Social Sciences & Humanities Open 9 (2024) 100831

Contents lists available at ScienceDirect

Social Sciences & Humanities Open

journal homepage: www.sciencedirect.com/journal/social-sciences-and-humanities-open

Regular Article

Moderating role of trust in the relationship between corporate governance and performance of agricultural cooperatives in Nigeria

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ARTICLE INFO

Keywords:
Performance
Corporate governance
Corruption
Trust
Agricultural cooperative

ABSTRACT

This study aims to identify the moderating construct of trust in the performance of agricultural cooperatives in North-Western Nigeria. Business management cannot be overseen by the owner alone; it may require the services of other professionals. However, the high incidence of corrupt practices in the public and private sectors in developing African countries cripples many businesses. It makes it difficult to entrust the management of organisations to a third party. Trust is essential, especially in an environment with a loose execution of legal charges. Although a direct relationship between corporate governance and performance has been established across many disciplines, the influence of trust as an interactive construct has yet to be established. Therefore, this study addresses this gap. This study used concurrent triangulation design with a significant quantitative approach complemented by the qualitative segment involving seven open-ended questions. Data were collected from 384 cooperative for rice farmer's by used of a survey design. Structural Equation Modelling was used to assess the measurement model to test the hypotheses. An Excel spreadsheet was used to pre-code the data derived from open-ended questions, and later exported to ATLAS.ti software for qualitative analysis through coding, group coding and network. The findings revealed that corporate governance and trust significantly influenced agricultural cooperative performance. The moderating effect of trust on corporate governance was supported. The findings illustrate how social capital theory explains the processes of African trust, especially in corrupt environments with weak legal penalties. This study examines corporate governance within the internal control mechanisms of an agricultural cooperative society. Further studies should understand corporate governance within an external tie. To our knowledge this is the first study to examine the moderating effect of trust on the interacting variables in the African social capital theory model.

1. Introduction

Corporate governance significantly differs across firms and countries (Wu, 2021). It is an important mechanism for installing and sustaining trust in organisational settings (Tuan, 2014), including cooperative enterprises (Abate, 2018). Agricultural cooperatives in developed countries, such as the United States and Germany, are self-supported institutions working towards satisfying the socioeconomic well-being of members. For example, agricultural cooperative in European farming provided 40%–60% of agricultural trade and were crucial in enunciating rural realities (Jamaluddin et al., 2023, pp. 1–21). In Sub-Saharan developing African countries, agricultural productivity remains low, which constraints farmer's ability to attain the United Nations' Sustainable Development Goals (UN SDGs) (Ma et al., 2021; Nurudeen & Olumuyiwa, 2021).

Extant literature reveals that many emerging economies have collapsed because of a lack of corporate governance practices, including financial manipulation and distortion of funds due to corrupt practices (Nuhu & Hussaini, 2017). Cooperative enterprise being member-owned and controlled, deserve a system of governance that may protect member's interests and work towards attaining organisational objectives. However, a weak legal system and frequent change in government facilitates corrupt practices which deserves an effective corporate governance structure (Boateng et al., 2021).

In Nigeria 95% of farmers are involved in small-scale agricultural production. Approximately 86.9 million people live in poverty,

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https://doi.org/10.1016/j.ssaho.2024.100831
Received 24 June 2023; Received in revised form 2 February 2024; Accepted 2 February 2024
Available online 19 March 2024

representing 50% of the estimated population of 180 million in Nigeria (Omeje et al., 2022; World Bank, 2019). This has generated multiple problems, including hunger, social menace, and poverty (Komolafe et al., 2022), rendering farmers as poor (Uduji et al., 2019). Most financial support for farmers' cooperatives was provided without formal contracts, which may result in a breach of trust in most instances, especially in the absence of enforceable contracts (Franklin & Oehmke, 2019). Few studies have focused on the importance of trust in farmers' agricultural cooperative ventures (Jia & James, 2018). When someone places their trust in others, they naturally expect that trust to be reciprocated and for those individuals to act in a trustworthy manner. Unfortunately, trust is not always returned in kind (Korsgaard et al., 2014). Corrupt practices in institutions diminish the value of trust, which may affect the performance of trust-based contracts (Graeff et al., 2013).

Based on the aforementioned background, the motivation for this study is fourfold. First, studies on corporate governance have mostly focused on larger firms. While cooperative societies experience corporate governance problems, they have been neglected in the literature. Second, social capital theory, which has been applied to understand investor's performance, has rarely been applied to understand trust in the governance of agricultural cooperatives especially in developing African countries. This study provides additional evidence for applying social capital theory in a cooperative enterprise against a neoclassical economic theory. Third, while agricultural cooperatives experience various performance-related problems, the literature on the factors influencing their performance is lacking. This study addresses this gap in the literature.

Lastly, previous studies have deployed analytical tools other than Structural Equation Modelling (SEM), particularly Smart-PLS 3.5 and Atlas ti. Although the analytical tools have shown to be useful, Smart-PLS 3.5 allows researchers to comprehensively examine the structural linkages between direct and moderating effects in a single study model. On the other hand, Atlas.ti provides qualitative supplementary information about the investigated phenomena. Consistent with these motivations, this motivation, this study uses social capital to examine the direct effects of corporate governance and trust on the performance of agricultural cooperative societies. Also, it examines the moderating role of trust on the relationship between corporate governance and the performance of cooperatives' internal mechanisms.

The remainder of this study is organised as follows. A literature review, theoretical framework and hypotheses development, methodology, findings, discussion, conclusion, limitation and future research directions follow the introduction.

2. Literature review

2.1. Corporate governance

Corporate governance entails building trust and sustaining confidence among the various organisation group (Tuan, 2014). Studies on corporate governance and performance vary from industry to industry (Mohan & Chandramohan, 2018), and address the relationship between internal and external stakeholders using design procedures to attain organisational objectives (Kocmanova & Simberavo, 2012). Therefore, implementing a corporate governance mechanism may ensure decision-making for better collective action and serve as a process of restructuring cooperatives for better performance (Teixeira et al., 2020; Mohan & Chandramohan, 2018 used panel data to study corporate governance structure and firm performance in the context of the Bombay Stock Exchange using a sample of 30 quoted firms. Their results revealed that corporate governance significantly influences a firm's performance.

Factors such as a country's overall development, institutional environment and ownership structure may determine the correlation between corporate governance and performance making it difficult to obtain a unified global finding (Claessens & Yurtoglu, 2013). Strong institutional settings weaken the relationship between corporate governance and performance; because they are linked to historical, social, and organisational contexts that result in diverse features (Gomide et al., 2020). Despite the considerable amount of study conducted in this field, coupled with its significance in solving social and environmental concerns, there is a lack of comprehensive understanding of the administration of cooperative societies (Michaud & Luke, 2022). This knowledge gap necessitates greater investigation and scholarly attention (Da Silva et al., 2022; Franken & Cook, 2019; Jamaluddin et al., 2023, pp. 1–21; Michael & Joseph, 2021).

Corporate governance research has focused on board members (Shaw et al., 2016; Mohan & Chandramohan, 2018; Botlhale, 2021; Nurkhin & Rohman, 2020). Other stakeholders are considered important in attaining the vision and mission of an organisation. There was an urge for studies from both executives and members of cooperative societies (Xu et al., 2018), which is the focus of this study. Different types of moderating factors need to be considered when evaluating the impact of corporate governance on the organisation's performance, because culture and modes of behaviour have a more significant impact on governance. Considering that financial benefits are not always obvious, few studies have examined corporate governance from the perspective of trust.

Previous studies have reported inefficient agricultural cooperative investment performance in developing African countries (Ayandele & Emmanuel, 2013; Olanrewaju et al., 2021; Omeje et al., 2022; Yu et al., 2023). For instance, a research investigation was undertaken to examine individuals' perceptions of implementing corporate governance principles in cooperative management within the Nigerian State of Oyo and Osun. The result reveals the low level of corporate governance mechanisms in management of cooperative societies (Michael & Joseph, 2021). The findings indicate a deficiency in the implementing corporate governance systems within the administration of cooperative societies (Michael & Joseph, 2021). Nevertheless, implementing effective corporate governance practices in developing countries' agricultural cooperative societies is expected to promote trust among diverse stakeholders and contribute to long-term value creation and sustainability (Ma et al., 2021). The execution of such initiatives may encounter difficulties in a corrupt environment.

Similarly, cooperative governance is specific, important, and complex because the instruments used to measure social objectives are primarily subjective and difficult to measure performance, as country governance may enhance firm performance with an established rule of law and minimal corruption (Michaud & Luke, 2022). This is particularly relevant for Nigeria, which is ranked among the most corrupt countries in the world by many anti-corruption agencies, such as the Economic and Financial Crime Commission (EFCC) and the Independent Corruption Practices Commission (ICPC) (Adelopo & Rufai, 2020). See Fig. 1.1 below.

Fig. 1.1 highlights the trend of corrupt practices in Nigeria based on the available data from 2012 to 2021. A lower percentage indicates a

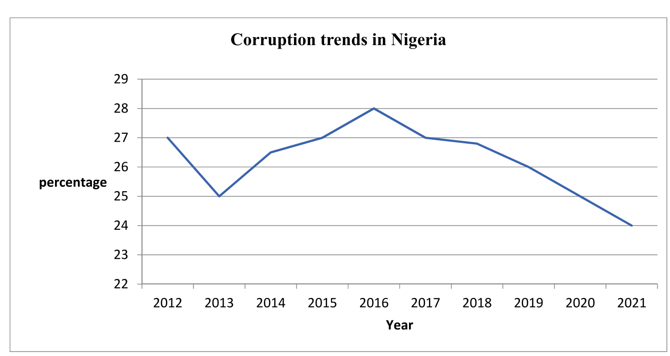

Fig. 1.1. Corruption Trends in Nigeria with the study area mark (amended from Dokua, 2023: Fig. 1 p 1).

higher level of corruption indices.

Studies on the direct relationship between corporate governance and performance have provided mixed results (Al-Gamrh et al., 2020). Some findings (Aebi et al., 2012; Erkens et al., 2012; Mohan & Chandramohan, 2018; Musdholifah et al., 2021), with a negative relationship, especially in developing countries (Shahwan & Fathalla, 2020), whereas others (Adedeji et al., 2020; Al-ahdal et al., 2020; Hermuningsih et al., 2020; Shahwan & Fathalla, 2020), reported a positive relationship. Such mixed findings warrant the introduction of moderating variables to obtain in-depth results. Accordingly, corporate governance is more visible through its indirect effect (Al-Gamrh et al., 2020; Rabi et al., 2010). Therefore, governance of cooperative performance warrants further attention. The present study focusses on the quality of corporate governance on the level of trust. Thus, this study introduces trust as a moderating variable to test this relationship.

2.2. Trust

Trust is defined as a situational response, which is determined by people's character, and is based on the personal willingness to accept vulnerability based on positive anticipation of others' intentions or behaviours (Torce & Valenzuela, 2011; Mukherjee et al., 2012). It is a psychological state that impacts attitudinal, perceptive, behavioural, and performance outcomes. From an economic viewpoint, trust has the ability to reduce an organisation's transactional costs (Moller et al., 2016). This construct is widely used across disciplines, such as information technology (Huang et al., 2014; Hashim & Tan, 2015; Jin et al., 2015; Liang & Deng, 2018), industrial marketing (Brown et al., 2019), relational marketing, and determining online shopping behaviour, primarily using the Unified Theory of Acceptance and Use of Technology (Bhatti et al., 2020).

However, this study uses the social capital theory to understand trust in cooperative agricultural enterprises. A large body of literature has revealed that when the level of trust is high, there is a tendency to engage in social exchanges that promote cooperative and communicative behaviours (Subramaniam et al., 2013). Although trust is a strategy for individuals to deal with uncertainty, it must be considered a property of group entities (Subramaniam et al., 2013). This study seeks to understand trust among farmers engaged in cooperative ventures.

The contribution of trust to organisational performance has produced inconsistent results. Some studies have shown that it stimulates better working conditions, attitudes, team processes, and performance levels (Magoola et al., 2021; Yan et al., 2022; Yang et al., 2014). Others reported limited and inconclusive results that vary according to the type of industry and group involved (Buvik & Tvedt, 2016; Ali & Khalid, 2017; Gorondutse & Hillman, 2019). In addition to the structural aspect of measuring corporate governance, behavioural aspects such as interpersonal relationships, character, and integrity of individuals plays a significant role in governance efficiency (Sahay, 2016). Hartono et al. (2021) exemplify that the inconsistent findings regarding trust and performance deserve further examination of the implications of the quality of corporate governance on the level of trust among stakeholders.

Most studies on the relationship between trust and performance have focused on financial performance (Buvik & Tvedt, 2016; Ali & Khalid, 2017), like external financing (Yu et al., 2023), in terms of bank credit (Kehinde and Ogundeji (2022). Nevertheless, few studies have examined the moderating role of trust within the internal mechanism of agricultural cooperative enterprises.

2.3. Performance

Performance "is the degree to which tasks are implemented inside an organisation in an effort to meet goals, objectives, mission, and vision of the business" (Wardhiani et al., 2023). It determines the progress towards attaining predetermines organisational objectives (Sebhatu et al., 2021). The issue of performance becomes essential for the long-term viability of the cooperative enterprise, which varies according to various factors (Omar, Ishak, Othman, & Sum, 2022), on either overall performance (Alho, 2015), financial performance, (Bonos et al., 2018) operating performance, economic performance, social performance, as well as environmental performance (Jamaluddin et al., 2023, pp. 1–21). However, a large volume of research was conducted on the financial performance of agricultural cooperatives (Jamaluddin et al., 2023, pp. 1–21). Measuring performance from a stakeholder's perspective is essential, even if it makes the process more complex (Harrison & Wicks, 2013). Despite the great progress made in establishing cooperatives, its performance remains challenging. This is because the correlation between social and economic conditions must be considered when assessing cooperative performance (James et al., 2013). The performance of an organisation is related to the effectiveness of the governance process, which depends on the individuals involved in the process (Sahay, 2016). Nevertheless, fear of insecurity among partners paralyses activities and promotes mistrust (Zaiats et al., 2022). What makes the present study unique from previous studies is that trust is perceived as both a predictive and moderating variable.

Consistent with the aforementioned evidence, trust is proposed as a moderating variable between corporate governance and the performance of agricultural cooperatives in North-Western Nigeria. Based on this premise, the following hypotheses are formulated for empirical testing:

H1. Corporate governance significantly influences the performance of agricultural cooperatives in North-Western Nigeria.

H2. Trust significantly influences the performance of agricultural cooperatives in North-Western Nigeria.

Ha. Trust moderates the relationship between corporate governance and the performance of agricultural cooperatives in North-Western Nigeria.

Consistent with these hypotheses, the following conceptual framework is developed to depict the direction of the relationship between the variables.

Validating the aforementioned framework will enable us to study its' objectives.

3. Theory and methodology

In this section, the methods used in conducting the research are discussed. This section describes the research design, population and sample, instrumentation and analytical procedures.

3.1. Social capital theory

The majority of research conducted on the correlation between corporate governance and performance of agricultural cooperatives has chiefly used the agency theory framework, focusing primarily on the identification and resolution of principle-agent conflicts (Shahwan & Fathalla, 2020). However, fewer agency problems arise when firms have unified ownership and management (Arayssi & Jizi, 2019). In a cooperative enterprise, the owners are the members; at the same time executives are elected from the general body which testifies the unified ownership. According to Yu et al. (2023), trust serves as the fundamental element of social capital. Previous research conducted by Feng et al. (2016) suggests that smaller cooperatives tend to exhibit higher levels of social capital. Additionally, some studies have found that social capital plays a significant role in facilitating access to bank loans for cooperative members. Furthermore, Deng et al. (2020) argue that social capital also influences the life cycle of cooperatives. The use of social capital theory has been prevalent in many research studies on cooperatives. Consequently, scholars have emphasised the need for social capital in the international administration of cooperative (Yu et al., 2023).

The present research used social capital theory as a framework to examine the performance of agricultural cooperative in Nigeria. The study focused on the capacity of individuals to derive advantages from their social structure, interpersonal connections, and memberships (Felicio et al., 2014, p. 238). The theory plays a crucial role in the achievement of cooperatives success due to its social characteristics, including democratic governance and communal ethos (Liang & Deng, 2018; Yu et al., 2023). These aspects serve as significant pillars for agricultural cooperatives (Felicio et al., 2014; Hallam et al., 2018; Apparao et al., 2019). Cooperative has coordination challenges that require the presence of social capital since they promote shared ownership as opposed to individual ownership. Several studies have examined the impact of social capital on agricultural cooperatives, yielding both positive and negative effects (Kyazz et al., 2017; Xu et al., 2018). However, the findings from these studies have been inconsistent (Xu et al., 2018). Hence, the research used social capital theory in order to comprehend the moderation influence of trust on the relationship between corporate governance and the performance of agricultural cooperatives operating within a context characterised by corruption and lax legal regulations. The main aim of this study was to investigate the bonding social capital that emerges from the horizontal integration among members and executives of agricultural cooperative enterprises.

3.2. Research design

A mixed-methods research comprised of quantitative and qualitative approaches was used for this study. The quantitative approach forms the major segment with seven demographic questions 90 structured questions while, the qualitative approach has seven open-ended questions. The quantitative segment provides a higher degree of external validity because it enables researchers to generalise results and can be used to establish cause-and-effect relationships through certain types of correlation or regression analyses (Sekaran & Bougie, 2016). Therefore, this study seeks to investigate the direct correlation between corporate governance and performance, and the direct and moderating effect of trust. The qualitative exploratory open-ended questions provide a wider understanding of the reasons behind a phenomenon, rather than providing or testing hypotheses (Taguchi, 2018). Despite extensive studies of cooperative governance using relative productivity performance and farm-level patron-members performance, survey offers a representative measure of the overall performance of cooperative (Franken & Cook, 2019).

3.3. Population and sample

The area of study is North-Western Nigeria, which is comprised of three states of: Kano, Kaduna, and Katsina. The states are selected because of their major contribution to rice production in Nigeria. Krejcie and Morgan's (1970) sample size table was used to calculate the probability sampling technique. The required samples are obtained from rice farmers/members of cooperative enterprises from the cluster distribution. Initially, 417 questionnaires were distributed to respondents from Kano 187, Kaduna 144, Katsina 86 including 10% attrition through research assistance. Out of 417 distributed questionnaires 390 were returned 6 are rejected. Finally, 384 questionnaires were retained for final analysis. See Table 1 below.

Table 1
Summary of response rate.

Questionnaires	Frequency	Percentage
Distributed	417	100%
Returned	390	93.52%
Rejected	6	1.43%
Retained	384	92.09%

3.4. Instrumentation

A questionnaire was used as an instrument for data collection. The questionnaire was divided into three sections. The first section contained demographic variables, the second section formed the major part with items measuring the scale items, while the last section contained open-ended qualitative information to complement the initial section. The measure for corporate governance was adapted from Ilyas and Rafiq (2012), Muller and Lecoeuvre (2014), Tuan (2014). Trust was adapted from Gansen and Hess (1997), Ryu et al. (2008), Ng (2016). Performance was adapted from; Fink and Kessler (2010), Brahm and Kunze (2012), Islam et al. (2018) and Aydiner et al. (2019). See Appendices A, B, and C for the measurement items.

The scale responses are measured with a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The five-point scale represents the respondents' levels of frustration, enhanced response rates, and response quality. Hence, the reliability of the entire instrument (Holmes & Mergen, 2014). The qualitative information derived from open-ended questions provided in-depth information on the phenomenon under investigation.

3.5. Analytical procedure

The collected data are analysed using three analytical procedures. Demographic information was analysed using the Special Package for Social Sciences (SPSS). The data from the scale item were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The use of PLS can be justified by the relative complexity of the model, which includes a moderation analysis. An advantage of SEM over other analytical approaches is that both direct and interacting relationships can be concurrently analysed in a single research model. Meanwhile, the open-ended qualitative information was initially arranged and pre-coded in Excel and later exported to Atlas.ti atlas. ti 8 software for further analysis. The exported qualitative information was used to form a theme, arrange codes and group codes for similar responses to form a network view. Supplementing one instrument with another enhances the validity and dependability of the data (Zohrabi, 2013). Qualitative comments derived from open-ended questionnaires were used to corroborate, demonstrate, or expand the meaning of quantitative responses collected in the first phase, hence providing in-depth results (Schmidt et al., 2020).

4. Results

4.1. Demographic profile of respondents

As shown in Table 2, 31.0% of the respondents were aged between 18 and 25 years. Among these, 89.3% were men and 10.8% were women. This demonstrates the influence of culture on the less participation of women in cooperative farming in Africa. For example, in Nigeria, women have household responsibilities, including children's upbringing, whereas men provide for their families (Onubuogu et al., 2014). Another factor is that men have more access to factors of production than women in Northern Nigeria (Onubuogu et al., 2014). Moreover, 57.8% of respondents were married and 42.2% were unmarried, with a middle-level NCE/diploma education. The middle-level of education among farmers indicates the potential of educated people for farming activities, which has been supported by Onubuogu et al. (2014). A total of 81.4% of the respondents had less than five years of farming experience. The performance of farmers with respect to their output is determined by their level of experience (Onyeneke & Iruo, 2011).

According to the records, there are a total of 384 members/farmers in the group. Out of these 61 are elected executives. Among the executives, 40, which constitutes 65.3%, receive a salary from their societies. On the other hand, 21, representing 34.42% receive no salary. Among the 323 floor members, none are entitled to any salary. As per the data in

Table 2
Demographic analyses of the respondents.

S/N	Variable	Category	Frequency	Percentage
1	Age	18–25	119	31.0%
		26–35	113	29.4%
		36–45	101	26.3%
		46-above	51	13.3%
			284	**100%**
2	Gender	Male	343	89.3%
		Female	41	10.7%
			384	**100%**
3	Marital Status	Married	222	57.8%
		Single	162	42.2%
			384	**100%**
4	Education	Primary	85	22.1%
		Secondary	85	22.1%
		Diploma/NCE	125	32.6%
		Degree/HND	38	9.9%
		Masters	32	8.3%
		None Formal	19	4.9%
			384	**100%**
5	Position	Member	323	84.11%
		Executive	61	15.88%
			384	**100%**
6	Duration	>20 years	75	19.5%
		>15 years	71	18.5%
		>10 years	85	22.1%
		>5 years	60	15.6%
		<5 years	93	24.2%
			384	**100%**
7	Do you receive Salary	Executives-yes	40	10.41%
		Executives-No	21	5.46%
		Non executives-No	323	84.11%
			384	**100%**
7a	Amount	less than 30,000	53	13.8%
		30,000–100,000	08	2.0%
		100,001–200,000	00	0%
		above 300,000	00	0%
		None of the above	323	84.11%
			384	**100%**
8	Accounting Knowledge/ Book keeping	Yes	185	48.2%
		No	199	51.8%
			384	**100%**
9	Raining Season Income	less than 100,000	148	38.5%
		100,000–200,000	113	29.4%
		200,001–300,000	55	14.3%
		300,001–400,000	26	6.8%
		400,001-above	42	10.9%
			384	**100%**
9a	Dry Season Income	less than 100,000	188	49.0%
		100,000–200,000	128	33.3%
		200,001–300,000	25	6.5%
		300,001–400,000	11	2.9%
		400,001- above	32	8.3%
			384	**100%**
10	Family Member	Less than 5	126	32.8%
		more than 5	124	32.3%
		less than 10	71	18.5%
		more than 10	63	16.4%
			384	**100%**

Table 2, The majority (86.88%) of those who receive a salary of less than ₦30,000, which is below the minimum wage in Nigeria just like any other business, farming requires accounting and bookkeeping knowledge, and unfortunately, 51.8% of the members lack this knowledge. When it comes to income, 38.5% of the members earned less than ₦100,000 during the rainy season, while, 49% earned less than ₦100,000 during the dry season. It is worth noting that the majority of the families (more than 50%) have less than five family members, which is lower than the average family size of 13 persons in Northern Nigeria (Johnson, 2017). Several factors, such as, the cost of living, family planning, and educational level, contribute to these statistics.

4.2. Descriptive statistics

Descriptive analysis was used to measure the dispersion of responses with respect to the study variables in terms of minimum, maximum, mean and standard deviation. The results of these analyses are presented in Table 3.

The results in Table 3 revealed that the minimum response across all variables is one, indicating that some respondents disagreed with the statements for the variables. The maximum response is five, indicating that some respondents strongly agreed with the statement. The mean values of the minimum and maximum responses range from 1.9055 to 2.0609. This means that most of the respondents disagreed with the statements because they were below average, which is consistent with the standard deviations.

4.3. Measurement model analysis (direct effect)

The measurement model highlights the association between the constructs and indicators (Jhantasa, 2022). The following two types of validity were used to assess the measurement model: convergent and discriminant validity (Gholami et al., 2013; Rahman & Hussain, 2012). The literature describes composite reliability as the best measure of reliability because Cronbach's alpha may underestimate scale reliability (Rouf & Ahktaruddin, 2018) (see Fig. 1.2).

4.3.1. Convergent validity

Convergent validity is assessed using average variance extracted (AVE). All the values are above 0.5, as suggested in the literature (Ramayah et al., 2017). Additionally, the items achieved a loading of 0.70, except for some items which are deleted because their loadings were below 0.5 (Ramayah et al., 2017). As shown in Table 4 and Fig. 2, all values achieved the requisite threshold.

4.3.2. Discriminant validity

The discriminant validity of the measurement model is assessed using the HTMT criterion, which requires that the constructs' values be below 0.90, as recommended by Henseler et al. (2015). Consistent with these recommended thresholds, all constructs achieved the recommended cut-off values of less than 0.90. The results are presented in Table 5 and Fig. 2.

The data achieved acceptable levels of validity and reliability. Following the achievement of the recommended cut-off values, the result of the structural model is presented below.

4.4. Structural model

The structural model displays a variable relationship (Jhantasa, 2022). It is measured using the following four criteria: (i) assessment of the significance of the path coefficient for hypothesis testing, (ii) assessment of the coefficient of determination (R2), (iii) assessment of effect size, and (iv) assessment of predictive relevance. The results are as follows:

4.4.1. Assessing the significance of path coefficient for hypothesis testing

A structural model using bootstrapping in the Smart-PLS software was used to assess the statistical significance of the path coefficient and t-value (Hair et al., 2013) and test the hypotheses. Hypothesis 1 proposes that corporate governance significantly influences the

Table 3
Descriptive statistics.

Constructs	N	Minimum	Maximum	Mean	Std. Deviation
CGN	384	1.00	5.00	1.9055	0.46417
TRU	384	1.00	5.00	2.0240	0.56434
PMC	384	1.00	5.00	2.0609	0.54407

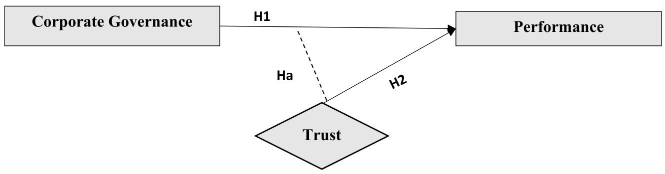

Fig. 1.2. Models.

Table 4
Convergent validity.

Construct	Items	Loadings	Composite Reliability	Average Variance Extracted
Corporate Governance	CGN1	0.899	**0.961**	0.710
	CGN10	**0.809**		
	CGN2	**0.860**		
	CGN3	**0.734**		
	CGN4	**0.747**		
	CGN5	**0.918**		
	CGN6	**0.905**		
	CGN7	**0.853**		
	CGN8	**0.880**		
	CGN9	**0.797**		
Performance	PMC1	0.932	**0.978**	0.813
	PMC10	**0.859**		
	PMC2	**0.914**		
	PMC3	**0.860**		
	PMC4	**0.862**		
	PMC5	**0.952**		
	PMC6	**0.941**		
	PMC7	**0.890**		
	PMC8	**0.928**		
	PMC9	**0.874**		
Trust	TRU1	0.805	**0.939**	0.605
	TRU10	**0.724**		
	TRU2	**0.715**		
	TRU3	**0.757**		
	TRU4	**0.792**		
	TRU5	**0.818**		
	TRU6	**0.823**		
	TRU7	**0.809**		
	TRU8	**0.773**		
	TRU9	**0.756**		

performance of Nigerian agricultural cooperatives. The results supported this postulation (β = 0.688; t = 12.498, p = 0.000 < 0.001). Therefore, the hypothesised path of corporate governance and performance of agricultural cooperatives in North-Western Nigeria in the inner model is supported. Hypothesis 2 postulated that trust significantly influences the performance of agricultural cooperatives in North-Western Nigeria, which is also supported (β = 0.157; t = 3.732, p = 0.000 < 0.001). In addition to the direct effect, the result of the moderating effect is also analysed. Hypothesis 3 proposes that trust moderates the relationship between corporate governance and performance. The result showed that trust significantly and negatively moderated the relationship between corporate governance and performance (β = -0.122; t = 1.572; p = 0.061 < 0.01), as shown in Table 6 and Fig. 3.

4.4.2. Assessment of coefficient of determination (R2)

The R2 assessed the extent to which independent variables collectively explained dependent variables (Hair et al., 2013). It was assessed using the threshold value coefficients of 0.25, 0.5 and 0.75, indicating weak, moderate, and strong thresholds, respectively (Hair et al., 2013). Cohen (1988) alternatively classified R2 based on the threshold values of 0.02, 0.13 and 0.35 as weak, moderate, and strong, respectively. The

Table 5
Discriminant validity.

Heterotrait-Monotrait Ratio	Corporate governance	Performance	Trust
Corporate governance			
performance	**0.778**		
Trust	**0.412**	**0.445**	

Table 6
Path coefficients for hypotheses testing (direct/indirect effect).

Hypothesis	Relationship	Beta	T. Statis	P Values	Decision
H1	**Corporate Govern. - > Performance**	0.688	12.498	**0.000**	**Supported**
H2	**Trust - > Performance**	0.157	3.732	**0.000**	**Supported**
Ha	**Corporate Govern. *Trust - > Performance**	−0.122	**1.572**	**0.061**	**Supported**

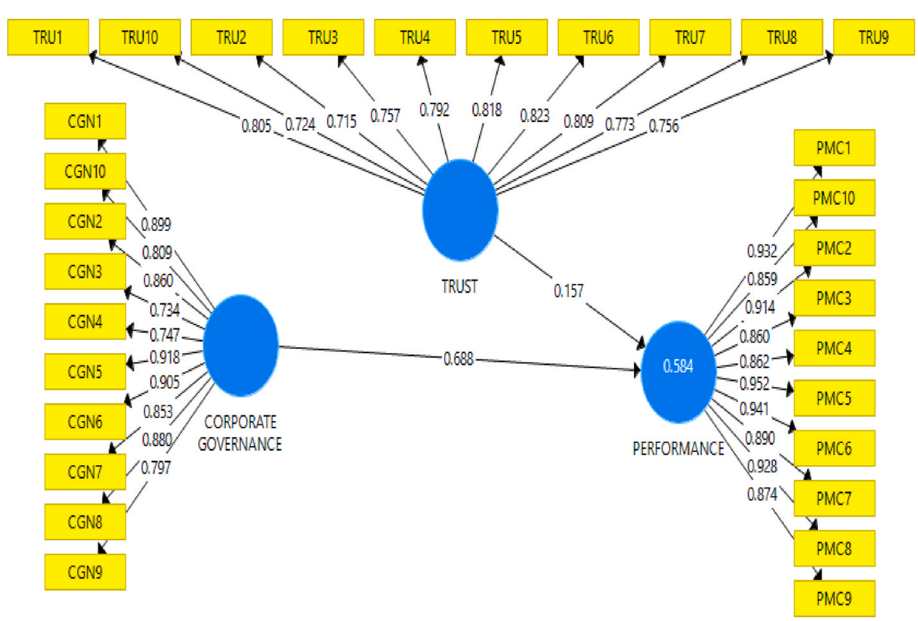

Fig. 2. Measurement model.

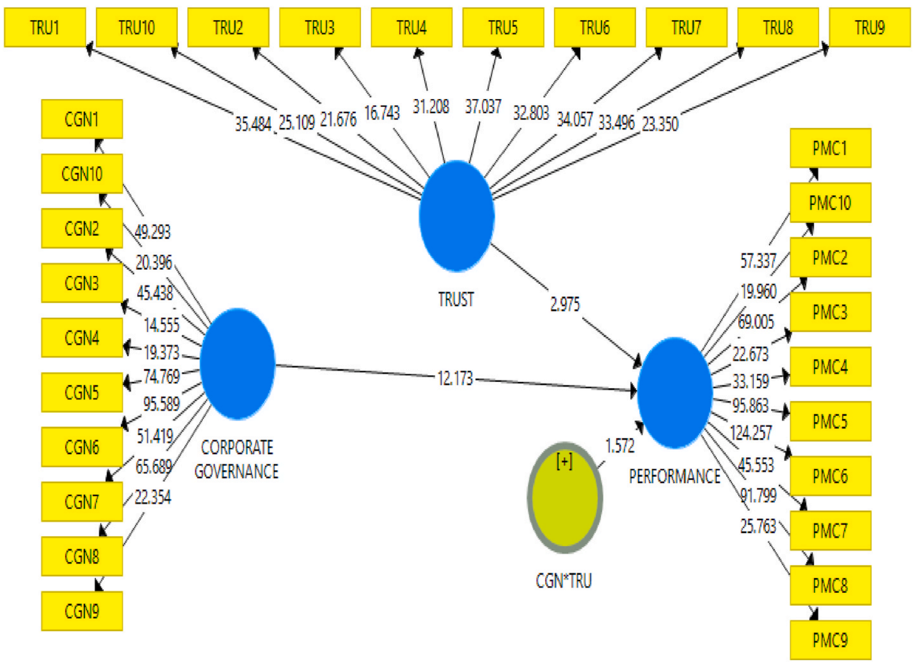

Fig. 3. Bootstrapping.

result of the R2 is termed moderate by Hair et al. (2013), as presented in Table 7.

4.4.3. *Assessment of the effect size*

The effect size refers to the individual effects of independent variables on dependent variables (Cohen, 1988). It is assessed using Cohen (1988) f^2 based on the classifications of 0.02, 0.13 and 0.35, categorised as small, medium, and large, respectively. The effect size results for the interaction effects are presented in Table 8.

The result of the effect size revealed that the interaction between trust and corporate governance has a large effect on the dependent variables (performance). However, trust and performance display a moderate effect size.

4.4.4. *Predictive relevance*

Predictive relevance (Q^2) refers to the ability of a model to predict the absence of missing cases (Geiser, 1975; Hair et al., 2014). It is assessed using a blindfolding procedure, and a model is considered to have predictive relevance when its Q^2 is greater than zero. Accordingly, the results of blindfolding are presented in Fig. 4.

It is evident from Fig. 4 that the Q^2 of the model is 0.445, which is above zero. Therefore, the model can be said to have predictive relevance.

4.5. *Results and qualitative data analysis*

Respondents were asked to express their views on how corporate governance facilitates stakeholder involvement in decision-making. The respondents' views were divided into the following five divergent code groups of opinion: decision-making, leaders carrying along other members, lack of teamwork, and no member awareness. This reflects respondents with similar opinion. The essence of code is to have manageable data as displayed in the network, in Fig. 5. A total of 221

Table 7
Coefficient of determination (R2).

R SQURE	R Square	R Square Adjusted
Performance	0.584	0.582

Table 8
Effect size (f2).

Constructs	f2	Effect Size
Trust*corporate governance	0.688	Large
Trust*performance	0.157	Moderate

respondents expressed different views, in accordance with the code group.

The code group regarding decision-making provided 50 members responses, constituting 23.2% of the total number of responses to the particular question regarding corporate governance.

According to the secretary of Garkuwa Farmers Cooperative Society Limited in Kano State (Respondent 113), who has a diploma educational certificate and less than 10 family members:

> "Corporate governance has important premises for maintaining fairness dealing among all stakeholders" towards attaining organisational objectives.

His opinion was supported by other members (Respondent 115, 82,233) who explained that:

> "*Our executives represent us in decision-making in most instances unless on major decision; all members are consulted at general assembly to take a stand. In most instances' decisions are taken by the executives without involving other stakeholders beside farmers/members which indicates improper implementation of corporate governance practices.*

Contradicting the aforementioned view, an elected business committee member (Respondent 10), a member of Kainuwa Rice Farmers Agricultural Cooperative Society Limited from Kaduna, who has been engaged in farming business for more than 10 years and has an annual income of more than ₦300,000 during dry season, stated that:

> "Although largest number of respondents declare that they engage in corporate governance practice, the focus is only on internal stakeholders, other external stakeholders were not considered by the farmer groups members and executive. Such factor affects a smooth decision-making and may result in conflicts in the organisation"

The literature has revealed that effective corporate governance

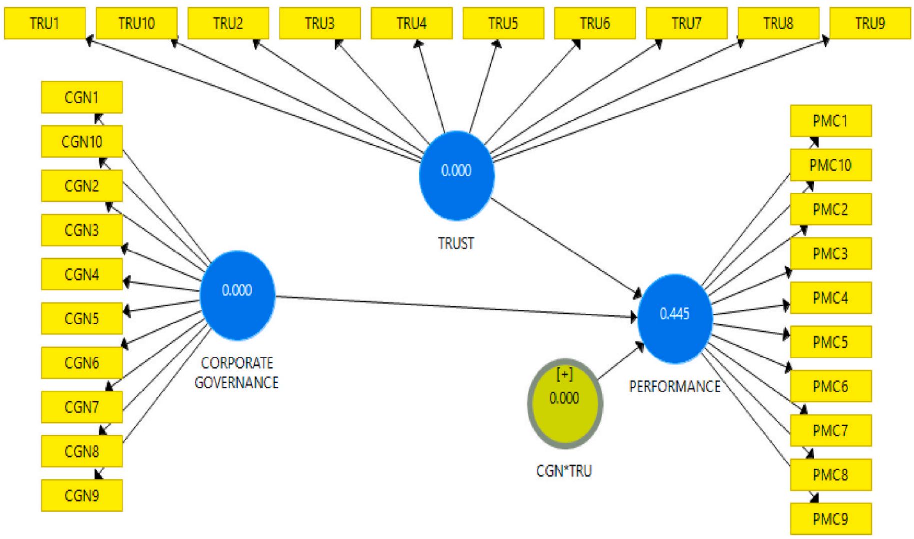

Fig. 4. Blindfolding.

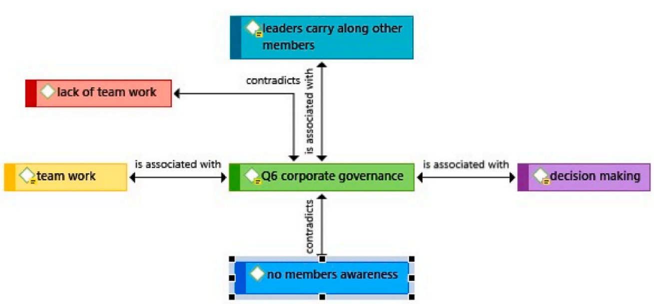

Fig. 5. Corporate governance.

involves fairness, transparency, accountability and responsibility (Moller et al., 2016).

A 35-year-old female member holding a vice chairperson position (Respondent 10) and having accounting knowledge expressed that:

"*Involvement of women in decision-making is quite less. To a great extent teamwork is segregated, contrary to effective corporate governance practice*" Such decision is supported by the literature as follows:

Aebi et al. (2012), Beltratti and Stulz (2012), Erkens et al. (2012), Akbar et al. (2016), Tuan (2014) and Sahay (2016) have reported that corporate governance intends to build mutual relationships among stakeholders and promotes corporate strategies for high performance. To implement corporate governance, organisations should establish mechanisms that ensure members' participation in collective decisions (Benson, 2014; Teixeira et al., 2020).

A total of 89 members representing 41.3% of the respondents expressed that corporate governance facilitates decision-making.

The above members-/respondent opinion corroborate with the quantitative result of significant relationship between corporate governance and the performance of agricultural cooperatives.

By contrast, 66 members (26.3 %) expressed that they were unaware of teamwork.

A total of 10 members revealed that they did not know about corporate governance.

5. Discussion

This study revealed significant direct relationships between corporate governance and performance consistent with previous studies (Al-ahdal et al., 2020; Al-Gamrh et al., 2020; Hermuningsih et al., 2020; Shahwan & Fathalla, 2020), While others display insignificant relationship (Adedeji et al., 2020). This may be due to the ownership structure of cooperatives which is highly diffused, which result in less monitoring of the management, as oppose to companies/firm with separate ownership and management of the firm that may result in conflicts of interest (Hakimah et al., 2019). Surprisingly, in the present study, the qualitative results corroborate the quantitative findings. However, qualitative results further explained that, in some decisions members are represented by elected representatives.

Additionally, this study revealed a significant relationship between trust and performance (Magoola et al., 2021; Ng, 2016). Previous studies have found that the more trust-based cooperative relationships are found in highly uncertain and complex contexts, the less society suffers from the consequences of market and organisational failures (Fink & Kessler, 2010). The literature has revealed that corruption may negatively influence trust (Graeff et al., 2013; Tambunan, 2023). Instead of facilitating trust, corruption diminishes trust in cultures with high levels of corruption (Adelopo & Rufai, 2020; Tambunan, 2023). Management cannot control everything. Therefore, cooperation and trust are essential in an organisational setting, especially when command and control become ineffective. Trust promotes harmonious bonding in social relationships. However, this is problematic because it involves many risks and potential doubts (Tambunan, 2023).

This study extends the social capital theory model by introducing trust as a moderating variable among the interacting variables in the model. Surprisingly, this study reveals a negative and significant relationship between trust and performance similar to other studies in a different context, where trust negatively moderates the relationship between asset specificity and a weak form of opportunistic behavior (Shi et al., 2018). One possible explanation could be that corporate governance requires less trust in a unified ownership enterprise (Nilson & Svendsen, 2011; Nilson & Svendsen, 2012). This result is consistent with the social capital theory and Yu and Nilsson (2019), who have argued that cooperatives have coordination problems that necessitate social capital. When the level of trust among individuals is high, there is a greater tendency to engage in social exchanges and be cooperative and communicative (Subramaniam et al., 2013; Graeff et al., 2013; Tambunan, 2023). Our findings extended these results by providing evidence that trust can weaken the relationship between corporate governance and performance, as presented in Table 7. It is evidence that Nigeria is among the most corrupt countries in the world which may result in a negative influence on trust between corporate governance and performance. When the level of trust is relatively low, the parties may rouse suspicion (Shi et al., 2018). Interpersonal and political trust in African countries tends to be lower compared to developed nations. It seems that people in sub-Saharan African countries have a comparatively low level of trust in most people (Godefroidt et al., 2017). Nevertheless, although trust is reduced in a society with more corrupt practices (Graeff et al., 2013), on a positive note, effective corporate governance can compensate for the negative effect of lack-of-trust on economic outcomes (Dak-Adzaklo & Wong, 2024).

6. Conclusion and implications

This study examined the direct effects of corporate governance and trust on the performance of agricultural cooperative societies in Nigeria. The results confirmed the influence of all these variables on performance. In addition to the direct relationship between trust and performance, this study examined the moderating effect of trust on the influence of corporate governance on the performance of agricultural cooperative societies in Nigeria. The results revealed that trust moderates the relationship between corporate governance and performance.

6.1. Policy implications

This study provides practical implications for executives and policymakers in that corporate governance can enhance the performance of agricultural cooperatives in developing African countries when motivated by trust practices. This link has already been established in developed countries with strong institutional backgrounds.

6.2. Theoretical implications

In addition to practical implications, some theoretical implications are worthy of study within the corporate governance literature.

First, our study provided additional evidence for the postulation of the social capital theory from an African perspective, proving the positive influence of corporate governance and trust on the performance of agricultural cooperatives in Nigeria. The effectiveness of social capital may be contingent on the context. However, factors such as trust, cooperation, and networking among small-scale farmers also help develop social capital (Nithya et al., 2019). Collective activities, relationships, attitudes and trust enhance economic development. However, trust is dynamic because one may demonstrate trust in some respects and not in others. The greater the homogeneity of a group the higher the level of trust.

Likewise, the more divergent and complex a group, the lower the level of trust (Nithya et al., 2019). Most corporate governance research concentrates on private and public enterprises, whereas this study has considered cooperative enterprises.

Second, this study provides contradictory results on the postulation of the social capital theory with respect to the influence of corporate governance on performance. Studies from Europe and Asia have proposed a positive and robust relationship between corporate governance and performance (Hossain et al., 2020; Kyere & Ausloos, 2021; Lukas & Basuki, 2015). Meanwhile, among developing countries, Africa has revealed a negative relationship between corporate governance and performance (Nwagbara and Ugwoji, 2015; Osisioma et al., 2015). This can be evidence of the ownership structure because employed directors' control private firms in Nigeria, while public corporations are managed by government officials who tend to engage in corrupt practices as a result of differences in ownership between directors and investors. In a cooperative society, the owners are the managers. Directors are elected from among general members, which may give them control over resources and significantly reduce corrupt tendencies. Ownership concentration is an integral part of the governance mechanism that reduces managerial opportunism (Arayssi & Jizi, 2019; Hong & Nguyen, 2014).

Third, previous studies on corporate governance performance have focused on the agency theory, which is more concerned with principal-agent conflicts (Shahwan & Fathalla, 2020). Fewer agency problems arise when firms have unified ownership and management (Arayssi & Jizi, 2019). In a cooperative enterprise, the owners are managers who testify to unified ownership. This study employs the social capital theory to understand the performance of agricultural cooperatives in Nigeria.

Finally, this study broadens the understanding of the social capital theory by providing pioneering evidence of the moderating effect of trust, which has not been examined in previous studies.

7. Limitations of the study

Despite its contributions, this study has some limitations that provide directions for future research. First, the coefficient of determination reveals that the variables used in this study could only explain 58.4% of the variation in the performance of agricultural cooperative societies. Therefore, the remaining 42.6% could explore those potential variables. Second, demographic factors such as gender and cultural values are worth studying. Another limitation stems from the non-concentration of purely cooperative governance literature. Other studies should restrict to corporate governance in cooperative enterprises alone. In addition to PLS and ATLAS.ti other analytical tools should be employed in future studies. This study examines corporate governance within the internal control system. Further studies should understand the corporate governance mechanism when building external relationships. Other approaches rather than survey mixed approach like secondary data could be another potential area to understand corporate governance practices in agricultural cooperative enterprise. Further study should consider other corporate governance mechanisms in understanding the performance of agricultural cooperatives.

Ethical approval

Approval was obtained from the ethics Committee for Research involving Human Subjects of University Putra Malaysia UPM/TNCPI/RMC/1.4.18.2 (JKEUPM).

CRediT authorship contribution statement

Ibrahim Mohammed Umar: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Hasri Mustafa:** Supervision, Funding acquisition. **Shafie Sidek:** Supervision. **Wai Yeng Lau:** Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

There are no conflicts of interest among the authors.

The authors gratefully acknowledge the proofreading financial support of the University Putra Malaysia's Grant Scheme, vote number 6303839.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssaho.2024.100831.

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