al. (2020b) highlight that institutional frameworks for risk management in Ghana are weak, often leading to failures in the execution of policies, such as price stabilisation funds. These studies also note challenges in policy enforcement and a lack of institutional mechanisms that can support the practical implementation of these tools. Although these studies identify institutional weaknesses, they do not provide specific recommendations for strengthening institutional frameworks or the role of regulatory bodies in ensuring the effective execution of these tools. This study focuses on assessing the effectiveness of existing institutional frameworks and provides a critical evaluation of the institutional gaps in Ghana's

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

agricultural risk-management policies. By examining the roles of government agencies, financial institutions, and NGOs, this study proposes strategies to improve institutional coordination, governance, and policy enforcement. This would contribute to the better implementation of risk management tools.

In addition, Nyebar et al. (2023) and Ankrah et al. (2021) find that smallholder farmers in Ghana face challenges in accessing structured financial risk management tools, such as insurance, credit facilities, and savings mechanisms. Financial literacy and inadequate credit systems are also significant barriers. Although these studies highlight the barriers to financial risk management adoption, they do not investigate the specific financial practices that could help mitigate these risks nor do they offer solutions to enhance financial literacy and access to credit in the agricultural sector. This study provides a more detailed analysis of current financial risk management practices within the agricultural sector and identifies specific interventions to improve financial literacy, credit access, and the adoption of tools such as agricultural insurance. Additionally, this study explores how improving financial frameworks and offering tailored financial products can reduce vulnerability to economic shocks, addressing the systemic weaknesses highlighted by past studies.

Boakye et al. (2024b) and Asravor (2019) emphasise that weak institutional frameworks and inadequate financial risk management tools exacerbate vulnerability among smallholder farmers. These studies focus on either the institutional or financial aspects of isolation without examining the interactions between these two dimensions. There is a lack of research on how institutional frameworks interact with financial risk-management strategies to mitigate agricultural risks. For instance, how effective policies can enhance financial tools, or how financial institutions can be supported through stronger regulations to improve the financial stability of farmers. This study fills this gap by examining the relationship between institutional frameworks and financial risk-management tools. It explores how policy reforms could strengthen financial institutions and risk management practices, and how improved financial support could enhance the institutional framework. This comprehensive approach offers a holistic view of Ghana's agricultural risk management.

Murugan (2023c) notes that price stabilisation funds, although conceptually sound, often fail in execution because of mismanagement and corruption. These findings indicate a gap in the empirical evidence regarding the factors that influence the effectiveness of these funds. While mismanagement and corruption are acknowledged as significant barriers, there is insufficient empirical evidence on the underlying causes of these issues and the factors that can enhance the effectiveness of price-stabilising funds. This study provides empirical evidence on the factors that hinder the effective implementation of price stabilisation funds, focusing on governance issues, transparency, and accountability. In addition, this study assesses how these funds can be better managed through stronger institutional oversight and improved regulatory frameworks.

3. METHODOLOGY

This study employed a quantitative research design to investigate the relationship between risk management strategies and agricultural productivity in Ghana. The quantitative approach was selected to provide statistical insights into the impact of market and price, financial, and institutional risk management tools on agricultural stakeholders. A descriptive-correlational research design was adopted to examine the relationship between the implementation of risk management strategies and their impact on agricultural productivity. This design is suitable for identifying patterns, trends, and causal links between variables (Creswell and Creswell, 2017). This allows for an objective measurement of how various risk management strategies contribute to the productivity of Ghana's agricultural sector.

This study targeted a section of smallholder farmers, agricultural enterprises, and policymakers in Ghana. A stratified random sampling method was used to ensure diverse representations across farming regions and agricultural types, enhancing the generalisability of the findings. A sample size of 1,058 respondents was calculated based on Cochran's formula to ensure adequate power for the statistical analysis. Data were collected using a structured survey instrument consisting of demographic and 5-point Likert scale questions designed to measure the adoption and effectiveness of risk management strategies. The survey assessed variables such as financial, market, and institutional risk management. Quantitative data were analysed using Smart-PLS software. Descriptive statistics were employed to summarise demographic characteristics, while inferential statistics, including the structural equation model, were used to explore the relationship between risk management strategies and agricultural productivity.

4. PRESENTATION OF THE RESULT

4.1 Descriptive Analysis

Table 4.1 presents a comprehensive descriptive statistical analysis of the respondents' demographic characteristics, including variables such as age, sex, educational level, and farming experience. This analysis provides a foundational understanding

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

of the composition of the sample and emphasises the diversity within the respondent population. The analysis systematically examined the demographic dimensions to identify patterns that may influence respondents' perspectives and practices related to risk management and crop productivity. Demographic variables are essential for contextualising the study's findings, as differences in age, educational attainment, or experience may influence individuals' perceptions and the adoption of risk management strategies. Comprehending this heterogeneity is essential for analysing variations in the effectiveness and implementation of these strategies in different agricultural contexts.

Table I Descriptive Statistical Analysis Result -Demographic

		FREQUENCY	PERCENT
GENDER	Male	556	52.8
	Female	498	47.2
AGE GROUP	under 20	81	7.7
	21-30	264	25
	31-40	125	11.9
	41-50	243	23.1
	51-60	219	20.8
	above 60	122	11.6
EDUCATIONAL LEVEL	Primary Education	270	25.6
	Secondary School Education	195	18.5
	Tertiary Education	370	35.1
	No Formal Education	219	20.8
YEAR OF EXPERIENCE	less than 5 years	268	25.4
	5-10 years	245	23.2
	11-20 years	268	25.4
	over 20 years	273	25.9

Source: Authors Own Creation

The study sample demonstrated a gender distribution of 52.8% male and 47.2% female participants. Equal representation enhances the generalisability of the findings and facilitates the analysis of gender-specific agricultural practices and risk-management strategies. Gender diversity in the sample allows for the analysis of differences in roles, decision-making, and resource access between genders, thereby improving our understanding of social dynamics in farming communities.

Age demographics revealed a diverse distribution, with the highest percentage (25%) in the 21–30 age group. This suggests the significant presence of young farmers, indicating the potential for innovation and technological adoption in agriculture. The 41–50 age group (23.1%) and the 51–60 age group (20.8%) underscored the important contribution of middle-aged and mature farmers, who possess valuable experience but may face challenges in adopting contemporary practices. The low representation of individuals under 20 years of age (7.7%) highlights the need for initiatives to engage the youth in agriculture.

The educational backgrounds of the participants were diverse; 20.8% had no formal education, 35.1% completed secondary school, and 18.5% attained tertiary education, indicating that secondary education was the most prevalent level achieved. This stratification underscores the varying capacities of farmers to implement risk-management strategies. Farmers with tertiary education are better equipped to spearhead innovation, whereas those with restricted educational backgrounds may need tailored and accessible training to rectify the knowledge gaps.

The largest cohort (25.9 %) had more than 20 years of farming experience, signifying a substantial reservoir of practical knowledge. In contrast, individuals with fewer than five years of experience (25.4%) highlighted the potential to integrate modern agricultural techniques. Farmers with 5–10 and 11–20 years' experience (23.2% and 25.4%, respectively) demonstrated a notable balance between traditional and modern practices, making them crucial for fostering innovation and enabling knowledge transfer.

4.2 Measurement Model

The reliability and validity of the measurement scales were rigorously assessed through Confirmatory Factor Analysis (CFA), a robust statistical technique used to evaluate the structural integrity of the latent constructs (Kyriazos, 2018). This analysis was conducted to ensure reliability and validity of the constructs and their associated measurement items. Key evaluation metrics

included Cronbach's alpha (CA), Composite Reliability (CR), and factor loadings, which collectively served as critical indicators of internal consistency and construct validity within the measurement model.

Reliability was assessed using Cronbach's alpha, and all constructs exceeded the recommended threshold of 0.7, indicating strong internal consistency among the measurement items. Composite Reliability further corroborated this, with all constructs surpassing the benchmark of 0.7, confirming that the observed items adequately captured the variance associated with their respective latent constructs while minimising measurement error. Convergent validity was established through Average Variance Extracted (AVE), with values exceeding the 0.5 threshold recommended by Bagozzi and Yi (2012), signifying that a substantial proportion of variance in the observed variables was explained by their underlying constructs.

The CFA results, as presented in Table 2, demonstrated that all factor loadings were above the 0.6 threshold, indicating robust item-construct associations. These results confirm the strong convergence and internal reliability of the constructs, thus emphasising the robustness of the measurement framework. This ensured the suitability of the model for hypothesis testing and enhanced its validity for further empirical analysis.

Table II Construct reliability, validity, and Multicollinearity

Construct and Items	Factor Loading	Cronbach Alpha	Composite Reliability	AVE	VIF
FRM1	0.760	0.770	0.853	0.592	1.445
FRM2	0.756				1.497
FRM4	0.764				1.482
FRM5	0.798				1.614
IRM1	0.778				1.545
IRM3	0.772	0.797	0.868	0.621	1.596
IRM4	0.791				1.622
IRM6	0.812				1.764
MPRM1	0.748				1.635
MPRM2	0.750				1.719
MPRM3	0.718	0.841	0.883	0.558	1.561
MPRM4	0.733				1.595
MPRM5	0.789				1.853
MPRM6	0.742				1.681

Source: Authors Own Creation

Cronbach's alpha is a statistical measure used to evaluate the internal consistency or reliability of a set of items or scales in a survey, questionnaire, or test. Table 2 presents the reliability of all constructs, as evidenced by the Cronbach's alpha (CA) values exceeding the accepted threshold of 0.70. This indicates robust internal consistency, suggesting that the items within each construct are well-aligned and effectively assess the intended underlying concept. Furthermore, the Composite Reliability (CR) values significantly improved, highlighting the robustness of internal consistency among the constructs. The results confirmed that the constructs effectively represented the shared variance of their associated indicators, thereby strengthening the reliability of the measurement model.

Average Variance Extracted (AVE) is a measure used in Confirmatory Factor Analysis (CFA) to assess the convergent validity of a latent construct. It represents the amount of variance in the observed variables captured by the underlying latent construct relative to the total variance (including the error variance). The Average Variance Extracted (AVE), which indicates convergent validity, met the minimum threshold of 0.50, as recommended in the literature. The results indicated that the indicators collectively explained a substantial portion of the variance within their respective constructs, underscoring the validity of these constructs in reflecting their intended dimensions.

Discriminant validity was evaluated by comparing the correlations among constructs with the square root of the Average Variance Extracted (AVE) for each construct, in accordance with the Fornell-Larcker criterion (Fornell & Larcker, 1981). Discriminant validity establishes that each construct is conceptually distinct and empirically independent of other constructs (Ramayah et al., 2018). Table 3 indicates that the square root of the Average Variance Extracted (AVE) for each construct consistently exceeded the highest correlation observed with any other construct. This demonstrates that the constructs were separate and did not overlap

significantly, which was crucial for preserving the accuracy of the structural model. The results validated the reliability of the measurement model, providing a strong foundation for subsequent hypothesis testing and structural analysis.

Table III. Discriminant Validity Fornell-Larker Criteria

	FRM	IRM	MPRM
FRM	*0.770*		
IRM	0.686	*0.788*	
MPRM	0.745	0.729	*0.747*

Source: Authors Own Creation

The Fornell-Larcker Criterion is a statistical approach used to assess discriminant validity in structural equation modelling (SEM). Discriminant validity evaluates whether the constructs in a model are sufficiently distinct from one another. The discriminant validity analysis yielded satisfactory results, confirming that the constructs employed in this study were distinct. This distinction is crucial for validating the utility of the constructs in subsequent analyses, ensuring that each construct represents a unique and significant aspect of the data. Through this differentiation, the research framework effectively represented the theoretical concepts under investigation, thus enhancing the model's reliability and robustness. Validation is crucial for confirming the relevance and appropriateness of the constructs in relation to the objectives of the study.

The heterotrait–monotrait (HTMT) ratio was used to evaluate discriminant validity. The HTMT metric is a recognised criterion for assessing the empirical distinctiveness of constructs (Henseler et al., 2015). This method offers a more sensitive and rigorous evaluation of discriminant validity than the traditional approaches. This study's literature indicates varying thresholds for HTMT values: Kline (2011) proposed a conservative threshold of 0.85 or lower, while Teo et al. (2008) recommended a more lenient threshold of 0.90 or below.

The results in Table 4 demonstrate that the HTMT ratios for all constructs are below 0.90, thus satisfying the criterion for adequate discriminant validity. These findings indicate that the constructs are theoretically and empirically distinct, thereby enhancing the validity of the measurement model. This study adhered to stringent criteria and established a robust basis for the dependable hypothesis testing and interpretation of causal relationships within the structural model.

Table IV. Discriminant Validity-HTMT

	FRM	IRM	MPRM
FRM			
IRM	0.875		
MPRM	0.823	0.888	

Source: Authors Own Creation

The subsequent phase assessed the extent to which the independent variable contributed to the variance in the dependent variable. The measurement model in this study was designed to determine how effectively the independent variables accounted for the variations in the dependent variable.

Table V Model Fit – R Square

	R-square	R-square adjusted
FRM	0.599	0.598
IRM	0.532	0.532

Source: Authors Own Creation

The R^2 values in Table 5 offer essential insight into the explanatory capacity of the independent variables within the model. The R^2 value of 0.599 for Financial Risk Management (FRM) signifies that 59.9% of the variance in FRM is accounted for by Institutional Risk Management (IRM) and Market and Price Risk Management (MPRM). This indicates robust predictive ability, suggesting that variations in FRM are notably affected by these risk management mechanisms.

The R^2 value of 0.532 for Institutional Risk Management (IRM) indicates that 53.2% of its variation is explained by MPRM. This indicates a significant explanatory effect, supporting the notion that market price risk management is crucial for influencing

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

institutional risk management practices. The unexplained variance in both instances indicates the existence of additional external factors affecting FRM and IRM, necessitating further exploration of unconsidered determinants that could improve the model's predictive capability.
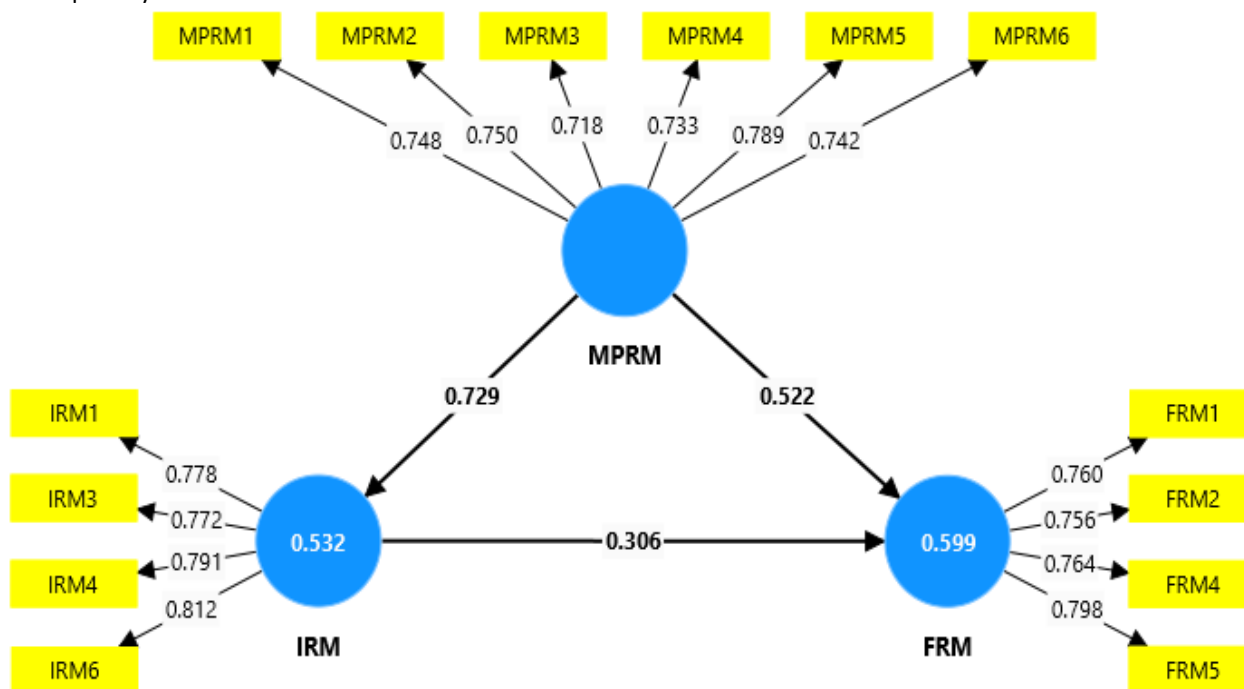

Figure \ Measurement Assessment Model

Table VI Structure Assessment Model

	Beta Coefficient	Standard deviation	T statistics	P values
IRM -> FRM	0.305	0.037	8.345	0.000
MPRM -> FRM	0.522	0.036	14.488	0.000
MPRM -> IRM	0.729	0.02	36.746	0.000

Source: Authors Own Creation

The empirical results in Table 6 offer robust statistical evidence for the relationships among Institutional Risk Management (IRM), Market and Price Risk Management (MPRM), and Financial Risk Management (FRM). The results demonstrate that IRM has a positive and statistically significant effect on FRM ($\beta = 0.305$, $t = 8.345$, $p < 0.000$), indicating that a 1% increase in IRM leads to a 30.5% increase in FRM. Effective institutional risk management frameworks, including regulatory oversight, policy interventions, and governance structures, are essential for improving financial risk mitigation strategies among stakeholders. This relationship highlights the need for strong institutional frameworks to mitigate financial risks and improve economic stability.

The results indicated that MPRM had a significant effect on FRM ($\beta = 0.522$, $t = 14.488$, $p < 0.000$), suggesting that a 1% increase in MPRM results in a 52.2% increase in FRM. The observed positive effect indicates that effective market price risk management mechanisms, such as hedging strategies, price stabilisation funds, and futures contracts, enhance financial risk management by reducing price volatility and promoting financial resilience among market participants. The elevated β coefficient for MPRM compared with IRM indicates that market price risk management has a more significant direct impact on financial risk management than institutional risk measures. This finding is consistent with prior research (e.g. Kamau et al., 2021), highlighting the significance of market-driven risk management mechanisms in stabilising financial outcomes in volatile economies.

The results indicated that MPRM had a significant impact on IRM ($\beta = 0.729$, $t = 36.746$, $p < 0.000$), suggesting that a 1% increase in MPRM led to a 72.9% increase in IRM. This robust correlation suggests that enhancements in market price risk management directly reinforce institutional risk management frameworks. This relationship can be elucidated by the integration of market risk mitigation strategies, including commodity price monitoring and risk hedging, into institutional policies that enhance regulatory effectiveness and improve overall risk governance.

The findings emphasise the interrelatedness of risk management mechanisms, supporting the assertion that the effective management of market price risk is a crucial component of both institutional and financial risk management frameworks. The

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

findings indicate that policymakers and financial institutions should prioritise integrated risk management strategies to enhance financial stability and sustainability.

Table VII Mediation Analysis Result

Total effect		Direct effect						
Coefficient	P Value	Coefficient	P Value		Coefficient	SD	T Value	P Value
0.745	0.000	0.522	0.000	MPRM -> IRM -> FRM	0.223	0.028	7.902	0000

Source: Authors Own Creation

This study examines the mediating function of Institutional Risk Management (IRM) in the relationship between Market and Price Risk Management (MPRM) and Financial Risk Management (FRM). The statistical results in Table 7 provide strong evidence of the mediating role of IRM in this relationship. The findings indicate that MPRM has a substantial total effect on FRM (β = 0.745, t = 39.865, p < 0.000), suggesting that effective market price risk management mechanisms including price stabilisation funds, futures contracts, and hedging strategies play a critical role in enhancing financial risk management practices.

The introduction of IRM as a mediating variable revealed that MPRM retained a statistically significant direct effect on FRM (β = 0.522, t = 14.488, p < 0.000). This indicates that despite the existence of institutional risk management frameworks, market and price risk management has a distinct impact on financial risk management results. The analysis indicated a notable indirect effect of MPRM on FRM via IRM (β = 0.223, t = 7.902, p < 0.000), thereby identifying IRM as a partial mediator in the MPRM-FRM relationship.

Partial mediation indicates that market and price risk management not only directly improves financial risk management but also indirectly supports financial stability through enhanced institutional risk governance mechanisms. This supports the notion that an effective institutional framework enhances the efficacy of market-based risk-mitigation strategies, resulting in a more resilient financial risk-management system. The findings have significant policy and managerial implications, highlighting the necessity for an integrated risk management approach that merges market-based solutions with institutional oversight to enhance financial security and stability.
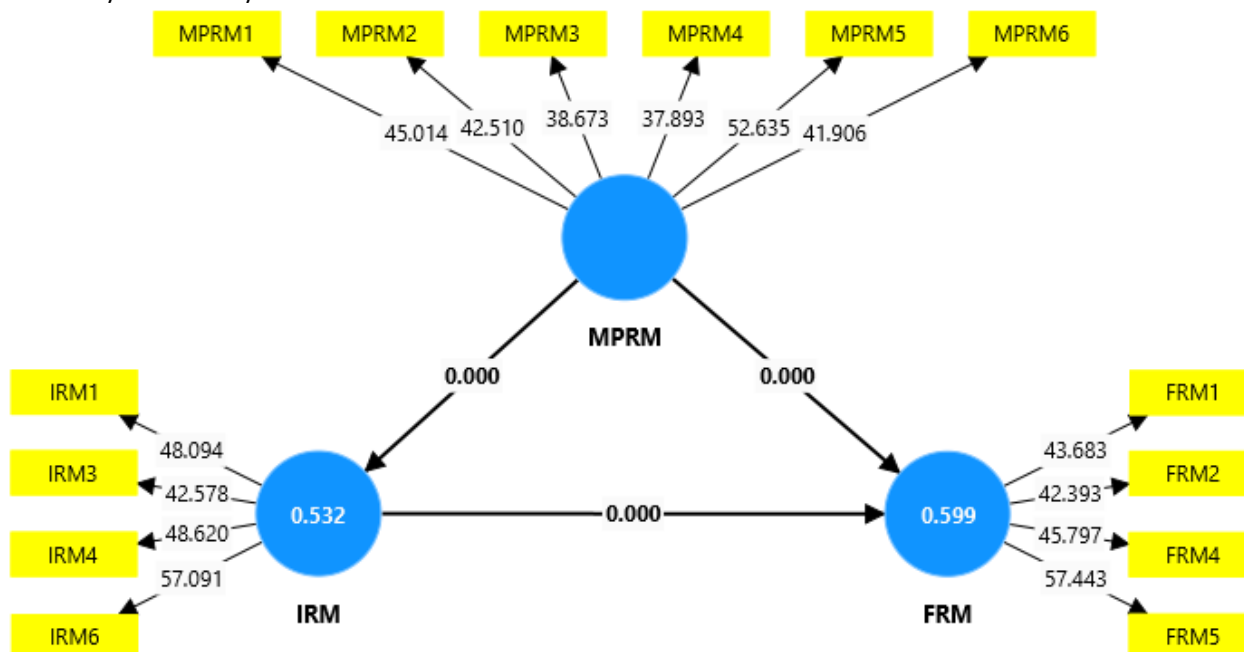

Figure ٢ Structure Assessment Model

5. DISCUSSION

This study's findings offer empirical evidence that demonstrates the interrelation among Market and Price Risk Management (MPRM), Institutional Risk Management (IRM), and Financial Risk Management (FRM). The findings demonstrate

Exploring the Impact of Market and Price Risk Management on Financial Risk Management: The Mediating Role of Institutional Risk Management in Ghana's Agricultural Sector.

that MPRM significantly affects both IRM and FRM, with IRM serving as a partial mediator. This aligns with the risk management framework proposed by Doherty (2000a), who highlights that structured risk management mechanisms improve financial stability by reducing uncertainty. Jin and Jorion (2006) demonstrate that effective market risk management tools, including hedging and price stabilisation funds, enhance financial risk mitigation, thereby reinforcing the direct influence of MPRM on FRM.

The mediating role of IRM is consistent with institutional risk theory (North 1990a), which asserts that robust institutional mechanisms improve financial resilience. Research, including Nguyen and Pindyck (2019), indicates that institutional risk governance influences the relationship between market-based risk interventions and financial outcomes. Nonetheless, some scholars contest this claim. Bai et al. (2021) contended that institutional risk management may have a limited impact on financial risk management in developing economies characterised by regulatory inefficiencies and enforcement gaps. Sibanda and Sibindi (2022) argue that market price risk management alone is insufficient to address financial vulnerabilities without strong economic infrastructure, thereby questioning the assumption that integrated risk management serves a universal mediating function.

The notable impact of MPRM on FRM contrasts with the findings of Ali and Alam (2020), who indicate that smallholder farmers in emerging markets frequently face challenges in effectively implementing risk management strategies due to financial illiteracy and limited resources. This indicates that although the study's findings are applicable to the Ghanaian agricultural sector, they may not be generalisable to other contexts.

6. CONCLUSION

This study emphasises the significant role of MPRM in improving FRM, with IRM acting as an important partial mediator. These findings indicate that integrating market-based and institutional mechanisms is crucial for enhancing financial resilience in Ghana's agricultural sector. These findings are consistent with prior research; however, differences in regulatory frameworks and economic structures may affect the applicability of the results in various contexts. Future research should investigate the long-term impacts of market and price risk strategies and institutional governance on financial stability to enhance our understanding of risk management dynamics.

Theoretical Implications

This study's findings support Institutional Risk Theory (North, 1990b) by showing that Institutional Risk Management (IRM) mediates the relationship between Market Price Risk Management (MPRM) and Financial Risk Management (FRM). This finding supports the theory's claim that strong institutional frameworks improve financial resilience. This study further supports Risk Management Theory (Doherty, 2000b), highlighting the importance of structured interventions to reduce financial uncertainty. This study challenges Agency Theory (Jensen & Meckling, 1976), which asserts that risk management mainly serves shareholders by proposing a more extensive systemic influence. These findings necessitate the refinement of theoretical models to incorporate both institutional- and market-based risk mechanisms.

POLICY AND PRACTICAL IMPLICATIONS

The findings underscore the necessity of strong regulatory frameworks to improve Institutional Risk Management (IRM) in addressing Market and Price Risk (MPRM) and Financial Risk (FRM). Policymakers should enhance financial literacy initiatives and risk-management institutions to bolster the resilience of agricultural stakeholders. Firms must implement dynamic hedging strategies and structured risk-management tools to mitigate price volatility. Furthermore, integrating institutional risk policies with market-based interventions can enhance the sustainability of financial ecosystems. The findings highlight the essential function of government intervention and private sector involvement in stabilising the agricultural financial framework in Ghana.

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