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ENTREPRENEURIAL ORIENTATION AND AGRIBUSINESS PERFORMANCE IN EMERGING ECONOMIES: THE MODERATING ROLE OF INSTITUTIONAL CONTEXT IN PAKISTAN AND CHINA

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Abstract

Purpose: *Agribusiness firms in emerging economies operate under volatile input and output markets, binding resource constraints and uneven institutional support. This study examines how entrepreneurial orientation (EO) shapes agribusiness performance and whether the three institutional pillars regulatory, normative and cognitive alter that relationship, comparing Pakistan and China.*

Methodology: *Grounded in the resource-based view and institutional theory, the study analyses survey data from 540 agribusiness firms (Pakistan n = 280; China n = 260), whose owners, chief executives or senior managers reported on EO, institutional context and performance. Hypotheses were tested with partial least squares structural equation modelling, product-indicator moderation and multi-group analysis after measurement invariance testing.*

Findings: *EO is positively related to agribusiness performance (β = 0.41, p < .001), with proactiveness the strongest dimension (β = 0.27). Institutional context strengthens the EO–performance relationship (β = 0.15, p < .001), mainly through the regulatory pillar (β = 0.17); the normative pillar contributes weakly (β = 0.09) and the cognitive pillar does not moderate significantly (β = 0.06, p = .162). The direct effect of EO is stronger in China (β = 0.46) than in Pakistan (β = 0.35, p = .041), whereas institutional moderation is stronger in Pakistan (β = 0.21) than in China (β = 0.10, p = .048). The model explains 52% of the variance in agribusiness performance.*

Originality: *The study extends EO research to agribusiness and tests all three institutional pillars as boundary conditions within a single two-country model. It shows that institutional context works as an enabler of the direct EO effect and, where support is thin, as a substitute for firm-level resources, and derives country-specific implications for managers and policymakers.*

Keywords: Entrepreneurial Orientation; Agribusiness Performance; Institutional Context; Regulatory, Normative and Cognitive Pillars; Emerging Economies; Pakistan; China; Moderation; Partial Least Squares Structural Equation Modelling

1. Introduction

1.1. Background of the Study

Agribusiness spans input supply, agricultural production, processing, distribution and marketing, and it connects farmers to consumers, processors and export markets. In Pakistan and China the sector carries a disproportionate share of rural employment, household income and food security, yet it operates under volatile input and output prices, climate variability, fragmented value chains, thin access to formal finance and rapid

technological change. Firms respond to these pressures in very different ways: some wait for conditions to stabilise, while others introduce new products, enter new market segments or commit resources ahead of competitors (Nondani et al., 2025).

Entrepreneurial orientation (EO) captures the second posture. Miller (1983) characterises an entrepreneurial firm as one that innovates, takes risks and acts proactively, and Covin and Slevin (1989) operationalise the construct through innovativeness, proactiveness and risk-taking. Lumpkin and Dess (1996) extend the concept to the processes, practices and decision-making activities that lead to new entry, and the three-dimensional Miller–Covin–Slevin specification remains the most widely used measurement model in survey research. A meta-analysis of 51 studies reports a corrected EO–performance correlation of about 0.24 (Rauch et al., 2009), and configurational evidence shows that the returns to EO depend on how the dimensions are combined and on the environment in which the firm operates (Wiklund & Shepherd, 2005). EO is therefore not an unconditional advantage but a strategic capability whose value is contingent (Ali et al., 2025).

The contingency is largely institutional. Institutions—regulations, enforcement capacity, normative expectations and shared cognitive beliefs—determine whether an innovating, proactive, risk-accepting firm can convert its posture into sales, market share or farmer welfare (North, 1990; Scott, 2014. The institution-based view treats these rules and norms as the conditions under which firm resources become valuable (Peng et al., 2008), and cross-country evidence indicates that regulatory and normative institutions raise the returns entrepreneurs obtain from EO because they widen access to the resources that innovative strategies require (Wales et al., 2021). In agribusiness, such support reaches firms through concrete arrangements: credit

schemes, extension services, contract enforcement, certification regimes and cooperative structures (Fitz-Koch et al., 2018).

Pakistan and China provide an informative contrast. China has followed a state-led, policy-intensive path of agricultural modernisation, with sustained public investment in rural infrastructure, organised cooperatives, digital market platforms and directed credit. Pakistan has a more fragmented support environment, in which extension services, formal credit and quality enforcement reach firms unevenly across provinces and sub-sectors. If EO pays off differently in the two settings, the difference is likely to lie as much in institutions as in firms. A two-country design that measures EO, institutional context and performance in a single instrument allows that proposition to be tested rather than assumed (Ali et al., 2025).

1.2. Problem Statement

The EO–performance relationship is among the most intensively studied topics in entrepreneurship research, but the accumulated evidence has three weaknesses.

First, the sectoral base is narrow. Most studies examine manufacturing firms or general small and medium enterprises (SMEs). Pakistani work, for instance, shows that innovativeness, proactiveness and risk-taking raise the financial performance of SMEs, while their effects on non-financial performance differ (Anwar, 2021), and that EO encourages SME participation in the China–Pakistan Economic Corridor (Shah & Hussain, 2023). Agribusiness has received far less attention, even though a systematic review of agricultural entrepreneurship identifies institutions as one of its three defining contextual dimensions and calls for sector-specific empirical work (Fitz-Koch et al., 2018).

Second, the estimated size of the EO–performance effect varies markedly across studies, which suggests that the relationship is conditional rather than universal. Cross-country evidence locates part of that conditionality in national institutions, which raise the returns to EO by improving access to resources (Wales et al., 2021). That evidence, however, is built on country-level institutional indicators and samples of new ventures; it does not show how firms' own perceptions of support operate inside a single sector, nor whether the regulatory, normative and cognitive pillars act alike (Saeed et al., 2025).

Third, most studies are single-country designs. Comparisons of two emerging economies with markedly different institutional systems are rare, so it remains unclear whether established EO findings travel across borders or whether the value of EO is institution-bound (Ali & Khan, 2026).

This study addresses these weaknesses by estimating a moderated model of agribusiness performance in Pakistan and China, separating the three institutional pillars, and testing whether the direct effect and the moderating effect differ between the two countries (Ali et al., 2025).

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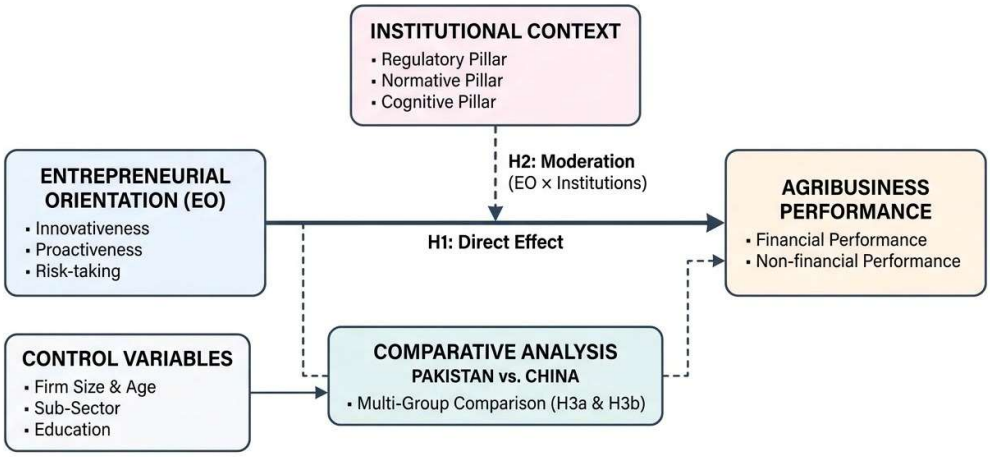
Figure 1

Conceptual framework showing the direct effect of EO on Agribusiness Performance (H1), moderated by Institutional Context (H2), and compared between Pakistan vs. China (H3a & H3b).



1.3. Research Gap

Three gaps follow from the preceding discussion.

Sectoral gap. Agribusiness is underrepresented in EO research relative to manufacturing and services, although its risk profile, asset specificity and dependence on public support make it a demanding test of the EO–performance proposition.

Contextual gap. The moderating role of institutional context is more often assumed than tested, and rarely disaggregated into regulatory, normative and cognitive pillars within one model.

Comparative gap. Cross-country evidence from Pakistan and China is scarce, even though the two countries are close economic partners with very different institutional environments and agricultural governance systems.

1.4. Research Objectives

The study pursues four objectives: (i) to examine the effect of entrepreneurial orientation on agribusiness performance; (ii) to assess the moderating role of institutional context, and of its three pillars, in that relationship; (iii) to compare the strength of the direct and moderating effects between agribusiness firms in Pakistan and China; and (iv) to derive recommendations for managers and policymakers in both countries.

1.5. Research Questions

The study is guided by three questions:

Does entrepreneurial orientation significantly affect agribusiness performance in emerging economies?

Does institutional context moderate the relationship between EO and agribusiness performance and do the three pillars moderate it equally?

Do the strength of the EO–performance relationship and the moderating effect differ between Pakistan and China?

1.6. Significance of the Study

Theoretical significance. The study combines the resource-based view and institutional theory in one model: EO is treated as an internal strategic resource, and institutions as the external conditions that determine its value. Testing both together in agribusiness extends the EO literature beyond its usual sectors and moves institutional context from a control variable to a theorised boundary condition.

Practical significance. Owners and managers learn which EO behaviours matter most and when institutional support makes them more effective, which helps them decide where to commit innovation effort and risk capital.

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Policy significance. The findings inform the design of agricultural finance, extension services, regulation and entrepreneurship programmes, and the comparison allows each country to learn from the other's institutional arrangements.

1.7. Scope and Delimitation of the Study

The study covers agribusiness firms in Pakistan and China, including processors, traders and distributors, input suppliers, cooperatives and commercial farms operated as enterprises. It relies on firm-level survey data reported by owners, chief executives or senior managers. EO is the independent variable, agribusiness performance the dependent variable and institutional context the moderator, with firm size, firm age, sub-sector and owner education treated as controls. The design is cross-sectional and firm-level: it measures perceived institutional support rather than formal institutional indicators, and it does not observe performance over time.

2. Literature Review and Hypothesis Development

2.1. Entrepreneurial Orientation: Concept and Dimensions

EO describes a firm's strategic posture rather than the personal traits of its owner. Miller (1983) defines an entrepreneurial firm as one that engages in product-market innovation, undertakes somewhat risky ventures and acts pro-actively to beat competitors to opportunities, and Covin and Slevin (1989) translate that definition into the three dimensions that dominate empirical work: innovativeness, proactiveness and risk-taking.

Innovativeness refers to a firm's propensity to support experimentation and creative processes that may produce new products, services or production methods. Proactiveness describes a forward-looking posture in which the firm anticipates future demand, identifies opportunities ahead of rivals and acts on them, including through first-mover entry. Risk-taking captures the willingness to commit substantial resources to ventures whose outcomes are uncertain and whose failure costs are significant. Together the dimensions describe a coherent behavioural configuration: firms that innovate without acting on opportunities, or that commit resources without innovation, possess only fragments of an entrepreneurial posture.

Two measurement traditions coexist. Lumpkin and Dess (1996) argue that the dimensions can vary independently and need not co-occur, whereas the Miller–Covin–Slevin tradition treats EO as a composite that predicts firm-level outcomes. The present study follows the composite logic for its main hypothesis, because agribusiness decisions typically bundle innovation, timing and resource commitment, and then decomposes the construct to identify which dimension contributes most, following calls to examine both the aggregate and the dimensional level (Covin & Wales, 2019; Rauch et al., 2009.

EO is also best understood as a managerial and organisational property. Owners and senior managers decide which opportunities are pursued, how quickly, and with what exposure, which is why firm-level surveys addressed to strategic decision-makers are the standard instrument in this literature. In agribusiness, where firms are often small and owner-managed, the posture of the owner-manager and the routines of the enterprise overlap closely.

2.2. Entrepreneurial Orientation and Firm Performance

The resource-based view explains why EO should improve performance. Barney (1991) argues that valuable, rare, inimitable and non-substitutable resources generate advantage, and Covin and Slevin (1991) model EO as a configuration of organisational routines opportunity scanning, experimentation, rapid resource deployment that is difficult for rivals to imitate because it is embedded in managerial practice. EO functions, in this reading, as a capability for recombining existing resources in response to shifting demand rather than as a discrete asset.

Empirical evidence broadly supports the proposition but with substantial heterogeneity. Rauch et al. (2009) report a positive average association across studies, moderated by firm and environmental characteristics; Wiklund and Shepherd (2005) show that the performance value of EO depends on the configuration of its dimensions and on the amount of available capital; and evidence from emerging economies indicates that EO creates more value where market imperfections leave opportunities unexploited, provided the firm can mobilise resources to act on them (Bruton et al., 2008). The recurring conclusion is that EO is beneficial but conditional.

Agribusiness modifies each mechanism. Innovativeness in processing, packaging, input supply and digital market linkage allows firms to differentiate products, reach higher-value buyers and reduce waste; proactiveness pays off through the timing of procurement, forward contracting, anticipation of seasonal demand and early adoption of new varieties or equipment; risk-taking enables entry into new crops, markets and technologies. The sector also constrains the returns to these behaviours: biological production cycles delay feedback, asset specificity raises exit costs, and price and weather risk are largely exogenous. Firms that add strategic risk on top of an already risky production system may therefore obtain smaller marginal returns from risk-taking than from innovation or timing.

Studies of emerging-economy agribusiness and SMEs are consistent with this reasoning while also showing that the dimensions do not act identically. In Pakistani SMEs, innovativeness, proactiveness and risk-taking raise financial performance, whereas their effects on non-financial performance are not significant (Anwar, 2021), and EO supports participation in cross-border opportunities such as the China–Pakistan Economic Corridor (Shah & Hussain, 2023). Accordingly, the first hypothesis concerns the composite construct, and three sub-hypotheses separate the dimensions.

H1. Entrepreneurial orientation has a positive effect on agribusiness performance.

H1a. Innovativeness has a positive effect on agribusiness performance.

H1b. Proactiveness has a positive effect on agribusiness performance.

H1c. Risk-taking has a positive effect on agribusiness performance.

2.3. Institutional Context and Its Three Pillars

Institutions are the rules of the game that structure economic interaction. North (1990) distinguishes formal rules, laws, regulations and their enforcement, from informal constraints such as norms and conventions, and Scott (2014) organises the institutional environment into regulatory, normative and cognitive pillars. Busenitz et al. (2000) adapt this framework to entrepreneurship and measure a country's institutional profile through the regulatory, normative and cognitive support that entrepreneurs perceive.

The regulatory pillar covers the legal and administrative conditions for business: entry rules, licensing, taxation, contract enforcement and public support programmes such as subsidised credit, input schemes and extension services. The normative pillar covers the values and expectations that surround entrepreneurial activity—whether business creation and calculated risk-taking are socially approved, whether cooperatives and industry bodies set expectations of professionalism, and whether buyers and communities reward innovation. The cognitive pillar covers shared knowledge and skills: what actors know about markets, technology and business practice, and the templates they use to interpret opportunities.

The institution-based view argues that strategy in emerging economies cannot be understood without reference to these pillars, because institutional transitions create both opportunities and voids, and firms adapt their conduct to the institutional arrangements they face (Peng et al., 2008). Recent cross-country evidence applies this logic to EO directly: regulatory and normative institutions raise the performance returns to EO because they improve access to the resources that innovative strategies need, and the strength of this moderation depends on the stage of economic development (Wales et al., 2021).

In agribusiness the three pillars take sector-specific form. The regulatory pillar appears as credit schemes, subsidy and insurance programmes, quality and safety standards, land and water rights and contract enforcement along value chains. The normative pillar appears as cooperative norms, buyer expectations, community attitudes towards commercial farming and the legitimacy of new market entrants. The cognitive pillar appears as the stock of agronomic, managerial and digital skills available to firms, and as shared beliefs about which business models are viable.

2.4. The Moderating Role of Institutional Context

Three mechanisms explain why institutional context should strengthen the EO–performance relationship. The first is resource access. Innovation and early entry require capital, information and specialised inputs; where credit, extension advice and infrastructure are available, entrepreneurial intent can be converted into products and market positions, and where they are absent the same intent stalls (Wales et al., 2021). The second is legitimacy and market access. Certification, standards and enforceable contracts lower the transaction costs and buyer distrust that penalise unfamiliar products and new suppliers. The third

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is risk buffering. Insurance, price support and reliable input supply make bold moves survivable, which raises the expected return on risk-taking.

Applied to the pillars, the regulatory pillar should carry the strongest moderation in agribusiness, because it governs precisely the resources that entrepreneurial agribusiness strategies consume: credit, inputs, infrastructure and enforceable contracts. The normative pillar should moderate more weakly, since social approval and industry expectations raise the legitimacy of innovation and ease market entry but do not supply resources directly. The cognitive pillar should moderate weakly or not at all among established firms: shared beliefs and skills shape who starts and how confidently firms enter, but they change slowly and act mainly through the general level of capability rather than through the marginal return to a firm's existing posture. Recent cross-country work reports a comparable pattern, with regulatory and normative institutions moderating the EO–performance link while the cognitive dimension contributes less (Wales et al., 2021).

H2. Institutional context positively moderates the relationship between entrepreneurial orientation and agribusiness performance, such that the relationship is stronger where institutional support is higher.

H2a. The regulatory pillar positively moderates the EO–performance relationship.

H2b. The normative pillar positively moderates the EO–performance relationship.

H2c. The cognitive pillar positively moderates the EO–performance relationship, although more weakly than the regulatory pillar.

2.5. Agribusiness and Institutional Context in Pakistan and China

China's agricultural transformation has been state-led and policy-intensive. Public investment in rural infrastructure, irrigation, mechanisation and cold-chain logistics, combined with organised cooperatives, directed credit and digital market platforms, has lowered the cost of reaching buyers and adopting technology. Firms therefore face a comparatively broad and consistent support environment, although the depth of that support varies across provinces and sub-sectors.

Pakistan's agribusiness sector is large and diverse but more fragmented. Extension services, formal credit and quality enforcement reach firms unevenly; price volatility and weak contract enforcement raise transaction costs; and the availability of support depends heavily on province, sub-sector and firm connections. At the same time, new external opportunities notably those associated with the China–Pakistan Economic Corridor reward firms that can act proactively and innovate in their market positioning (Shah & Hussain, 2023). Institutional quality, in other words, varies more across firms in Pakistan than in China.

Two theoretical arguments generate opposite expectations for the cross-country comparison. The enablement argument holds that EO converts into performance more fully where institutions supply the complementary resources—credit, infrastructure, enforceable contracts that entrepreneurial strategies require; on this reading the direct EO effect should be stronger in China. The substitution argument holds that where institutional support is thin, differences in that support do more work, because institutions compensate for firm-level resource gaps and separate firms able to capitalise on EO from those unable to do so; on this reading the moderating effect

should be stronger in Pakistan. Because the literature supports both arguments, the comparative hypotheses are stated without a predicted direction.

H3a. *The strength of the relationship between entrepreneurial orientation and agribusiness performance differs between Pakistani and Chinese firms.*

H3b. *The strength of the moderating effect of institutional context on that relationship differs between Pakistani and Chinese firms.*

2.6. Conceptual Framework

Figure 2 summarises the model. EO is specified as a reflective construct with three dimensions and is linked to agribusiness performance, measured through financial and non-financial indicators. Institutional context, measured through the regulatory, normative and cognitive pillars, moderates that path. Firm size, firm age, sub-sector and owner education enter as controls, and the model is estimated separately for the Pakistani and Chinese samples to test H3a and H3b.

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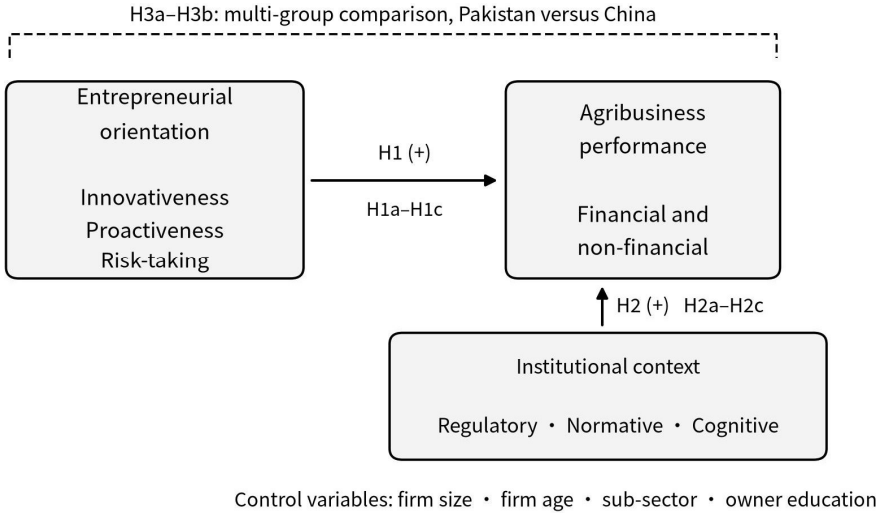
Figure 2

Conceptual framework and hypothesised relationships



3. Research Methodology

3.1. Research Philosophy and Approach

The study follows a positivist philosophy. The relationships between EO, institutional context and agribusiness performance are treated as measurable properties of firms that can be observed through structured instruments and tested statistically. The

approach is deductive: the hypotheses were derived from the resource-based view and institutional theory and then tested against empirical data. A quantitative design was adopted because the objectives concern the magnitude of effects, the presence of moderation and differences between two national samples.

3.2. Research Design

The study used an explanatory, cross-sectional survey design. Data were collected once, during a single period, from agribusiness firms in Pakistan and China. A cross-sectional design makes the two-country comparison feasible within a limited time frame and allows a large number of firms to be surveyed with a standard instrument. Its limitation is that it cannot establish causality or the direction of effects over time; this constraint is acknowledged in Chapter 6.

3.3. Population, Sampling and Sample Size

The population comprised agribusiness firms operating in Pakistan and China: agro-processors, input suppliers (seed, fertiliser, machinery), traders and distributors, cooperatives and commercial farms operated as enterprises. In Pakistan, firms were drawn from Punjab and Sindh, the two provinces that concentrate agricultural production and processing. In China, firms were drawn from three major agricultural provinces in the eastern and central regions.

The unit of analysis was the firm, and the respondent was the owner, chief executive or senior manager, the actor best placed to report on strategic posture and performance. Because no complete sampling frame exists for agribusiness in either country, frames were constructed from chamber-of-commerce directories, industry and cooperative associations, and government enterprise registries. Stratified purposive sampling was then applied, with strata defined by country, firm size and sub-sector, so that the two samples would be comparable in composition and would cover the main agribusiness activities.

The realised sample comprised 540 usable responses, 280 from Pakistan and 260 from China. Three checks supported this size. First, the sample exceeds the ten-times rule for partial least squares structural equation modelling, which requires at least ten cases per arrow pointing at a construct. Second, an a priori power analysis for a model with four predictors, a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$ and power of 0.80 indicated

a minimum of roughly 85 cases, well below the size obtained. Third, each country group comfortably exceeds the minimum required for multi-group analysis in PLS-SEM.

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3.4. Measurement of Variables

All constructs were measured on five-point scales and adapted from established instruments. Table 1 summarises the operationalisation.

Table 1

Measurement of variables

Construct	Dimensions	Items	Source	Representative item
Entrepreneurial orientation	Innovativeness, proactiveness, risk-taking	12 (4 per dimension)	Covin and Slevin (1989); Hughes and Morgan (2007)	"In the past three years, our firm has introduced new products or production processes."
Institutional context	Regulatory, normative, cognitive	12 (4 per dimension)	Busenitz et al. (2000)	"Government programmes help agribusiness firms obtain the credit and technical support they need."
Agribusiness performance	Financial and non-financial	6	Subjective performance measures relative to competitors	"Relative to competitors, our profitability over the past three years has been …"
Control variables	Firm size, firm age, sub-sector, owner education	4	Single-item and categorical measures	Number of employees; years in operation; main activity; highest qualification

Entrepreneurial orientation was measured with twelve items, four for each dimension, drawing on the Miller–Covin–Slevin semantic differential scales as refined by Covin and Slevin (1989) and on the dimension-specific items of Hughes and Morgan (2007). Items asked respondents to compare their firm with competitors on experimentation

and new product introduction (innovativeness), on anticipatory action and first-mover behaviour (proactiveness), and on the willingness to commit resources to uncertain projects (risk-taking).

Institutional context was measured with twelve items from the country institutional profile of Busenitz et al. (2000), four per pillar. Regulatory items captured the perceived consistency of regulation, the availability of government credit and support programmes, and the enforceability of contracts. Normative items captured social approval of entrepreneurial activity, the standing of business owners and the expectations set by cooperatives and industry bodies. Cognitive items captured the perceived availability of business knowledge, technical advice and information about how to operate and grow an agribusiness.

Agribusiness performance was measured with six subjective items asking respondents to rate their firm relative to competitors on sales growth, profitability, market share, customer satisfaction, product or service quality and contribution to farmer welfare. The first four form the financial and market dimension; the last two capture the non-financial and relational dimension emphasised in agribusiness. Subjective measures are standard where firms do not publish accounts, and they have been shown to correlate acceptably with objective indicators in small-firm research. The response anchors were 1 = much worse than competitors and 5 = much better than competitors.

Firm size was measured by the number of full-time employees and grouped into small, medium and large categories; firm age by years since establishment; sub-sector by the firm's main activity; and owner education by the highest qualification obtained.

3.5. Instrument Development and Pilot Testing

Four steps were taken before the main survey. First, items were adapted to the agribusiness setting: references to products, technologies and markets were rewritten in terms of inputs, produce, processing and value-chain relationships, while the underlying content of the scales was preserved. Second, the questionnaire was translated into Urdu and simplified Chinese by bilingual translators and then back-translated into English by independent translators; discrepancies were reconciled with the researchers before the final wording was fixed. Third, content validity was assessed by five experts with backgrounds in agricultural economics, agribusiness management and survey research, who rated each item for relevance and clarity; items

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judged ambiguous or peripheral to the sector were reworded. Fourth, the instrument was piloted on 30 respondents in each country, and the pilot data were used to check item comprehension and initial reliability. The final questionnaire contained a cover letter and consent statement, a demographic section and the three construct sections.

3.6. Data Collection Procedure

Questionnaires were administered in person, through telephone-assisted interviews and online, using Google Forms in Pakistan and Wenjuanxing in China. Firms were approached through business associations, cooperative societies and professional networks identified in the sampling frames. Data collection ran for eight weeks, with two reminders sent to non-respondents. Returns were screened for completeness and for patterned or implausible responses, and only usable questionnaires were retained. Response rates and the number of excluded questionnaires is reported in Section 4.2.

3.7. Data Analysis Techniques

Data were analysed in SPSS 26 for screening and descriptive statistics and in SmartPLS 4 for structural equation modelling, following the evaluation sequence recommended for PLS-SEM (Hair et al., 2019).

Step 1, data screening. Missing values, outliers, normality and multicollinearity were examined before estimation. Missing values were replaced by mean imputation where they affected less than 5% of a case; multivariate outliers were identified through Mahalanobis distance; skewness and kurtosis were inspected against the limits recommended for maximum likelihood estimation; and multicollinearity was assessed through variance inflation factors, with values below 3.3 considered acceptable in PLS-SEM.

Step 2, descriptive statistics. Frequencies and percentages were computed for respondent and firm characteristics, and means, standard deviations and correlations for the study variables.

Step 3, measurement model. Internal consistency was assessed with Cronbach's alpha and composite reliability, both expected to exceed 0.70. Convergent validity was assessed through indicator loadings above 0.70 and average variance extracted (AVE) above 0.50. Discriminant validity was assessed with the Fornell–Larcker criterion and

the heterotrait–monotrait ratio (HTMT), using 0.85 as the conservative threshold (Fornell & Larcker, 1981; Henseler et al., 2015.

Step 4, structural model and hypothesis testing. The direct path from EO to performance tested H1, and the three dimension-level paths tested H1a–H1c in a first-order specification. Moderation was tested with the product-indicator approach, in which the interaction term between EO and institutional context (and between EO and each pillar) was added to the model. The moderated model is:

$$PERFi = \beta 0 + \beta 1EOi + \beta 2INSTi + \beta 3(EOi \times INSTi) + \gamma Controlsi + \varepsilon i$$

where a significant β3 indicates that institutional context moderates the EO–performance relationship. Simple slopes were plotted and tested at one standard deviation above and below the mean of institutional context (Aiken & West, 1991).

Step 5, multi-group analysis. Measurement invariance between the Pakistani and Chinese samples was tested with MICOM, covering configural invariance, compositional invariance and equality of means and variances. Only after invariance was established were path coefficients compared across groups, using the multi-group analysis routine in SmartPLS and a permutation test of coefficient differences.

Step 6, model quality. R^2, f^2, Q^2 and SRMR were reported, and significance was assessed with 5,000 bootstrap resamples and bias-corrected confidence intervals.

Step 7, robustness. The model was re-estimated with financial and non-financial performance analysed separately, and with the control variables entered and removed, to check whether the hypothesised relationships held across specifications.

3.8. Common Method Bias and Non-Response Bias

Because each firm was represented by a single respondent, common method bias was addressed procedurally and statistically. Procedurally, respondents were assured of anonymity, the predictor and outcome sections were separated in the questionnaire, and item wording was varied to reduce priming. Statistically, Harman's single-factor test was applied, with the first unrotated factor expected to account for less than 50% of the variance, and a full-collinearity assessment was run, with all variance inflation factors

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expected to remain below 3.3 (Podsakoff et al., 2003). Non-response bias was examined by comparing early and late respondents on all study variables.

3.9. Ethical Considerations

Ethical approval was obtained from the researchers' institutional research ethics committee before data collection. Participation was voluntary and based on informed consent, respondents were free to withdraw at any point, and no identifying information was retained with the responses. Data were stored on encrypted storage accessible only to the research team, analysed in aggregate, and used solely for this study. Local cultural norms and language preferences were respected in both countries, and interviews were conducted in the respondent's preferred language.

4. Results and Analysis

4.1. Introduction

This chapter reports the empirical results. It covers the response rate and data screening, the respondent profile, descriptive statistics and correlations, the measurement model, the structural model, the tests of the hypothesised direct, moderating and comparative effects, and the robustness check. All analyses were run in SPSS 26 and SmartPLS 4.

4.2. Response Rate and Data Screening

A total of 640 questionnaires were distributed (Pakistan 340, China 300), of which 572 were returned. After 32 incomplete or outlying cases were removed, 540 usable responses remained (Pakistan $n = 280$; China $n = 260$), giving an effective response rate of 84.4%. Missing values affected less than 2% of the data and were replaced by mean imputation. Skewness ranged from −0.82 to 0.41 and kurtosis from −0.67 to 0.93, both within acceptable limits. All variance inflation factors were below 3.3, so multicollinearity was not a concern. Early and late respondents did not differ significantly on any study variable ($p > .05$), which indicates that non-response bias is unlikely.

4.3. Respondent Profile

Table 2 describes the two samples.

Table 2

Sample characteristics

Characteristic	Category	Pakistan n (%)	China n (%)
Respondent role	Owner/CEO	126 (45.0)	91 (35.0)
	Manager	154 (55.0)	169 (65.0)
Firm size	Small	112 (40.0)	78 (30.0)
	Medium	120 (42.9)	117 (45.0)
	Large	48 (17.1)	65 (25.0)
Firm age	Under 5 years	59 (21.1)	42 (16.2)
	5–10 years	118 (42.1)	109 (41.9)
	Over 10 years	103 (36.8)	109 (41.9)
Sub-sector	Processing	98 (35.0)	104 (40.0)
	Trading/distribution	84 (30.0)	70 (26.9)
	Inputs	56 (20.0)	52 (20.0)
	Commercial farming	42 (15.0)	34 (13.1)

Most firms in both samples were small or medium-sized, and processing and trading accounted for the largest shares of activity. The Chinese sample contained a larger proportion of large firms (25.0% versus 17.1%) and a higher share of managers among respondents, reflecting the more formalised management structures of larger Chinese agribusinesses. The Pakistani sample was somewhat more concentrated in Punjab and Sindh processing and trading firms, and in owner-managed enterprises.

4.4. Descriptive Statistics and Correlations

Table 3

Means, standard deviations and correlations (n = 540)

Variable	Mean	*SD*	1	2	3
1. Entrepreneurial orientation	3.78	0.64	1		

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Variable	Mean	*SD*	1	2	3
2. Institutional context	3.41	0.71	0.38**	1	
3. Agribusiness performance	3.69	0.68	0.56**	0.47**	1

** $p < .01$ (two-tailed).

EO recorded the highest mean of the three constructs and institutional context the lowest, which is consistent with the resource constraints described in the literature.

All correlations were positive, significant and moderate, and none exceeded 0.85, so discriminant validity was not threatened by excessive overlap. The correlation between EO and performance ($r = .56$) is the strongest in the matrix and supports the expectation of a substantive direct effect. Institutional context was rated lower in Pakistan ($M = 3.12$) than in China ($M = 3.72$), a difference that anticipates the cross-country analysis.

4.5. Measurement Model

4.5.1. Reliability And Convergent Validity

Table 4

Reliability and convergent validity

Construct	Items	Loadings	α	CR	AVE
Innovativen ess	4	0.74–0.85	0.82	0.88	0.65
Proactivene ss	4	0.72–0.84	0.81	0.87	0.63
Risk-taking	4	0.71–0.83	0.79	0.86	0.61
Regulatory institutions	4	0.73–0.86	0.83	0.89	0.66
Normative institutions	4	0.72–0.82	0.80	0.87	0.62
Cognitive institutions	4	0.70–0.81	0.78	0.86	0.60
Agribusines s performance	6	0.71–0.84	0.88	0.91	0.63

All loadings exceeded 0.70, all alpha and composite reliability values exceeded 0.78 and all AVE values exceeded 0.50, so internal consistency and convergent validity are established for every construct. One risk-taking item, which loaded at 0.58, was removed during scale purification; the four retained items form a reliable dimension.

4.5.2. Discriminant Validity

All HTMT values fell between 0.31 and 0.82, below the 0.85 threshold, and the Fornell–Larcker criterion was met, with each construct's square root of AVE exceeding its correlations with the other constructs. The seven constructs are therefore empirically distinguishable.

4.5.3. Common Method Bias

In Harman's single-factor test the first factor explained 34.6% of the variance, below the 50% limit, and the full-collinearity variance inflation factors remained below 3.3. Common method variance is therefore unlikely to account for the observed relationships.

4.6. Structural Model Assessment

The structural model explained 52% of the variance in agribusiness performance ($R^2 = .52$), which is a moderate to substantial level for firm-level strategy models. Predictive relevance was supported ($Q^2 = .34$), and model fit was acceptable (SRMR

= 0.047, below the 0.08 threshold). The effect size of EO on performance was medium ($f^2 = 0.21$).

4.7. Hypothesis Testing

4.7.1. Direct Effects (H1)

Table 5

Direct path results

Hypothesis	Path	β	*t*	*p*	Decision
H1	EO → Performance	0.41	9.12	< .001	Supported
H1a	Innovativeness → Performance	0.22	4.80	< .001	Supported
H1b	Proactiveness → Performance	0.27	5.90	< .001	Supported
H1c	Risk-taking → Performance	0.12	2.41	.016	Supported

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EO has a significant positive effect on agribusiness performance (β = 0.41, t = 9.12, p < 0.001), so H1 is supported. In the first-order specification that separates the dimensions, all three paths are positive and significant, supporting H1a, H1b and H1c. Proactiveness carries the largest coefficient (β = 0.27), innovativeness the second

largest (β = 0.22) and risk-taking the smallest (β = 0.12, p = .016). The dimension-level coefficients describe the relative weight of each behaviour within the construct and are not additive with the composite path.

4.7.2. Moderating Effect (H2)

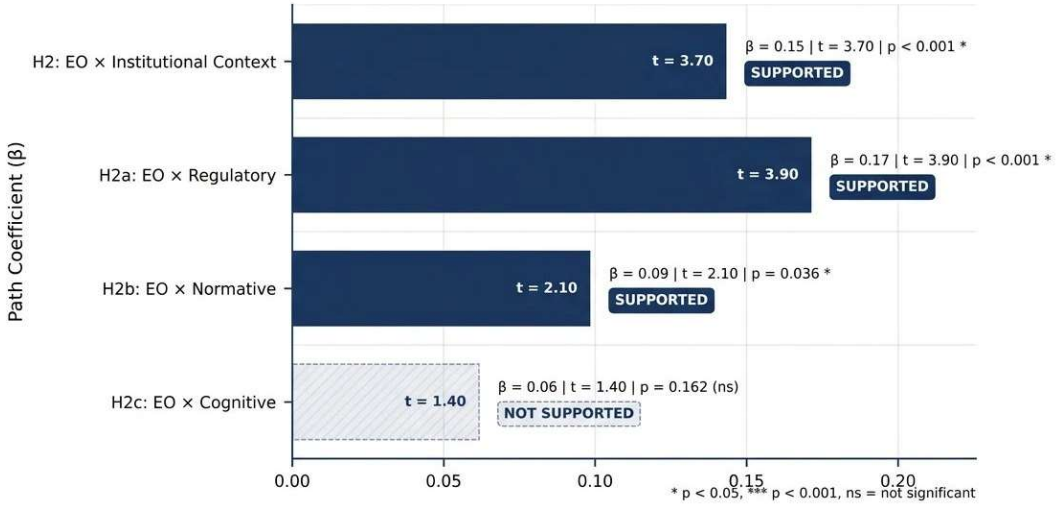
Table 6

Moderating effects of institutional context and its pillars

Hypothesis	Interaction	β	*t*	*p*	Decision
H2	EO × Institutional context	0.15	3.70	< .001	Supported
H2a	EO × Regulatory	0.17	3.90	< .001	Supported
H2b	EO × Normative	0.09	2.10	.036	Supported
H2c	EO × Cognitive	0.06	1.40	.162	Not supported

Figure 3

Interaction effects of EO × Institutional Context. H2, H2a and H2b are supported, while H2c is not supported. Institutional context positively moderates the EO–performance relationship (β = 0.15, t = 3.70, p < 0.001), supporting H2. Simple slope analysis shows that the slope of EO on performance is steeper at high institutional support (β = 0.56) than at low support (β = 0.26): the same entrepreneurial posture yields roughly twice the performance gain where firms perceive stronger support.



The pillars do not act equally. The regulatory interaction is the strongest (β = 0.17, p < .001), supporting H2a; the normative interaction is positive but weaker (β = 0.09, p = .036), supporting H2b; and the cognitive interaction is not significant (β = 0.06, p = .162), so H2c is not supported. The expectation that the regulatory pillar would dominate the moderation is therefore confirmed, while the cognitive pillar adds no explanatory power to the relationship.

4.7.3. Country Comparison (H3). Measurement invariance was established at the partial level in MICOM, which permits comparison of path coefficients across the two groups. Table 7 reports the multi-group results.

Table 7

Multi-group analysis, Pakistan versus China

Path	β Pakistan	β China	Difference	*p*	Significant
EO → Performanc e (H3a)	0.35	0.46	0.11	.041	Yes
EO × Institutions → Performanc e (H3b)	0.21	0.10	−0.11	.048	Yes

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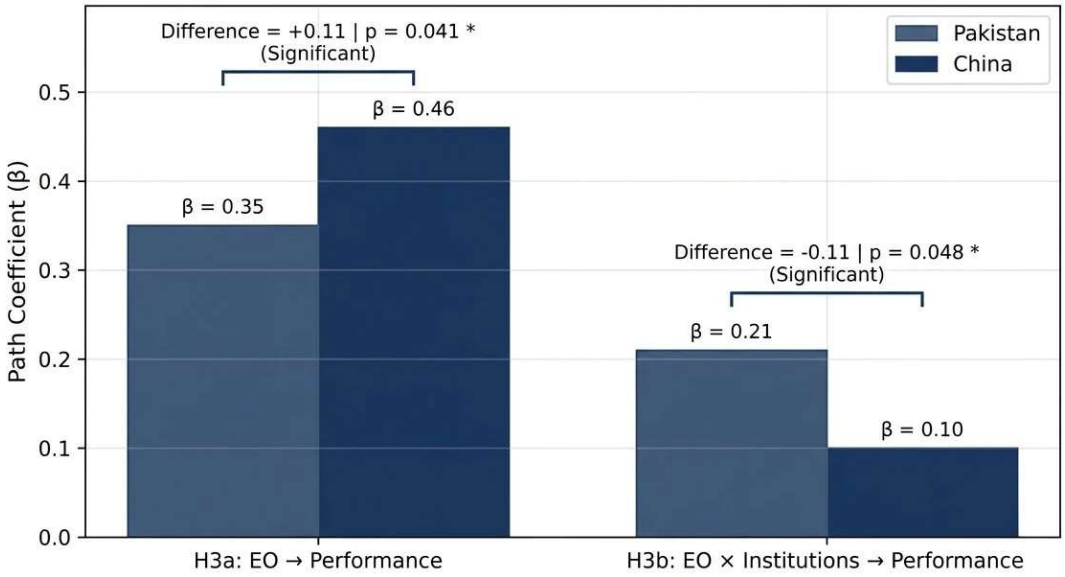
Figure 4

Multi-group comparison for H3a and H3b. Both group differences are statistically significant ($p < 0.05$). The direct effect of EO on performance is stronger in the Chinese sample ($\beta = 0.46$) than in the Pakistani sample ($\beta = 0.35$), with a difference of 0.11 ($p = 0.041$), which supports H3a. The moderating effect of institutional context is stronger in Pakistan ($\beta = 0.21$) than in China ($\beta = 0.10$), with a difference of −0.11 ($p = 0.048$), which supports H3b. In Pakistan, where support is thinner and more variable across firms, differences in institutional quality translate into larger differences in what EO delivers; in China, where support is broader and more consistent, the marginal advantage of additional perceived support is smaller.



4.8. Robustness Checks

Results were stable across alternative specifications. When financial and non-financial performance were analysed separately, EO remained significant for both (financial β = 0.37; non-financial β = 0.43). Adding firm size, firm age, sub-sector and owner education as controls did not change the direction or significance of any hypothesis; only firm size reached significance (β = 0.09, p = .03), indicating that larger firms report somewhat higher performance. The moderation results and the cross-country differences were unaffected by the inclusion or exclusion of controls.

4.9. Summary of Hypotheses

Table 8

Summary of hypothesis tests

Hypothesis	Statement	Result
H1	EO → agribusiness performance (positive)	Supported
H1a	Innovativeness → performance (positive)	Supported
H1b	Proactiveness → performance (positive)	Supported
H1c	Risk-taking → performance (positive)	Supported
H2	Institutional context moderates EO–performance (positive)	Supported
H2a	Regulatory pillar moderates (positive)	Supported
H2b	Normative pillar moderates (positive)	Supported
H2c	Cognitive pillar moderates (positive)	Not supported
H3a	Direct effect differs between Pakistan and China	Supported
H3b	Moderating effect differs between Pakistan and China	Supported

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5. Discussion

5.1. Introduction

This chapter interprets the results in light of prior research and the theoretical framework. It discusses the EO–performance relationship, the moderating role of institutional context and its pillars, and the differences between Pakistan and China, before stating the theoretical contributions.

5.2. Entrepreneurial Orientation and Agribusiness Performance

H1 was supported. EO had a significant positive effect on agribusiness performance (β = 0.41), and all three dimensions contributed. This result aligns with the meta-analytic evidence that EO is positively, though variably, related to performance (Rauch et al., 2009), with configurational evidence that the payoff depends on how the dimensions are combined (Wiklund & Shepherd, 2005), and with emerging-economy findings that entrepreneurial behaviour improves SME outcomes when firms can mobilise resources behind it (Anwar, 2021; Bruton et al., 2008. Extending the relationship to agribusiness is itself informative, because the sector's biological cycles and asset specificity were expected to dampen the value of a strategic posture.

Proactiveness carried the largest coefficient (β = 0.27). A plausible explanation is that agribusiness returns accrue disproportionately to timing: anticipating seasonal demand, securing supply before price spikes, entering market segments before competitors and adopting new varieties or equipment early all translate directly into margin. Innovativeness followed (β = 0.22), consistent with the role of product, packaging and process improvements in reaching higher-value buyers and reducing post-harvest loss.

Risk-taking had the smallest coefficient (β = 0.12), although it remained significant. Agricultural production already carries substantial natural, price and biological risk, so additional strategic risk may yield a smaller marginal return, particularly where credit and insurance are unavailable to absorb downside outcomes. This interpretation is consistent with the risk-return logic of the sector and with evidence that the performance value of EO depends on the resources available to support it, but it is an interpretation rather than a tested mechanism and warrants direct examination in future research.

From a resource-based view, EO operates as a capability that helps firms recognise opportunities and reconfigure resources accordingly (Barney, 1991; Covin & Slevin, 1991. The results support this reading while cautioning that the capability's payoff is not uniform across its dimensions.

One further result merits comment. EO remained significant for both performance dimensions in the robustness checks (financial β = 0.37; non-financial β = 0.43), a pattern that differs from Pakistani SME evidence in which non-financial effects were not significant (Anwar, 2021). Agribusiness performance may embed relational outcomes such as product quality and farmer welfare more directly than general SME performance does, because value-chain relationships are the mechanism through which agribusiness firms reach markets and secure supply.

5.3. The Moderating Role of Institutional Context

H2 was supported. The EO–performance relationship was stronger where firms perceived greater institutional support: simple slopes of 0.56 at high support and 0.26 at low support indicate that the same posture delivers roughly twice the performance gain in the more supportive environment. This is consistent with institutional theory and with cross-country evidence that regulatory and normative institutions raise the returns to EO by widening access to the resources innovative strategies require (Wales

et al., 2021). The contribution here is that the moderation is observed within a single sector and at the level of firms' own perceptions, rather than across national aggregates.

The pillars behaved differently, as hypothesised. Regulatory institutions produced the strongest moderation (β = 0.17). Clear rules, enforceable contracts, subsidised credit and reliable extension services lower the cost of innovating and expanding, and they determine whether a proactive move can be financed and defended once made. Normative institutions contributed a smaller but significant effect (β = 0.09), which is consistent with the view that social approval and industry expectations raise the legitimacy of innovation and ease market entry without directly supplying resources. Cognitive institutions did not moderate the relationship (β = 0.06, p = .162).

Two explanations for the cognitive result merit attention. Theoretically, shared beliefs and business knowledge change slowly and act on the general level of entrepreneurial capability in a population, which

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shapes who starts a business and how confidently, more than on the marginal return to the strategic posture of an already operating firm. Empirically, cognitive items in country institutional profiles were designed to capture knowledge about how to start and run a new venture; for established agribusinesses, that knowledge stock may matter less than the credit, infrastructure and contract enforcement captured by the regulatory pillar. The null result is therefore informative rather than anomalous: it shows that 'institutions' should not be treated as a single undifferentiated resource in EO research.

5.4. Pakistan versus China

H3a and H3b were both supported, and the two patterns point in different directions. This outcome is consistent with the two competing arguments set out in Chapter 2 rather than with a single prediction.

Direct effect. EO mattered more in China ($\beta = 0.46$) than in Pakistan ($\beta = 0.35$). The enablement argument explains this: stronger infrastructure, more reliable access to finance and more consistent policy support allow an entrepreneurial posture to be converted into sales and market position more completely. Where the complementary resources exist, the binding constraint on performance is the firm's own willingness and ability to act entrepreneurially.

Moderation. Institutions moderated more strongly in Pakistan ($\beta = 0.21$) than in China ($\beta = 0.10$). The substitution argument explains this: where support is thin and unevenly distributed, differences in that support separate firms able to capitalise on EO from those unable to do so, and institutional access compensates for firm-level resource gaps. Where support is already broad, as in China, further variation in perceived support adds less, because the resources that entrepreneurial strategies require are available to most firms.

Taken together, the two results describe a substitution–enablement pattern: institutions enable the direct return to EO, but they matter most as a moderator where they are scarce. Studies of Pakistani firms already link EO to the exploitation of external opportunities such as the China–Pakistan Economic Corridor (Shah & Hussain, 2023), which supports the view that external conditions shape what EO can achieve in that setting.

5.5. Theoretical Contributions

The study makes four contributions. First, it extends EO research into agribusiness, a sector whose risk profile and institutional dependence differ materially from the manufacturing and general-SME settings that dominate the literature, and it does so with a model that survives the sector's expected dampening effects (Fitz-Koch et al., 2018).

Second, it treats institutional context as a three-pillar construct and shows that the pillars are not interchangeable: regulatory support carries the moderation, normative support contributes marginally, and cognitive support does not moderate at all. Studies that aggregate institutions into a single index, or that rely on country-level indicators, therefore risk obscuring where the effect comes from.

Third, it measures institutional context at the level of firms' perceptions rather than through national aggregates, which allows institutional heterogeneity within a country to be modelled. This complements cross-country evidence built on country scores (Wales et al., 2021) and shows that perceived support varies enough within an economy to alter the value of EO.

Fourth, the comparative results distinguish two functions of institutions—enablement of the direct effect and substitution for missing firm-level resources—and show that they can operate simultaneously and in opposite directions across countries. This

refines the institutional contingency view of EO from a statement about average differences to a statement about the mechanisms through which context operates.

6. Conclusion and Recommendations

6.1. Conclusion

This study examined how entrepreneurial orientation affects agribusiness performance in Pakistan and China, and how institutional context alters that relationship. EO improves performance, with proactiveness the strongest dimension and risk-taking the weakest. Institutional support, particularly regulatory support, strengthens the effect, while cognitive institutions do not moderate it. The direct benefit of EO is larger in China, whereas the moderating role of institutions is larger in Pakistan. Firm-level strategy and institutional

support therefore explain agribusiness performance better together than either does alone, and the balance between them differs across institutional settings.

6.2. Managerial Implications

First, build proactive routines rather than treating proactiveness as a disposition. Market monitoring, forward contracting, early adoption of improved inputs and pre-season planning all convert anticipation into margin, and they accounted for the largest dimension-level effect in this study.

Second, take calculated rather than maximal risks. Because agricultural production already carries high natural and price risk, staged trials of new products, crops and market channels rather than large one-off commitments offer a better expected return.

Third, treat institutional programmes as a resource to be used deliberately. Credit schemes, extension services, certification and cooperative arrangements raise the return on entrepreneurial behaviour, and firms in weaker institutional environments gain most from using them.

Fourth, invest in relationships with regulators, cooperatives and industry bodies. Access to information and to programmes flows through these relationships, and in thinner institutional environments such access substitutes for resources the firm would otherwise have to fund itself.

6.3. Policy Implications

Pakistan. Because institutional quality has a larger effect on how well entrepreneurial firms perform, priorities are regulatory consistency, enforceable contracts along value chains, broader access to agricultural finance and dependable extension services. Reducing the variance in support across provinces and sub-sectors would raise the return on the entrepreneurial effort already present in the sector.

China. General support is already broad, so additional gains lie in targeting: smaller firms, newer entrants and lagging provinces benefit less from universal programmes and more from instruments designed for their resource constraints. Continued support for innovation is warranted, but its marginal value depends on reaching firms that cannot self-finance experimentation.

Both countries. Fund training that builds entrepreneurial and managerial capability, and encourage knowledge exchange between the two agribusiness systems, particularly on cooperative organisation, quality standards and digital market linkage.

6.4. Limitations

Four limitations qualify the findings. First, the cross-sectional design cannot establish causality or capture the lag between entrepreneurial behaviour and performance; reverse or reciprocal relationships remain possible.

Second, data were self-reported by a single respondent per firm. Common method bias was tested and did not appear to threaten the results, but objective financial data and multiple informants would strengthen inference.

Third, the samples were drawn from selected regions Punjab and Sindh in Pakistan and three major agricultural provinces in China so the findings may not generalise to all regions, and the two samples differ in size composition, which the multi-group analysis accounts for statistically but cannot eliminate.

Fourth, institutional context was measured through perceptions rather than formal indicators, and the dimension-level EO paths were estimated in a first-order specification, so they indicate the relative weight of each behaviour rather than additive contributions to the composite effect.

6.5. Future Research Directions

Several extensions follow. Longitudinal or multi-source designs would allow causal claims and would capture how institutional change alters the value of EO over time. Mediating mechanisms innovation capability, opportunity recognition, absorptive capacity and access to finance would clarify how EO converts into performance. The null result for the cognitive pillar deserves qualitative investigation of how shared beliefs and business knowledge affect established agribusinesses, and whether their influence is confined to venture creation. Finally, extending the model to other emerging economies and to digital and sustainable agribusiness would test whether the substitution–enablement pattern generalises beyond the Pakistan–China contrast.

6.6. Concluding Remarks

Entrepreneurial orientation is a genuine source of agribusiness performance in emerging economies, but its value is written in institutional terms. Firms that act proactively and innovate do better where regulation, credit and extension systems allow them to act on their intentions; and where those systems are thin, institutional improvement offers the largest available lever for raising the returns to entrepreneurship in agribusiness.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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Informed Consent

Informed consent was obtained from all individual participants included in the study.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Data Availability

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

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