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Market opportunities seizing capability and fish farming firm performance: A dynamic managerial capability perspective

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ABSTRACT

The role that owner-managers' managerial capabilities play in agricultural firms' strategic change and performance is still unclear. A firm's market opportunities seizing capability (OSC) is a source of competitiveness and superior performance. The objective of this study is to establish how owner-manager's dynamic managerial capabilities (DMCs) including managerial human capital, managerial social capital and managerial cognition affect firm performance through the mediating effect of OSC, as well as the moderating effect of market dynamism in the relationship OSC and firm performance. 306 cross-sectional data collected at fish farming firms (FFF) level in southern Benin were used and partial least squares structural equation model was applied to test research hypotheses. The results of SmartPLS4 reveal that owner-managers' DMCs including business ties (BTs), political ties (PTs), and managerial cognition (MC) demonstrate a significant effect at improving FFF market OSC and performance. Finding also underline the significant contribution of market dynamism to FFF performance as well the mediating role of market OSC in the relationship between BTs, PTs, MC, and FFF performance. Findings suggest that FFF owner-managers can achieve superior performance by strengthening their DMCs while improving market OSC. The study provides useful insights to FFF owner-managers, agriculture policymakers and practitioners who are engaged in agriculture firms' strategic management and sustainable performance.

1. Introduction

The interest to examine the effect of agricultural entrepreneurs' capabilities to build, integrate and reconfigure resources to cope with change received great interest [1,2]. In recent decades, the evolution of agricultural practices through technological changes, market developments, and consumer preference changes generate new market opportunities to farmers but equally raise managerial decision challenges [3]. However, most local entrepreneurs in developing countries including agricultural entrepreneurs [2,3] generally lack managerial capabilities [4], coherent and flexible strategic orientation [5,6] to cope with change. This is the case of farming fish firm (FFF) owner-managers in Benin.

Indeed, many African governments consider fish farming as a viable alternative to capture fisheries for supporting economic growth and food security and nutrition [7,8]. In Benin, this renewed interest has resulted in the design of a continental aquaculture

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program aimed at promoting and developing fish farming production units. Local fish farmed market, particularly in Benin, is characterized by an increasing change in demand, hence a growing market opportunity for fish farming. Literature stresses that firm opportunities seizing capability (OSC) is a source of competitive advantage and superior performance [9,10]. However, fish farmers are struggling to take advantage of available local market opportunities. Empirical evidence shows that most Beninese FFF owner-managers lack managerial capabilities [11]; which limits the effectiveness of strategic actions in seizing emergent market opportunities. As a result, most fish farmers lack the strategic management skills to make effective decisions in addressing market dynamism including opportunity and threats.

The literature emphasizes that managers are at the core of the strategic changes that lead to firm success or failure by the way they respond to opportunities and threats in a dynamic environment [12–14]. According to Vukelić and Rodic [3], farmers' managerial capabilities are a success factor in agriculture. Evidence shows that managerial capabilities help managers to renew resources and change organizational processes in response to changing market conditions, by combining and transforming resources in different ways [15–17]. Some authors [1,2] reported that managerial capabilities help most agricultural firms' managers to renew resources and develop capabilities and strategies to respond to business environment changes. However, knowledge about the extent to which FFF owner-managers managerial capabilities affect strategic change and organizational performance is still lacking in Benin. As result, the ways FFF owner-managers react to farmed fish market changes are still unknown. Previous research conducted specifically in the fish farming sector in Benin is more focused on productivity and technological innovation adoption [18,19], and FFF strategic management issue is still unexplored. As result, synergies between these external and internal factors remain poorly understood and agricultural firm manager, precisely FFF owner-managers lack orientation, and continue to struggle to solve strategic management issues. It is then vital to help FFF owner-managers integrate flexible strategic management approaches that fit with market changes factors.

Literature of strategic management underline that, to cope with today's continuous and unpredictable business environment change, firm managers must constantly renew their resources and strategies to seize market opportunities and address threats [14]. To this end, dynamic capabilities (DCs) have been proposed as organizational processes by which firms detect opportunities and threats, seize opportunities, and modify or reconfigure a firm's resource base to adapt to environment dynamism and change [9]. However, Zahra et al. [17] assert that firms reconfigure organizational resources and routines according to the directives and desires of the firm's chief decision-maker. In this perspective, it's established that organizational processes related to DCs deployment within firms rely on managers' dynamic managerial capabilities (DMCs) defined as the capability with which managers build, integrate, and reconfigure firm's organizational resources and capabilities to cope with business environment changes [12,14]. DMCs concept draws attention on the strategic change role of managers [20]. DMCs perspective viewed managers as transformation and change agents [21], through opportunity identification and seizing by mobilizing and combining resources to face business environment changes [22].

Most extensive research mobilizing DMCs approach has been conducted in developed economies [23–27], and little has been conducted in developing countries on this issue. In addition, many researchers mobilizing DMCs perspective have focused on large firms, and its role in small firms has been neglected. Similarly, although research examining DCs effect on firm performance abounds in the literature, empirical evidence on agribusiness firms is limited [1,28]. Conceptual work suggests that managers DMCs influence DCs deployment within firms [12,15]; however, empirical work establishing this link is limited to international market [13,27] and the local market has been overlooked. Additional empirical evidence supporting the effect of managers' DMCs on DCs deployment including OSC to cope with market changes within small firms remained unexplored. This lack of empirical research limits DMCs' theoretical perspective completeness and constitutes a significant gap in strategic management literature.

This study attempts to fill in this knowledge gap, by assessing how managers' DMCs improve firm performance through increasing firms' market OSC in today dynamic market environment by using the context of agricultural firms in developing countries, where agricultural firm owner-managers represents the single decision-maker. Besides, studies that have incorporated DMCs' perspective to evaluate how agricultural firms' owner-managers build and integrate resources to respond to strategic change are limited, especially in Benin. Hence, the objective of this study is to examine to which extent owner-managers DMCs affect FFF performance through the improvement of market OSC, as well as how market dynamism affects the effect of OSC on performance. To this end, the study aimed at answering the following questions: Do owner-managers' DMCs affect FFF performance through local market OSC? Does local market dynamism affect the effects of firm market OSC on performance?

By doing so, this research contributes to agribusiness strategic management literature and practice in Africa, by addressing the DMCs at farm business managers level in developing countries. First, this study provides empirical evidence that will improve knowledge on how DCs are needed to cope with agricultural market changes. Second, this study attempts to shed light on the managerial attributes inherent to owner-managers that may influence the strategic actions of agricultural firms. The paper also contributes to the literature by providing valuable information on the moderating role of local market dynamism in the success of agricultural firm's owner-managers' strategic decisions and actions. Concretely the paper results in the formulation of a relatively wide list of practical recommendations based on statistical evidence based on various indices and validity tests.

Those empirical insight are relevant to guide policy and practice on strengthening the managerial capabilities of farm business managers to respond to market changes by overcoming threats and taking advantage of market opportunities. Although this study is limited to the context of fish farms in Benin, the results should guide policy makers and managers in other agribusiness sectors as well as in other emerging countries for several reasons. First, most firms, especially agribusinesses in sub-Saharan Africa, are unstable and fails due to several constraints, including the low managerial capabilities of most owner-managers. In addition, most of these firms are managed by a single person who makes all the strategic decisions. However, the firm success or failure depends partly on the managerial capacity of the manager. On this basis, the results of this study are also useful and can serve as guidelines to draw researchers, managers and policymakers' attention in others developing countries on the crucial role of strategic management for agribusiness firm competitive advantage.

2. Theoretical background

2.1. Dynamic managerial capabilities (DMCs) perspective

The resource-based view [29,30] has been widely recognized as the foundation of competitive advantage. However, this approach has been considered static and does not integrate market environmental dynamism [31]. In this regard, the concept of DCs has been proposed and reflects the firm's capabilities at the organizational level to respond to external environmental change. DCs include a set of three distinct capabilities, namely the firm capability to detect and shape opportunities and threats, the capability to seize opportunities, and the capability to maintain competitiveness by strengthening, combining, protecting, and, if necessary, reconfiguring the firm's intangible and tangible assets [20]. Furthermore, the literature suggests that managers drive the organizational decisions and processes that lead to the development and deployment of DCs within firms [17,32]. Therefore, the concept of DMCs has been introduced and highlights the strategic role of managers within firms [12,14]. DMCs are defined as the capability with which managers create, extend, and modify firm resource bases to cope with market change [14]. In other words, DMCs help managers to align organizational processes with market dynamism [22]. In this perspective, it's stressed that firm managers are heterogeneous decision-makers who influence organizational outcomes through strategic choices and actions [33]. Helfat & Martin [14] emphasize that managers with superior DMCs will be able to adapt to change more effectively, which is essential to achieving and maintaining long-term competitive advantage [34].

Conceptually, DMCs are described as a set of three individual manager-level factors, namely managerial human capital (MHC), managerial social capital (MSC), and managerial cognition (MC) [12]. It is argued that taken alone or in interaction, these three attributes affect the effectiveness of managers' strategic actions in detecting and seizing opportunities as well as transforming resources to respond to continuous and unpredictable external environment changes [35]. On this basis, this study examines the effect of owner-manager DMCs including MHC, MSC, and MC on strategic decisions related to FFF capabilities to seize market opportunities (OSC) in the local market of farmed fish in Benin (see conceptual framework in Fig. 1).

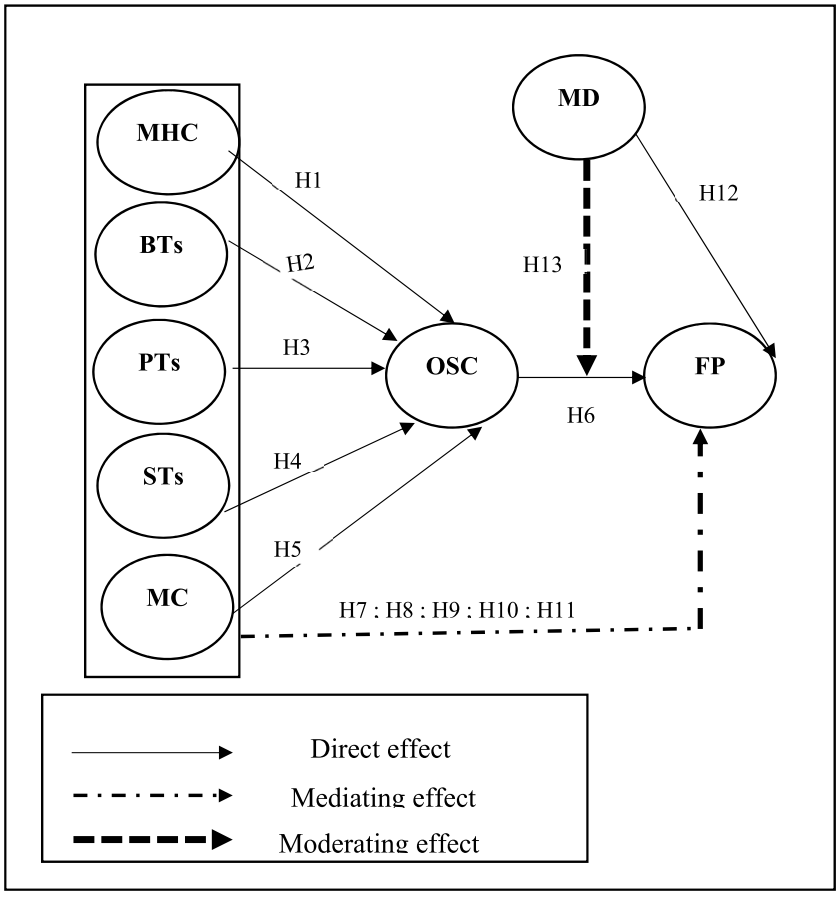

Fig. 1. Conceptual framework. Caption: FFF: Fish Farming Firm; DCs: Dynamic Capabilities; DMCs: Dynamic Managerial capabilities; MHC: Managerial Human Capital; MSC: Managerial Social Capital; MC: Managerial Cognition; OSC: Opportunities Seizing Capability; MD: Market Dynamism; FP: Firm performance.

2.2. Opportunities seizing capability (OSC)

DCs refer to a firm's ability to integrate, build, and reconfigure internal and external competencies to cope with rapidly changing environments [9]. The literature emphasizes that DCs enable a firm to sense opportunities and threats, seize opportunities and neutralize threats by reconfiguring its resource base to achieve superior sustainable performance [9,21]. Firm opportunities seizing capabilities, one of DCs dimensions, is defined as an organizational response through strategic actions to detect opportunities and threats [14]. According to the literature, seizing opportunities leads to new products, services, and processes [20]. OSC involves making irreversible strategic investment choices and mobilizing resources to strengthen the organizational structure of the firm [20]. This study focuses on established fish farming firms' capabilities to seize local market opportunities derived from market change. It is established that a firm may successfully detect or discover an opportunity but fail in trying to seize it due to a lack of strategic action [10]. Local market OSC is a source of superior performance. The increased demand for farmed fish constituted an increased market opportunity for fish farmers. Besides, the national supply of farmed fish is still not sufficient to cover local market needs. In this study, FFF market OSC involves making strategic and business model decisions about how to exploit market and create value for customers [36,37].

2.3. Market dynamism

Firm's environment refers to the set of physical and social factors that are considered in the decision-making behavior of firms [38]. Thus, the integration of contextual factors into a firm organizational process has long been debated in strategic management literature [38,39]. The business environment is considered as a multidimensional concept characterized by dynamism, complexity, and munificence [39]. This current study focuses on market dynamism (MD) defined as the evolution of changes in the market environment including demand, customers' preference change, and price fluctuation [40]. Thus, it is established that market dynamism influences firms' strategic responses, which affect firm performance [39].

3. Research hypotheses

3.1. Managerial human capital and opportunities seizing capabilities

Managerial human capital (MHC) refers to managers' knowledge and skills [12,14] derived from previous professional experiences such as education, management, entrepreneurship, work, and training [41]. Similarly, MHC may not only derive from firm or industry-specific managerial experiences, but also from related industries [42,43]. It's argued that managers' prior knowledge and skills are essential for detecting opportunities and threats, seizing opportunities, and reconfiguring organizational resources and capabilities [14,44]. Many previous works found a significant positive relationship between MHC and firm organizational outcomes [25,26,45]. Empirical research suggests that prior experience facilitates new business opportunities seizing [46]. Besides, prior knowledge and managerial expertise help managers design business models and justify investments to benefit from financial and human resources essential for opportunities seizing [44,47]. Furthermore, the literature underlines that managers differ in their managerial skills composition as well as the degree of each type of skills development [12]. In this regard, it is established that differences in managerial expertise are likely to induce differences in managers' choice of strategic actions in relation to opportunities seizing [14,42] which results in performance variations across firms [12]. Teece [20] posits that managers with high levels of entrepreneurial skills are more attentive to new business opportunities, and more able to design innovative business models. Similarly, it has been argued that the higher the CHM, the better the strategic decisions and performance of the firm at various levels [48]. Prior empirical works report that a high CHM facilitates resource acquisition [49] and individual skill development [15]. Based on these arguments, the following hypothesis is proposed.

Hypothesis 1. The MHC of owner-managers positively strengths FFF market OSC.

3.2. Managerial social capital and firm OSC

The social capital theory proposes that networking relationships are a type of strategic and managerial resource that influences decision-making and long-term firm performance [50,51]. Also called managerial ties [51], managerial social capital (MSC) focuses on managers' formal and informal personal relationships with other stakeholders at the individual levels that provide access to information and resources beneficial to the firm [50]. It's admitted that differences in managers' MSC lead to different sources of resources and capabilities, which lead to different strategic activities and organizational outcomes variations across firms [50]. DMCs literature stresses that managers' MSC underpins two types of DCs including opportunity seizing and resource reconfiguration [14]. According to Peng & Luo [51], managerial ties generally include business ties (BTs) and political ties (PTs).

BTs reflect managers' personal relationships with leaders of other firms, especially suppliers, customers, and competitors [52]. A significant positive relationship was established between BTs and firm performance [51,53,54]. Literature stresses that managers' BTs provide firm with resources, capabilities, and tacit and specific business process knowledge [50,51] that are used for strategic change activities. Besides, it's claimed that BTs promote access to information on customer demand and need, sources of financing, quality inputs, reduced production costs, and economies of scale [55]. Based on the above discussion, this study suggests that managers' BTs promote firm market OSC.

Political ties (PTs) on the other hand represent managers' personal relationships with government officials and bureaucratic institutions [53,55]. According to the literature, the establishment of PTs by business managers as a managerial asset has become more stacked due to insufficient formal institutional support [53,55]. It's claimed that managers' PTs provide privileged information and scarce government-controlled resources that benefit strategic decision-making and successful organizational performance of firms [50]. In addition, PTs also offer several benefits to firms including lifting the admiring burden, and access to government projects, grants, and training [53,54,56]. In this study, political connections refer to fish farmers' personal relationships with government officials and representatives of government institutions affiliated with the fish farming industry such as agricultural institutions, microfinance, and tax offices.

Moreover, in the specific context of this study, given that most agricultural firm owners are also leaders/managers, it is admitted that all their network relationships are profitable to the business [52]. On this basis, this study integrates manager families and friends' social ties (STs) as managerial resources. The literature states that STs are characterized by a strong bond with a high level of cohesion, trust, and reciprocity that facilitates resource exchange and the decision-making process [57]. Similarly, previous studies report that a manager's family and friendship relationships provide uninteresting financial support [58], which improves business performance.

Based on the above discussion, MSC owner-managers could help FFF acquire scarce resources and capabilities, tacit knowledge, and valuable information that will enhance their abilities to make effective strategic organizational change decisions regarding market opportunities exploitation.

Hypothesis 2. BTs positively affect established FFF local market OSC.

Hypothesis 3. PTs positively affect established FFF local market OSC.

Hypothesis 4. STs positively affect established FFF local market OSC.

3.3. Managerial cognition and opportunities seizing capabilities

Managerial cognition (MC) has been identified as an important determinant of effective strategic change and adaptation to dynamic environments [59,60]. MC is defined as the manager's ability to perform one or more mental activities that comprise cognition [60]. It refers to manager beliefs, knowledge structure, and mindset, which serve as a reference frame when making strategic decisions [61]. It's argued that managerial mindset influences how managers take strategic decisions to cope with dynamic environments [61]. MC allows explaining why some managers have more effective abilities than others to anticipate, interpret, and respond to environmental changes [61]. Furthermore, it's established that reasoning and problem-solving mental activities play an important role in decision-making regarding opportunities seizing and responding to emerging threats [60]. Cognitive problem-solving skills are necessary for organizational strategic change implementation when designing and executing business models [36,62,63]. It's underlined that problem-solving capabilities allow managers to evaluate the problem's causes, not the symptoms [64]. It is established that managers with superior reasoning and problem-solving capabilities are likely to have greater potential to design more effective business models and investment decisions when seizing opportunities [60]. Based on this argument, the following hypothesis is formulated.

Hypothesis 5. The MC of owner-managers positively affects e established FFF local market OSC.

3.4. Direct effect of OSC on firm performance

DCs are widely considered as a key driver of firm performance [65–67]. They enable firms to seize opportunities and neutralize threats under conditions [68]. It is established that DCs including OSC help align the firm's resource base and strategies with market environment requirements [69]. Min & Kim [10] reported that market OSC leads to high performance. Similarly, literature argues that rapid response to customer demand changes positively influences firm performance [17]. Thus, through FFF OSC, owner-managers can strengthen the resource base to take advantage of farmed fish demand in the local market.

Hypothesis 6. Established FFF local market OSC influence positively performance.

3.5. Mediating effect of opportunities seizing capability (OSC)

DMCs namely MHC, MSC, and CM are the capabilities with which managers design and reconfigure organizational resources and capabilities to seize opportunities that affect firm performance [12,13]. According to Shane and Venkatraman [70], human capital affects the effectiveness of organizational routines related to opportunities exploitation, which in turn positively influences firm performance. Moreover, MSC is widely considered to play a crucial role in achieving and maintaining superior performance [51,53,55]. Besides, managerial ties help the manager to obtain scarce resources and relevant information that affect strategic choices and improve performance [12]. According to Faroque et al. [71], the ability to exploit opportunity mediates the relationship between managerial ties and firm performance. Previous work reported that managers MSC positively affects performance through opportunity identification [27]. Similarly, the way managers MC positively affects firm performance through opportunity seizing is further highlighted [60]. Consequently, the study suggests that the FFF owner-manager DMCs can contribute to FFF performance by strengthening firm market OSC. The following assumptions are formulated.

Hypothesis 7. Market OSC mediate positively the relationship between MHC and FFF performance.

Hypothesis 8. Market OSC mediate positively the relationship between BTs and FFF performance.

Hypothesis 9. market OSC mediate positively the relationship between PTs and FFF performance.

Hypothesis 10. Market OSC mediate positively the relationship between STs and FFF performance.

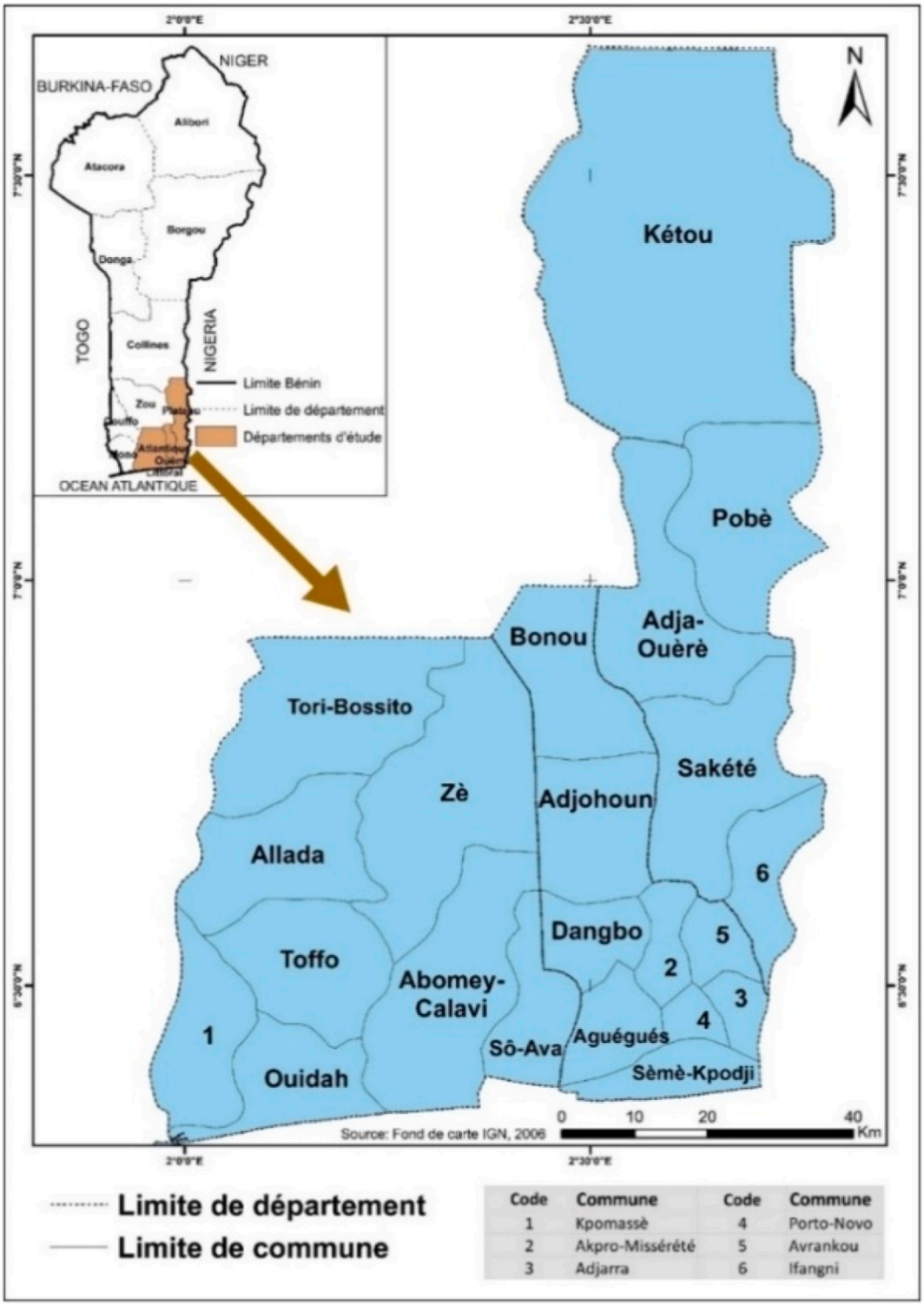

Fig. 2. Study area.

Hypothesis 11. Market OSC mediate positively the relationship between MC and FFF performance.

3.6. Moderating effect of market dynamism

A consensus has emerged in the literature that the complexity and unpredictability of business environment changes make the decision-making process more complicated and challenging to firm [38,72]. Even though market dynamism (MD) brings opportunities, the unpredictable and unstable nature of change is a source of uncertainty [38,39] that affects firm decision-making rationality and effectiveness [73]. Literature underlines that rapid MD makes business strategies obsolete and reduces the potential value of existing productive resources and capabilities [74]. In such a condition, firms must renew their resource base and strategy to ensure that it is able to respond to opportunities while neutralizing emerging threats [29]. According to Eisenhardt [75], rapid decision-making allows firms to seize fleeting opportunities generated by MD. At the same time, it's stressed that firms' response to MD, depends on their perception of the degree of change and risk in the market environment [76,77]. This has led to growing empirical evidence suggesting that MD moderates the relationship between dynamic capabilities, including firm OSC and competitive advantage [65,66,78]. Furthermore, the influence of DCs deployment on firm performance, including OSC, is admittedly variable depending on the level of instability of market changes [17,67,68]. Based on the above discussion, the following hypothesis is formulated.

Hypothesis 12. Local market dynamism influence positively firm performance.

Hypothesis 13. The dynamism of farmed fish market moderates the positive relationship between market OSC and performance so that the strength of the relationship is stronger for owner-manager FFF who perceive themselves to be operating in a highly dynamic market environment than for those who perceive themselves to be in a stable market.

From the above discussion, the conceptual framework of the study (Fig. 1) and the caption providing the list of abbreviations are summarized hereafter.

4. Methodology

4.1. Sampling and data collection

The above-hypothesized relationships were tested using primary cross-sectional data collected through a survey of owner-managers of FFF in southern Benin. This area was chosen because of the dominance of fish farming activities. Statistics show that 71% of the country's FFF are operating in this region [79]. The stratified sampling process was used to select the municipalities (Fig. 2). The population size for this study consists of 1557 FFFs.

This sample frame was established with the support of the extension services affiliated with the aquaculture industry in the different municipalities. It has been used to estimate a minimum of 318 samples size on the above formula [80].

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

Where n is the sample size, N is the population size (1557) and e is the 5% precision level.

For the primary data collection, FFF owner-managers were selected based on the criteria of 3 successive years of activities. Kobo Toolbox, a mobile data collection tool, was used for data collection. Previously, a pilot test was conducted among 15 FFF owner-managers to verify the accuracy of the items; and adjustments were made based on the pilot survey result. The main primary data collection was conducted through face-to-face interviews from October to November 2021, with the support of five research assistants. Respondents were FFF owner-managers. The survey was administrated to 320 FFF's owner-managers. Ultimately, 306 data were used since 16 surveys were unusable, representing a response rate of 96.22%.

4.2. Measures

A structured survey with close-ended questions was used for primary data collection. Measures of connected constructs operationalized and validated in the existing literature were adapted to the contexts of the present study (see appendix for more details). Respondents were asked to rate their level of agreement using scale ranging from (1) strongly disagree to (5) strongly agree. The data

Table 1
Data structure description.

Latent Variables	Indicators/items	Natures	Scale measurement
Managerial human capital (MHC)	5	Independent variables	1- Strongly disagree
Business ties (BTs)	4		2- Disagree
Political ties (PTs)	5		3- Neither agree, nor disagree
Social ties (STs)	2		4- Agree
Managerial cognition (MC)	4		5- Strongly agree
Opportunities Seizing capabilities (OSC)	5	Mediator	
Market dynamism (MD)	4	Moderator	
Financial performance (FP)	4	Dependent variable	

structure presenting the latent variable symbols and the number of indicators is described in Table 1.

4.3. Dependent, mediating, and moderating variables

MHC measure was adapted from Mostafiz et al. [27] and assesses the respondents' education and previous experiences including sectoral, managerial entrepreneurial, and employment. As mentioned above, MSC was measured using three dimensions namely BTs, PTs, and STs. The measurement of these variables (Table 1) was adapted from previous works [27,51,55]. In addition, MC reflecting managers' reasoning and problem-solving ability was measured using four items adapted from Helfat & Peteraf [60]. The measures of FFF OSC were adapted from validated elements in existing literature [10]. The constructs refer to the firm ability to quickly analyze information and make effective decisions, combine, and allocate resources, develop new knowledge, integrate new resources and technologies, and proactivity in mobilizing financial and technical resources. MD scales are derived from Hernández-Linares et al. [40] and reflect the changes in the market environment including, demand growth, price, and consumer preference. Owner-managers were asked to evaluate the extent of changes in the domestic market over the next three years.

4.4. Independent variable

A subjective approach was adopted to measure FFF's financial performance. The subjective measures based on managers' perception of performance have been widely used in strategic management empirical studies. The items capture the growth of sales rate, profitability, return on investment, and productivity [55,81]. Respondents were invited to rate their own firm's performance relative to their competitors on a scale ranging from (1) much worse to (5) much better. Indeed, the firm relative performance compared to its competitors has generally been used as an empirical criterion of competitive advantage [5,68,76].

4.5. Control variable

Following prior research [4,5], two general firm characteristics namely size and age were used as control variables. The size was measured using the number of employees and age based on the number of years the firm has existed.

4.6. Data analysis

This study adopted the structural modeling Partial Least Squares (PLS) path modeling method to test the proposed hypotheses. The PLS method is particularly suited for testing mediation relationships, and its robustness has been widely demonstrated [58,82,83]. The data were analyzed using SPSS 25 and SmartPLS 4 software. The first step of the data processing was the *(i)* evaluation of non-response and common method bias and *(ii)* measurement assessment and scale purification which included reliability and validity, factor analysis, and discriminant validity. Then, bootstrapping resampling procedure was used to test path coefficient strength and significance [84].

4.7. Structural equation model formulation

The conceptual framework of this study (Fig. 1) illustrates the mediating effect of OSC and the moderating effect of MD.

4.7.1. Mediating analysis equation

The mediating effect is represented by three major relationship analysis [85]. Following Hair et al. [86], there is the direct effect c_{ni} of X_{ni} on Y (Equation 1); the direct effect a_{ni} between X_{ni} and M (Equation 2) and the indirect effect c_{ni}' of the X_{ni} on Y through the mediator M in the form of a $X_{ni} \rightarrow M \rightarrow Y$ relationship (Equation 3). In other words, the indirect effect (c_{ni}') refers to the mediator (M) influences on the outcome variable (Y) when controlling the independent variables (X_{ni}).

$$Y = \beta_1 + c_{ni}X_{ni} + e_1$$

$$M = \beta_{2ni} + a_{ni}X_{ni} + e_{ni}$$

$$Y = \beta_3 + c_{ni}^{'}X_{ni} + bM + e_3$$

where β_1 and β_{2ni} and β_3 are intercepts, e_1, e_{2ni}, and e_3 are residuals. *X_{ni} is represented by DMCs construct namely CMH, BTs, PTs, STs, and MC, Y is the FP and M is OSC* (Fig. 1).

4.7.2. Moderating analysis equation

This conceptual framework (Fig. 1) also illustrates a moderating effect, where the moderator Z, influencing the strength of the relationship between the mediator M and Y. When including the moderator effect in a PLS path model, there is a direct effect γ_1 between M and Y as well the direct effect $\gamma 2$ of Z on Y. The moderator effect γ_3 is the arrow linking M and Y. According to Hair et al. [86], the mathematical expression of the path model including a moderator effect can be written as:

$$Y = \beta_0 + \gamma_1.M + \gamma_2.Z + \gamma_3.(M.Z) + e$$

Equation 4 requires the specification of the interaction term (M.Z). M is OSC, Z is MD and Y is FP (Fig. 1).

5. Results

5.1. Non-response and common method bias

The existence of nonresponse bias was tested using the procedure suggested by Armstrong & Overton [87]. Thus, the first and last fifty respondents were randomly selected, and based on five items, one item per latent variable, paired sample *t*-test was performed. The results revealed no significant differences, showing that the responses of the first and last respondents did not differ significantly. Then, the existence of a non-response bias was excluded. Similarly, following the recommendations of Podsakoff et al. [88], Harman's one-factor procedure was run on all constructs in an exploratory factor analysis to test for the absence of common method bias. The results show that the four-five factors record 79.06% of the total variance. The first factor accounts for only 29.223%, which is below the 50% threshold [88]. Thus, Herman's single-factor test suggests that there is no problem with common method variance within the data set. Similarly, when comparing intercorrelations using the Lindell and Whitney [89] procedure, the results show no high correlation between constructs. Thus, both approaches confirm that the study data are free of common method bias.

5.2. Measurement model evaluation

5.2.1. Reliability and validity

Cronbach's alpha (α), composite reliability (CR), and average variance extracted (AVE) as well as factor analysis (Table 2) were explored to assess internal reliability and consistency. Most of the alpha values exceeded 0.7, which indicates that the internal consistency of the associated construct was satisfied, except for those related to performance and MD constructs. According to Pallant [90], an α coefficient greater than 0.6 is considered acceptable. In addition, all factor loadings are greater than 0.5 (See appendix). Besides, CR and AVE values all exceed the required thresholds of 0.70 and 0.5, respectively [91], suggesting satisfactory convergent validity.

5.2.2. Discriminant validity

Discriminant validity was established by applying Fornell & Larcker criterion and heterotrait-monotrait (HTMT) test. The results (Table 3) show that the square root values of the AVEs were greater than the correlations between latent variables [91]. In addition, HTMT values (Table 4) were all below the recommended threshold of 0.90 [92]. These results support the assumptions of discriminant validity.

5.2.3. Descriptive statistic and correlation

The descriptive statistics for the variables of interest in the study are presented in Table 6. SPSS software was used to evaluate the relationship between these variables using the Pearson correlation tool. The results (Table 5), show that all variables are strongly related to fish farming OSC and performance.

5.3. Predictive assessment

Before performing the structural model, collinearity between latent variables was examined through performing Variance Inflation Factor (VIF). All VIF values were above 5 (Table 6), suggesting no critical level of collinearity [84].

The structural model (Fig. 3) is evaluated by assessing the predictive power of the model based on R^2 values, effect size (f^2), and predictive relevance (Q^2) [84]. The inner model assessment criteria include the coefficient of determination (R^2), the predictive relevance (Q^2) and the effect size (f^2), Bootstrapping process with 5000 resamples procedures was run to assess path coefficients and t-statistics [86]. Adjusted R^2 associated to OSC ($R^2 = 0.522$) and performance ($R^2 = 0.285$) are greater than the adequate value of 0.10 [93]. Those results indicate FFF owner-managers DMCs attributes, including BTs, PTs, STs, and MC explain 52.2% of market OSC variation. In addition, OSC and MD together explain 28.58% of firm performance variance. Furthermore, Stone-Geisser's Q^2 value [94, 95], was performed to assess the model's predictive power. The result of PLS prediction process (Table 7) indicates that Q^2 value for

Table 2
Measurement model.

Latent variables	Indicators		α	CR	AVE
	Initial	Final[a]			
MHC	5	5	0.850	0.894	0.632
BTs	4	3	0.723	0.843	0.647
PTs	5	4	0.814	0.889	0.728
STs	2	2	0.738	0.877	0782
MC	4	3	0.811	0.888	0.726
OSC	5	5	0.859	0.905	0.705
MD	4	3	0.660	0.802	0.575
FP	4	4	0.687	0.805	512

[a] The constructs with a factor loading of less than 0.5 were removed as a result of scale purification.

Table 3
Fornell-larcker.

Variables	BTs	MC	MD	MHC	OSC	PTs	Perf	STs
BTs	0.804							
MC	0.709	0.852						
MD	0.213	0.195	0.758					
MHC	0.714	0.612	0.237	0.795				
OSC	0.675	0.627	0.303	0.580	0.840			
PTs	0.504	0.316	0.123	0.454	0.457	0.853		
FP	0.369	0.303	0.290	0.353	0.435	0.323	0.715	
STs	0.175	0.100	0.122	0.133	0.159	0.026	0.119	0.884

Table 4
Heterotrait-Monotrait ratio (HTMT).

Variables	BTs	MC	MD	MHC	OSC	PTs	Per	STs
BTs								
MC	0.882							
MD	0.260	0.241						
MHC	0.876	0.724	0.312					
OSC	0.819	0.738	0.333	0.656				
PTs	0.666	0.379	0.166	0.527	0.556			
FP	0.513	0.359	0.389	0.422	0.513	0.384		
STs	0.257	0.131	0.162	0.163	0.192	0.128	0.188	

Table 5
Statistic descriptive and correlation matrix.

Variables	Mean	Age	Size	MHC	BTs	PTs	STs	MC	OSC	MD	Perf
Age	1.649	–									
Size	0.3152	0.280[a]	–								
MHC	3.6752	−0.128[b]	0.208[a]	–							
BTs	3.7560	0–.207[a]	0.227[a]	0.709[a]	–						
PTs	3.2593	0.181[a]	0.145[b]	0.282[a]	0.330[a]	–					
STs	4.1520	0.048	−0.043	0.127[b]	0.150[a]	0.059	–				
MC	3.5447	−0.063	0.317[a]	0.616[a]	0.699[a]	0.188[a]	0.105	–			
OSC	3.7623	0.023	0.238[a]	0.554[a]	0.635[a]	0.381[a]	0.127[b]	0.604[a]	–		
MD	3.7331	−0.177[a]	−0.030	0.217[a]	0.169[a]	0.082	0.111	0.145[b]	0.228[a]	–	
FP	4.0090	0.053	0.352[a]	0.338[a]	0.345[a]	0.316[a]	0.124[b]	0.291[a]	0.401[a]	0.249[a]	–

Note:
[a] Correlation is significant at the 0.01 level (2-tailed).
[b] Correlation is significant at the 0.05 level (2-tailed).

Table 6
Collinearity diagnostic.

Variables	OSC	FP
Age		1.154
Size	–	1.135
BTs	3.011	
MC	2.133	
MD	–	1.153
MHC	2.210	
OSC		1.195
PTs	1.398	
STs	1.040	

OSC ($Q^2 = 0.507$) and performance ($Q^2 = 0.234$) are greater than 0, demonstrating a satisfactory predictive relevance. Besides, effect size f^2 values were generated to assess the change in R^2. Following Cohen's [96] requirement, the f^2 values observed are less than 0.2 (Table 7) indicating a small effect.

Latent variables symbols are described in the Table 1.

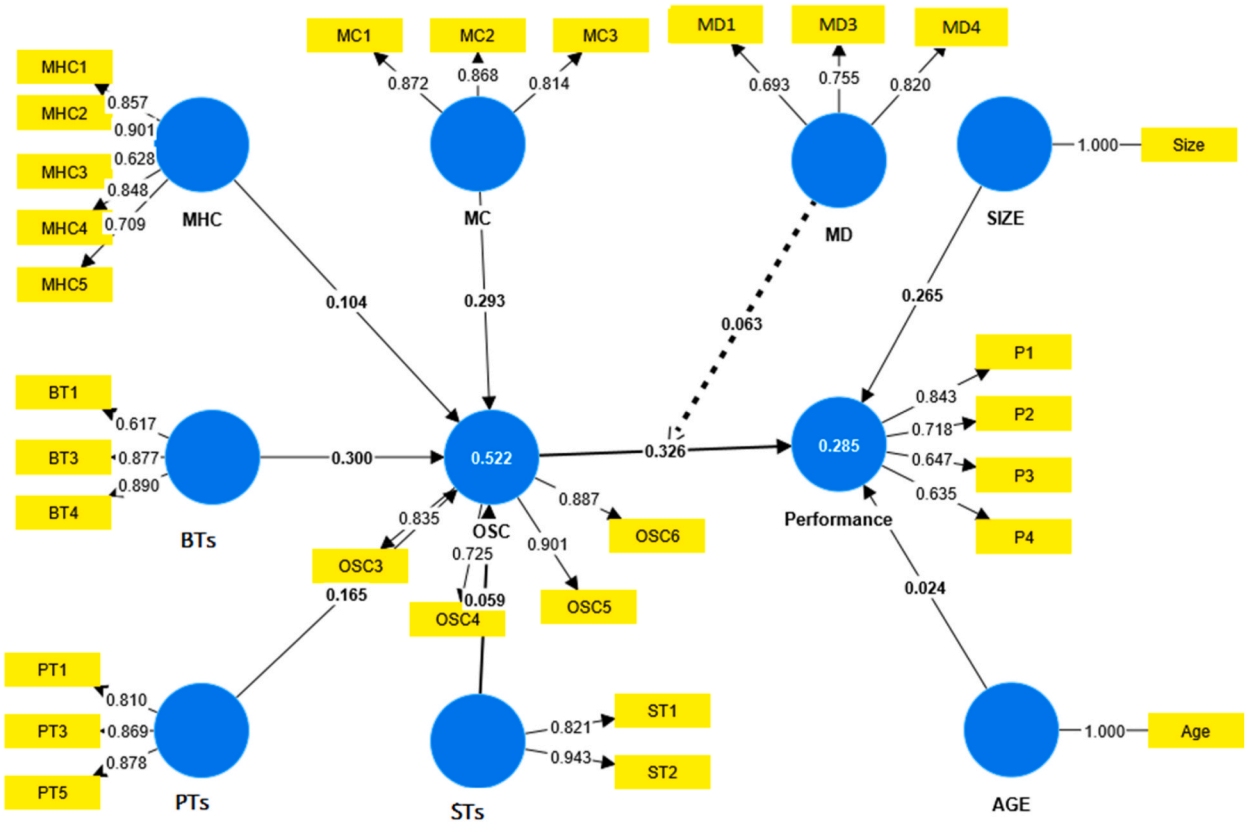

Fig. 3. Structural model.

5.4. Hypothesis testing

Bootstrapping was performed to provide a significance level for each hypothesized relationship. The significance of the path coefficient was checked by evaluating t statistics.

5.4.1. Direct effect

The result of bootstrapping (Table 8) indicates that the direct effect of BTs ($\beta = 0.300$ $t = 3.915$; $p = < 0.001$), PTs ($\beta = 0.165$; $t = 4.095 = ;$ $p < 0.001$), and MC ($\beta = 0.293$; $t = 5.094$; $p < 0.001$) on OSC was positive and highly significant, supporting hypotheses H2, H3, and H5. Meanwhile, the direct influence of MHC ($\beta = 0.104$; $t = 1.489$; $p > 0.05$) and ST ($\beta = 0.059$; $t = 1.514$; $p > 0.05$) on OSC were positive but not significant. Therefore, hypotheses H1 and H4 are rejected. Furthermore, findings show that OSC ($\beta = 0.326$; $t = 5.622 = ;$ $p < 0.001$) and MD ($\beta = 0.213$; $t = 3.417$; $p < 0.001$) have a significant positive impact on fish business performance after controlling for firm age and size. Thus, H6 and H11 are also accepted.

5.4.2. Mediating and moderating effect

The bootstrapping method was performed to examine five mediation effects of OSC in the structural model using 5000 resamples

Table 7
Predictive criteria assessment.

	Variables	OSC	FP
R^2		0.522	0.285
f^2	MHC	0.010	–
	BTs	0.064	–
	PTs	0.041	–
	STs	0.007	–
	MC	0.085	–
	MD	–	0.056
	OSC	–	0.126
Q^2	–	0.507	0.234

Table 8
Direct effect.

Hypothesis	β	T statistics	P values	Decision
Firm's OSC				
1: MHC - > OSC	0.104	1.489	0.137	Unsupported
2: BTs - > OSC	0.300	3.915	0.000	Supported
3: PTs - > OSC	0.165	4.095	0.000	Supported
4: STs - > OSC	0.059	1.514	0.130	Unsupported
5: MC - > OSC	0.293	5.094	0.000	Supported
Firm performance				
AGE - > FP	0.024	0.367	0.714	Unsupported
SIZE - > FP	0.265	4.083	0.000	Supported
6: OSC - > FP	0.326	5.622	0.000	Supported
11: MD - > FP	0.213	3.417	0.001	Supported

[83]. The mediation effect occurs when the indirect effect is significant [84]. The result of Table 9 shows that OSC mediates the relationship between BTs, PTs, MC, and firm performance. Specifically, findings indicate that BTs ($\beta = 0.098$; $t = 3.094$; $p < 0.01$), PTs ($\beta = 0.054$; $t = 3.174$; $p < 0.01$), and MC ($\beta = 0.095$; $t = 4.139$; $p < 0.001$) improve indirectly firm performance which supports H9, H10, and H11. However, the indirect effect of both MHC and STs on FFF performance is not significant; hence the rejection of H7 and H10. Furthermore, results show that MD does not significantly moderate the positive relationship between OSC and firm performance (Table 9); H12 is rejected. In addition, the Variance Accounted For (VAF) [84] was applied to test the significance of the mediation. The following formula depicts how the VAF was calculated:

$$VAF = \frac{Indirect\ effect}{Total\ effect} = \frac{a * b}{a * b + c}$$

a is the path coefficient between the independent construct and the mediator, *b* is the path coefficient between the mediator and the dependent construct, and *c* is the path between the independent and the dependent construct (Table 9). According to literature, a VAF value greater than 80% is full mediation, a value between 20% and 80% is partial mediation, and a value less than 20% means no mediation [83]. Based on those criteria, finding indicates that OSC mediate fully the effect of both BTs and MC and partly the one of PTs on firm performance.

6. Discussion

Drawing on strategic management literature, this study examines the relationship between fish farming manager DMCs and firm performance, mediated by OSC and moderated by MD using the context of the emerging market in Benin.

6.1. Managerial human capital (MHC)

Results indicate that the effect of managers MHC including work, entrepreneurial, training, and managerial experience does not have a significant direct effect on FFF market OSC (see Table 8: hypothesis 1) and performance (see Table 9: hypothesis 7). This result highlights the low level of fish farm managers' MHC and contradicts those obtained by Hmieleski et al. [46] and Guo et al. [97] who reported that prior knowledge has a significant effect on opportunity exploitation. Indeed, most fish farmers declared having entrepreneurial, managerial, sectoral, and previous work experience. However, results show that capitalizing on these previous experiences did not have a significant effect on the flexibility of fish farmers to make judicious strategic decisions about market opportunities seizing in terms of business model design and investment decisions. One plausible explanation lies in the unavailability of strategic management training programs to fish farmers. Indeed, most training programs focus on upgrading technical knowledge and skills that can improve productivity and increase production levels in the fish farming industry. The study suggests that fish farmers should pay more attention to activities aimed at human capital accumulation including managerial knowledge and skills.

Table 9
Indirect effect.

Hypothesis	β	T statistic	P values	VAF	Decision
Mediating effect of OSC					
7: MHC - > OSC - > FP	0.034	1.362	0.173	–	Unsupported
8: BTs - > OSC - > FP	0.098	3.094	0.002	0.097	Supported
9: PTs - > OSC - > FP	0.054	3.174	0.002	0.054	Supported
10: STs - > OSC - > FP	0.019	1.454	0.146	–	Unsupported
11: MC - > OSC - > FP	0.095	4.139	0.000	0.095	Supported
Moderating effect of MD					
12: MD x OSC - > FP	0.063	1.458	0.145		Unsupported

VAF = Variance Accounted For.

6.2. Managerial social capital (MSC)

Empirical evidence indicates that fish farm entrepreneurs' MSC significantly strengthens FFF market OSC. Precisely, evidence points out the critical role of owner-managers BTs and PTs in improving the FFF market OSC (see Table 7, hypothesis 2 and 3) and FFF performance (see Table 9, hypothesis 8 and 9). These findings strongly support previous studies' conclusions [51,53–55]. Thus, FFF owner-managers could leverage these two distinct managerial resources to enhance their market OSC. However, the relative importance of managers BTs is highlighted as compared to PTs. These results align with the Ghana context, where BTs were found to be more significant for firm performance compared to PTs [53]. This implies that owner-managers' professional business connections among related stakeholders significantly improve firm access to scarce resources compared to relationships with government officials and bureaucrats in the Beninese context. Besides, the strong contribution of PTs confirm that government officials and bureaucrats have power and control over access to managerial resources that fish farmers need to exploit the market potential. The plausible explanation could be due to the weak formal institutional support that fosters using connections with government officials as a strategic asset to overcome bureaucracy and access scarce resources and information controlled by the government in informal ways, to enhance the effectiveness of actions to seize opportunities. Thus, FFF owner-managers would benefit from efforts to ensure good relations with government officials. By examining the relative contribution of each managerial tie, this research underlines the critical importance of evaluating separately the effect of specific social capital components on firm performance.

6.3. Managerial cognition (MC)

The significant effect of MC is consistent with prior results that further highlight the role of a manager's cognitive capability for strategic change decision-making [60]. The study reveals that owner-managers MC strongly enhance FFF market OSC (see Table 8, hypothesis 5) and performance (see Table 9, hypothesis 11). This result suggests that fish farmers can rely more on their cognitive reasoning and problem-solving abilities to make great strategic decisions about investing in tangible and intangible assets related to market opportunities exploitation. This finding supports some previous studies showing that MC plays a critical role in firm performance particularly in strategic decision-making [27,61,64]. This result also aligns with Bajwa et al. [59] who argued that in dealing with uncertainties, entrepreneurs rely heavily on their cognitive skills to successfully support the entrepreneurial process. The strong contribution of MC to decision-making related to OSC could be explained by the capitalization of previous experiences and knowledge gain spillovers related to the high level of education of fish farmers.

6.4. Mediating effect of FFF's market OSC

Results highlight the role of DCs in improving farm business performance. Specifically, findings further confirmed the great contribution of market OSC to FFF performance after controlling firm age and size (See Table 8, hypothesis 6). This finding implies that OSC is a critical factor for fish farm success. The evidence confirms previous conceptual [9] and empirical [10,65] works. This finding demonstrates that the development of DCS, including market OSC is a source of superior performance for FFF in Southern Benin. On this basis, the study suggests that FFF owner-managers should develop a strong managerial capability to provide an effective strategic response to farmed fish market opportunities. Besides, one of the most interesting results of this study is the positive significant mediating role of FFF market OSC. Findings show that OSC mediates both attributes of DMCs on firm performance, suggesting that FFF owner-managers BTs, PTs, and MC are critical determinants for FFF performance. More precisely, VAF test reveals that OSC mediates fully the effect of both BTs and MC and partly the one of PTs (see Table 9, column 5). This suggests that FFF owner-managers should be more focused on DMCs and market OSC development to achieve superior performance.

6.5. Moderating effect of market dynamism

The results reveal that MD positively impacts fish farm performance (see Table 8, hypothesis 11). This result implies that changes in the domestic market contribute to fish farm business success in southern Benin. This finding is consistent with several past studies [5, 98]. Regarding the interaction effect, findings show that MD positively moderates the relationship between OSC and performance, but this relationship is not significant (see Table 9, hypothesis 12). This result is consistent with those found by Ref. [98] and suggests that highly unstable environments do not have a great impact on owner-managers' strategic decision-making related to market OSC development effect on performance.

7. Conclusion

7.1. Theoretical implications

This research contributes to agricultural firms' strategic management literature, particularly to debates about the agricultural firms' owner managers capabilities to respond to market dynamism. The current study extends the strategic management literature by using the case of agricultural firms in developing countries, where agribusiness entrepreneur must further deploy strong managerial capabilities to seize opportunities and neutralize threats in response to markets changes. By testing DMCs framework to agribusiness firms, this study improves knowledge in bringing empirical evidence of the relevance of strategic management for agricultural firm sustainable performance. Specifically, this study contributes to literature by underling the importance of managerial resources

development at owner-managers individual level for strategic actions success in agricultural firms, especially FFF. Besides, this study is the first to empirically examine DMCs-DCs in particular market OSC relationship, in the context of agricultural firms in developing countries. An important contribution to the literature is also the mediating role of market OSC in the relationship between DMCs and FFF performance. Indeed, the empirical results demonstrate that owner-managers managerial capabilities, including BTs, PTs, and MC, promote FFF financial performance by strengthening their market OSC.

7.2. Managerial implications

The results provide valuable practical implications to FFF owner-managers and policymakers. The findings could help FFF's managers to make effective strategic change to exploit emerging market opportunities offered by changing farmed fish market environment. Empirical evidence reveals that FFF's owner-managers DMCs, especially MSC including BTs, and PTs, as well MC led to superior performance through the mediating role of firm's market OSC strengthening. On this basis, the study suggests that FFF owner-managers would benefit from investing in initiatives and processes aimed at strengthening their managerial capabilities at individual level to make effective strategic decisions. The strong contribution of BTs provides evidence to suggest that a strong integration of FFF owner-managers in business networks with various stakeholders should increase their access to scarce resources such as financial, and specialized knowledge as well as institutional support which are profitable for strategic decision-making. Similarly, developing independent connections within the corporate network would also be a strategic asset to have greater influence in access to resources and information while limiting opportunistic behavior. Furthermore, regarding the effect of PTs, fish farmers should invest time and effort in establishing and strengthening sustainable relationships with government officials and bureaucrats at various levels to circumvent bureaucratic barriers and gain access to government-controlled information and opportunities. This will be crucial until the development of reliable institutional support. Besides, although the MHC does not contribute significantly to FFF performance, manager cognitive capability including reasoning and problem-solving ability improve FFF performance. This finding implies that FFF owner-managers should need to invest in activities that can increase their cognitive capability to make irreversible strategic changes under uncertain conditions through managerial skills and knowledge accumulation. Finding also point out the strong contribution of market OSC and MD to FFF performance suggesting that FFF owner-managers should experience benefic value by scanning and reacting to changes in market environment. Results further suggest the establishment of internal organizational processes that support DCs building to capturing farmed fish market opportunities, regardless of the presence or absence of changes in the market environment. This involves making efforts in regular capability building at the individual level as well as the integration of knowledge management activities.

For policy makers, international organizations and NGOs, the results of this study call for the need to design policies to strengthen the managerial capabilities of FFF owner-managers. This will enable them to make effective strategic decisions and develop coherent and workable strategies for long-term organizational performance. To this end, training programs focused on human and social capital development with an impact on managerial mindset improvement, are avenues to explore. This will facilitate the establishment of flexible organizational routines and processes that can cope with changes in the market environment. Similarly, programs aimed at raising awareness among FFF owner-managers about the vital role of managerial skills as a strategic asset are needed to mitigate resource constraints and establish flexible and resilient business models.

8. Limitations and research opportunities

This study used cross-sectional survey data that is subject to endogeneity bias which may affect the research findings. Therefore, researchers are encouraged to replicate this study using a longitudinal survey and objective financial data. The study's focus on a specific sector in a single country of Benin is subject to results generalization issues to other contexts/countries. Therefore, the extension of this study to other agribusiness sectors in Benin as well as in other countries is necessary to enrich the literature and practice on strategic management of agribusiness firms in Africa. In other words, extending the scope of the CDs and DMCs perspective to other industries and countries is suggested for a deeper understanding of the organizational processes that promote strategic renewal in agrobusiness firm in Africa. For example, future research could investigate the contribution of DMCs to the performance of agribusiness firms through the market development, tangible and intangible resource mobilization, the adaptation to market price changes, and external industry forces.

Production notes

Author contribution statement

Albertine Houessou: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

Augustin K.N. Aoudji: Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Gauthier Biaou; Anne Floquet: Contributed reagents, materials, analysis tools or data.

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Data availability statement

Data will be made available on request.

Additional information

No additional information is available for this paper.

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.

Appendix

Owner-managers were invited to rate their agreement using five scale: 1- Strongly disagree; 2- Disagree; 3- Neither agree, nor disagree, 4- Agree, 5- Strongly agree.

Indicators of latent variables	Items	Loading
MHC1	Owner-manager's prior managerial experiences	0.857
MHC2	Owner-manager's prior job experiences	0.901
MHC3	Owner-manager's prior entrepreneurial experiences	0.628
MHC4	Owner-manager's prior sectorial experience	0.848
MHC5	Owner-manager's business training experiences	0.709
BTs1	Owner-manager have a strong relationship with managers at input supplier firms	0.617
BTs2	Owner-manager have strong relationship with managers at service supplier firms	*Delete*
BTs3	Owner-manager have strong relationship with managers at buyer firms	0.877
BTs4	Owner-manager have strong relationship with managers of competitor firms	0.890
PT1	Owner-manager have strong tie with government Officials at various levels	0.810
PT2	Owner-manager have strong tie with regulatory agencies	Delete
PT3	Owner-manager have strong tie with microfinance agencies	0.869
PT4	Owner-manager have strong tie with agricultural territorial development agencies	0.878
PT5	Owner-manager have strong tie with research institutions	
ST1	Owner-manager have strong families ties	0.845
ST2	Owner-manager have strong friends' ties	0.928
MC1	Owner-manager have strong ability to understand the context and environment	0.872
MC2	Owner-manager have strong ability to think of several alternatives to solve a problem	0.868
MC3	Owner-manager have strong ability to take risks to maximize opportunities	0.814
MC4	Owner-manager have strong ability to readjust organizational processes to changes in the market environment	*Delete*
OSC1	My firm have a strong capability in developing new knowledge and skills	*Delete*
OSC1	My firm is proactive in mobilizing financial and technical resources	*Delete*
OSC3	My firm analyzes strongly market information	0.835
OSC4	My firm has the ability to make effective decisions quickly	0.725
OSC5	My firm integrates greatly resources, specialized knowledge, and technologies	0.901
OSC6	My firm combines and allocates resources effectively	0.887
MD1	Our local market continuously changes	0.693
MD2	Prices constantly change	0.755
MD3	Customers preference constantly change	0.820
MD4	In our local market, farmed fish demand is increasing	*Delete*
FP1	Sale growth	0.843
FP2	Return on assets	0.718
FP3	Profitability growth	0.647
FP4	Productivity growth	0.635

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