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Sensible Risk-Taking and Innovative Performance in Small Businesses in Hunan, China

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Abstract: This study examines the association between employee-perceived sensible risk-taking and employee-perceived innovative performance in small businesses in Hunan, China. We use sensible risk-taking as an umbrella term for informed, bounded, and organization-aware risk behavior. The construct overlaps with strategic or calculated risk-taking, but it is operationalized here more broadly to include decision frameworks, entrepreneurial orientation, executive behavior and corporate governance, psychological traits and financial literacy, digital transformation and technological adaptation, and strategic and cultural context. Innovative performance is treated as a perceptual organizational outcome system rather than as an objective output indicator. Using a quantitative descriptive-correlational design, we analyze survey responses from 250 employees across retail, services, food processing, and light manufacturing. Results indicate moderate levels of both constructs. Psychological traits and financial literacy, followed by executive behavior and corporate governance, show the strongest positive associations with innovative performance. Entrepreneurial orientation and competency display several negative associations, suggesting a possible mismatch between initiative and the organizational conditions needed to absorb and implement it. Digital transformation and strategic-cultural context show no significant correlations in the archived results. Because the study relies on a cross-sectional, self-report, non-probability sample, the findings should be interpreted as correlational and exploratory rather than causal or population-representative. The study contributes by unpacking which forms of risk-taking appear most closely linked to perceived innovation capacity in small firms.
Keywords: small businesses, sensible risk-taking, innovative performance, governance, financial literacy, Hunan, China.

I. INTRODUCTION

Small businesses operate under persistent uncertainty. They confront volatile demand, financing constraints, rapid technological change, and pressure to innovate without the slack resources available to larger firms. In such settings, survival rarely depends on risk avoidance alone. Firms often need to act under uncertainty, but the relevant question is not whether they take risks at all. Rather, it is whether those risks are informed, bounded, and aligned with organizational capability.

This logic is especially relevant in China's small-business economy. Small firms play an important role in employment, local upgrading, and entrepreneurship, yet they frequently operate in settings where formal systems are unevenly developed, managerial authority is concentrated, and innovation capacity varies substantially across teams. Under these conditions, risk-taking is not simply an individual trait. It is shaped by governance arrangements, financial understanding, technological adaptation, and organizational culture.

Existing literature provides important but still fragmented insights into this process. Research on risk-taking emphasizes decision frameworks, entrepreneurial orientation, executive behavior, and financial cognition [1]–[8]. Research on innovative performance emphasizes intellectual capital, social capital, organizational learning, and resource availability [9]–[15]. These streams are often studied separately, however, and the relationship between multidimensional risk-taking and multidimensional innovation remains underexplored in regionally specific small-business settings.

This study addresses that gap in small businesses located in Hunan Province, China. Rather than reducing risk-taking to a single entrepreneurial disposition, the study examines six dimensions of sensible risk-taking: foundational risk models and decision frameworks, entrepreneurial orientation and competency, executive behavior and corporate governance, psychological traits and financial literacy, digital transformation and technological adaptation, and strategic and cultural context. It then examines innovative performance across five dimensions: social capital and knowledge sharing, dynamic capabilities and organizational learning, human resources and intellectual capital, environmental and organizational culture, and access to strategic and financial resources. The aim is not to claim causality, but to clarify which forms of employee-perceived risk-taking are most closely associated with employee-perceived innovation conditions and which appear weaker, contradictory, or context-dependent.

II. THEORETICAL BACKGROUND AND RESEARCH EXPECTATIONS

A. Positioning "Sensible Risk-Taking"

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In this article, sensible risk-taking is not proposed as a universal replacement for established terms such as strategic risk-taking or calculated risk-taking. Instead, it is used as a study-specific umbrella label for risk behavior perceived as prudent, bounded, and contextually aware. Calculated risk-taking usually emphasizes estimation and consequence evaluation, whereas strategic risk-taking emphasizes alignment with competitive or organizational objectives. The present construct overlaps with both, but it is operationalized more broadly to include governance signals, psychological readiness, digital adaptation, and contextual legitimacy alongside deliberate choice [1], [2], [7], [8].

This broad operationalization reflects the realities of many small firms, where decisions are not made through formal risk models alone. In practice, employees and managers often infer whether risk-taking is acceptable by looking at leadership behavior, available information, financial confidence, and the broader organizational setting. For that reason, the construct is best understood here as an exploratory multidimensional perception-based capability rather than as a narrow latent trait.

The first dimension concerns foundational decision frameworks. Risk-taking is more likely to be judged as sensible when firms use some combination of expected-return analysis, uncertainty assessment, and strategic alignment [1], [2]. The second dimension concerns entrepreneurial orientation and competency. Entrepreneurial initiative may encourage experimentation and opportunity recognition, but its value depends on whether the organization can absorb and implement ideas productively [3], [16], [17].

The third dimension concerns executive behavior and corporate governance. Leadership behavior can shape how employees interpret acceptable risk boundaries, especially in smaller firms where formal board structures are lighter but visible managerial actions remain highly salient [4], [18], [22]. The fourth dimension concerns psychological traits and financial literacy. Self-confidence, composure under uncertainty, and financial understanding may not only influence willingness to act, but also influence the quality of judgment under constrained conditions [5], [6], [18].

The fifth dimension concerns digital transformation and technological adaptation. Digital tools may expand flexibility and reduce information asymmetry, but technology is unlikely to matter unless users actually integrate it into routines [7], [8]. The sixth dimension concerns strategic and cultural context. Risk judgments are embedded in stakeholder expectations, cultural norms, and perceived legitimacy; firms do not assess uncertainty in a vacuum [18], [21].

B. Innovative Performance as an Employee-Perceived Organizational Outcome System

Innovative performance is conceptualized here in a perceptual and organizational-process sense rather than as an objective output such as patent counts, new-product revenue, or independently audited innovation metrics. The study focuses on how employees perceive the organizational conditions and outcomes that support innovation. In this sense, innovative performance refers to an employee-perceived innovation capacity system composed of social capital and knowledge sharing, dynamic capabilities and organizational learning, human resources and intellectual capital, environmental and organizational culture, and access to strategic and financial resources [9]–[15], [23], [24].

Social capital and knowledge sharing matter because trust, networks, and information exchange affect whether ideas circulate and become useful [12]. Dynamic capabilities and organizational learning matter because firms need to reconfigure routines and apply lessons from experience [13], [14]. Human resources and intellectual capital matter because innovation depends on expertise, judgment, and knowledge retention [9], [10], [15]. Culture matters because openness, tolerance of bounded failure, and diverse viewpoints can shape whether ideas are surfaced and tested [10], [13], [19]. Finally, resource access matters because even promising ideas require time, budget, and strategic support in order to move toward implementation [23], [24].

C. Distinguishing Conceptually Close Dimensions

Two dimensions in the model are conceptually related and therefore require explicit differentiation. Strategic and cultural context, placed under sensible risk-taking, refers to the normative frame used before or during risk appraisal. It captures whether actors consider stakeholder expectations, local norms, and the cultural acceptability of risky or novel action when judging whether to proceed. Environmental and organizational culture, placed under innovative performance, refers instead to the climate surrounding innovation enactment, such as support for creativity, openness to diverse perspectives, and recognition of innovation-related effort.

The distinction is therefore functional and temporal. The former concerns how risk is evaluated and legitimized; the latter concerns the climate in which innovative work is carried out and interpreted. Even so, because both constructs were measured through employee perceptions, some overlap in how respondents understood them is possible. The present study recognizes that limitation and interprets the boundaries between these dimensions cautiously rather than claiming perfect discriminant separation.

D. Linking Sensible Risk-Taking to Innovative Performance and the Mismatch Expectation

The conceptual expectation of this study is that sensible risk-taking should be positively associated with innovative performance when risk-taking is structured, supported, and embedded in learning and implementation systems. Firms that combine governance discipline with financial and psychological readiness may be better positioned to coordinate knowledge, allocate resources, and sustain adaptation [13], [14], [19], [20].

At the same time, the relationship is unlikely to be uniformly positive across all dimensions. A key possibility is mismatch. Entrepreneurial initiative may outpace an organization's capacity to absorb, refine, and implement ideas. In absorptive-capacity terms, initiative alone does not guarantee that the organization can recognize, assimilate, and apply new knowledge productively. Where knowledge-sharing routines, implementation channels, or resource support are weak, entrepreneurial orientation may coexist with lower perceived innovation performance rather than higher performance. The study therefore examines not only the overall positive association expectation, but also the possibility that some risk-taking dimensions will display weak, null, or even negative relationships with innovation.

The study also examines whether respondent profile variables—age, educational attainment, organizational position, and years in service—are associated with differences in the two major constructs. Because small firms often operate under shared routines and common structural constraints, the expectation is that organizational conditions may matter more than demographic differences.

III. METHOD

A. Research Design, Unit of Analysis, and Setting

The study employed a quantitative descriptive-correlational design. The descriptive component was used to assess the level at which respondents perceived sensible risk-taking and innovative performance to be practiced in their firms. The correlational component was used to examine whether the two constructs were statistically associated. Comparative analysis was also used to examine group differences by age, educational attainment, organizational position, and years in service.

The unit of observation is the individual employee respondent. The unit of inference is more limited. Although some survey dimensions refer to organizational phenomena such as governance, culture, and innovation, the study does not directly measure objective firm-level outcomes. Instead, it interprets these variables as employee-perceived organizational practices and conditions. Conclusions are therefore framed at the level of shared perceptions rather than verified firm performance.

The study was conducted in Hunan Province, China. Hunan provides a useful setting because its small-business sector spans retail, services, food-related enterprises, and light manufacturing, all of which face pressure to modernize while operating under resource constraints.

B. Participants and Sampling Frame

The study included 250 respondents from small businesses operating in Hunan. Participants were drawn from multiple organizational levels rather than from owners alone. This composition is useful because many survey items concern everyday observables, such as knowledge sharing, leadership signals, adaptation to tools, and learning practices, which employees across levels are able to report.

At the same time, the sample should not be treated as a statistically representative cross-section of all employees in Hunan's small businesses. The educational profile is notably high, with bachelor's, master's, and doctoral degree holders comprising most of the sample. This pattern suggests that the respondent pool reflects an accessible and relatively highly educated network-based sample rather than a province-wide workforce distribution. The findings should therefore be generalized cautiously.

The age distribution was mixed, with 31.2% below 25 years, 26.0% aged 25-34, 24.0% aged 35-44, and 18.8% aged 45 years and above. Educational attainment was distributed across bachelor's (33.6%), master's (32.0%), and doctoral (34.4%) degrees. Organizational position was distributed across entry-level or staff (28.0%), supervisory (22.8%), managerial (25.2%), and executive or senior management roles (24.0%). Years in service were also broadly distributed: less than 1 year (21.6%), 1-3 years (24.4%), 4-5 years (26.8%), and more than 5 years (27.2%).

C. Instrument Development and Measurement

A structured researcher-developed questionnaire was used. The first section collected respondent profile information. The second measured sensible risk-taking across six dimensions: foundational risk models and decision frameworks; entrepreneurial orientation and competency; executive behavior and corporate governance; psychological traits and financial literacy; digital transformation and technological adaptation; and strategic and cultural context. The third measured innovative performance across five dimensions: social capital and knowledge sharing; dynamic capabilities and organizational learning; human resources and intellectual capital; environmental and organizational culture; and access to strategic and financial resources.

The questionnaire was literature-grounded in the sense that its dimensions were drawn from prior work cited in the theoretical background. According to the archived study materials, the instrument underwent expert content validation and reliability checking before field administration. However, the dataset available for the present manuscript preserves final construct scores and reported inferential outputs rather than the full item-level psychometric record. As a result, the article cannot report detailed coefficients for content validity, internal consistency, exploratory or confirmatory factor analysis, or discriminant validity. The scales should therefore be interpreted as expert-reviewed perceptual measures, and the present study should be regarded as exploratory rather than as a fully revalidated measurement model.

Each substantive section used a 4-point Likert-type scale, where higher values indicated stronger agreement and stronger perceived practice. Because both major constructs are broad and multidimensional, the dimensions are analyzed separately as well as in overall form rather than being treated as perfectly interchangeable indicators of a single underlying trait.

D. Data Collection, Common Method Considerations, and Ethics

After securing access through relevant local business networks, the questionnaire was distributed in printed or digital form depending on respondent access and preference. Data collection lasted approximately four to six weeks. Participation was voluntary, and responses were treated as anonymous.

Because all focal measures were self-reported by the same respondents at approximately the same time, common method bias is a realistic threat to validity. Procedurally, the study reduced this risk by emphasizing anonymous participation and by separating respondent profile items, sensible risk-taking items, and innovative performance items into distinct sections. Nevertheless, no marker-variable test, common latent factor model, or other post hoc statistical diagnostic is preserved in the archived dataset used for this manuscript. Common method bias therefore cannot be ruled out and should be considered when interpreting the strength and direction of the reported associations.

E. Data Analysis

Descriptive statistics were used to summarize respondent characteristics and construct-level assessments. One-way analysis of variance (ANOVA) was used to examine group differences. Pearson product-moment correlation was used to examine relationships between sensible risk-taking dimensions and innovative performance. Statistical significance was interpreted at the 0.05 level.

The archived output available for article preparation retains construct means, standard deviations, selected item means, reported ANOVA results, and reported statistically significant correlations. Raw item-level response files were not available in the material used to prepare this version. Accordingly, the manuscript reports the available evidence transparently, but it cannot reproduce full assumption diagnostics, a complete correlation matrix, or a comprehensive psychometric revalidation. Where possible, effect size interpretation is added cautiously to the reported ANOVA results.

TABLE I. RESPONDENT PROFILE

Profile variable	Category	n	%
Age	Below 25 years	78	31.2
	25-34 years	65	26.0
	35-44 years	60	24.0
	45 years and above	47	18.8
Educational attainment	Bachelor’s degree	84	33.6
	Master’s degree	80	32.0
	Doctoral degree	86	34.4
Position	Entry-level / staff	70	28.0
	Supervisory	57	22.8
	Managerial	63	25.2
	Executive / senior management	60	24.0
Years in service	Less than 1 year	54	21.6
	1-3 years	61	24.4

Profile variable	Category	n	%
	4-5 years	67	26.8
	More than 5 years	68	27.2

Note: N = 250. The profile indicates a heterogeneous but non-probability respondent pool and should not be interpreted as representative of all employees in Hunan small businesses.

TABLE II. DESCRIPTIVE STATISTICS FOR SENSIBLE RISK-TAKING AND INNOVATIVE PERFORMANCE

Construct	Mean	SD	Interpretation
Foundational risk models and decision frameworks	2.57	0.50	Practiced
Entrepreneurial orientation and competency	2.74	0.49	Practiced
Executive behavior and corporate governance	3.09	0.40	Practiced
Psychological traits and financial literacy	3.12	0.37	Practiced
Digital transformation and technological adaptation	2.73	0.42	Practiced
Strategic and cultural context	2.55	0.49	Practiced
Social capital and knowledge sharing	2.69	0.52	Practiced
Dynamic capabilities and organizational learning	2.79	0.51	Practiced
Human resources and intellectual capital	2.60	0.45	Practiced
Environmental and organizational culture	2.54	0.56	Practiced
Access to strategic and financial resources	2.62	0.50	Practiced

Note: All means are based on a 4-point scale; higher scores indicate stronger perceived practice.

IV. RESULTS

A. Respondent Profile and Construct Levels

Table I summarizes the respondent profile. The sample covers multiple age groups, positions, and tenure categories, but it should be interpreted as an accessible network-based sample rather than a province-wide representative workforce profile. This point is important because the inferential findings speak to the perceptions of the participating respondents, not to the total population of small-business employees in Hunan.

At the construct level, both major variables fall within the practiced range. The average across the six sensible risk-taking dimensions is approximately 2.80, while the average across the five innovative performance dimensions is approximately 2.65. These values indicate that respondents generally recognize both risk-taking and innovation-related practices in their organizations, but more as visible practices than as deeply institutionalized systems.

Within sensible risk-taking, the highest means are psychological traits and financial literacy (M = 3.12) and executive behavior and corporate governance (M = 3.09). These are followed by entrepreneurial orientation and competency (M = 2.74), digital transformation and technological adaptation (M = 2.73), foundational risk models and decision frameworks (M = 2.57), and strategic and cultural context (M = 2.55). The pattern suggests that respondents perceive sensible risk-taking more strongly through confidence and governance cues than through formal modeling or cultural routinization.

Within innovative performance, dynamic capabilities and organizational learning record the highest mean (M = 2.79), followed by social capital and knowledge sharing (M = 2.69), access to strategic and financial resources (M = 2.62), human resources and intellectual capital (M = 2.60), and environmental and organizational culture (M = 2.54). This

ranking is consistent with incremental adaptation and process learning being more visible than a strongly institutionalized innovation culture.

TABLE III. HIGHEST- AND LOWEST-RATED INDICATORS BY DOMAIN

Dimension	Highest-rated indicator (mean)	Lowest-rated indicator (mean)
Foundational risk models	Use of qualitative and quantitative approaches (2.73)	Use of structured decision-making models (2.47)
Entrepreneurial orientation	Adapt quickly to market changes (2.94)	Apply entrepreneurial thinking day-to-day (2.54)
Executive behavior and governance	Board oversight balances risk-taking (3.43)	Executive traits shape risk posture (2.54)
Psychological traits and financial literacy	Strong financial literacy skills (3.61)	Regularly update financial knowledge (2.58)
Digital transformation	Technology improves uncertainty management (3.03)	Team adapts quickly to new tools (2.39)
Strategic and cultural context	Consider stakeholder expectations before taking risks (2.66)	Evaluate cultural acceptability of innovative ideas (2.43)
Social capital and knowledge sharing	Networks support idea exchange (3.00)	Knowledge is shared openly among team members (2.33)
Dynamic capabilities and learning	Apply lessons learned to improve outcomes (3.15)	Invest in systems for continuous learning (2.46)
Human resources and intellectual capital	Employees contribute significantly to innovation (2.76)	Retain skilled and experienced employees (2.49)
Environmental and organizational culture	Environment supports creativity (2.77)	Organization values diverse perspectives (2.18)
Strategic and financial resources	Strategic plans allocate resources for innovation (2.78)	Invest in R&D and technology development (2.43)

Note: Means reported in parentheses are item-level weighted means from the source study.

B. Item-Level Patterns

Table III refines the interpretation by showing the highest- and lowest-rated indicators in each domain. On the risk-taking side, the highest individual means appear in strong financial literacy (M = 3.61), confidence under financial uncertainty (M = 3.53), and board oversight contributing to balanced risk-taking (M = 3.43). These items indicate that respondents perceive the strongest support for sensible risk-taking in financial confidence and visible governance.

By contrast, the weakest risk-taking items concern adaptation to new technological tools (M = 2.39), evaluation of the cultural acceptability of innovative ideas (M = 2.43), local and organizational culture shaping risk-taking (M = 2.44), and the use of structured decision-making models (M = 2.47). This pattern suggests that confidence and leadership signals are more salient than formalization, technological embeddedness, or cultural routinization.

The same asymmetry appears in the innovation items. The strongest indicators concern applying lessons learned to improve future outcomes (M = 3.15), maintaining networks that support idea exchange (M = 3.00), and regularly reviewing and updating internal processes (M = 3.01). The weakest indicators concern valuing diverse perspectives (M = 2.18), sharing knowledge openly among team members (M = 2.33), investing in research and development and technology development (M = 2.43), and celebrating innovation achievements (M = 2.47). The item-level results are therefore more consistent with incremental adjustment than with a deeply institutionalized innovation culture.

TABLE IV. SUMMARY OF GROUP DIFFERENCES BY RESPONDENT PROFILE

Profile variable	Sensible risk-taking	Innovative performance
Age	No significant differences across any dimension or overall score	No significant differences across any dimension or overall score
Educational attainment	No significant differences across any dimension or overall score	No significant differences across any dimension or overall score
Organizational position	No significant differences across any dimension or overall score	No significant differences across any dimension or overall score
Years in service	Significant for foundational risk models ($p = 0.034$), executive behavior and governance ($p = 0.050$), and overall sensible risk-taking ($p = 0.042$)	No significant differences across any dimension or overall score

Note: Significance threshold set at $p < 0.05$. Using the reported F statistics for the four tenure groups, the significant tenure effects are small in magnitude (approximate eta squared values are about 0.03).

C. Group Differences

Table IV summarizes the ANOVA results. Age, educational attainment, and organizational position do not show statistically significant differences across any sensible risk-taking or innovative performance dimension in the reported results. This pattern suggests that shared organizational conditions may matter more than demographic or positional differences within the participating firms.

Years in service is the only profile variable associated with significant differences, and even here the pattern is selective. Significant differences appear for foundational risk models and decision frameworks ($F = 2.929$, $p = 0.034$), executive behavior and corporate governance ($F = 2.646$, $p = 0.050$), and overall sensible risk-taking ($F = 2.777$, $p = 0.042$). Based on the reported statistics, these tenure effects are small in magnitude. Years in service does not produce significant differences in innovative performance. A cautious interpretation is that longer organizational exposure may help respondents notice how risk structures and leadership practices operate, while perceptions of innovation-related conditions remain comparatively organization-wide.

TABLE V. REPORTED SIGNIFICANT CORRELATIONS BETWEEN SENSIBLE RISK-TAKING AND INNOVATIVE PERFORMANCE

Risk-taking dimension	Innovation dimension	r	p
Foundational risk models and decision frameworks	Social capital and knowledge sharing	0.136	0.031
Entrepreneurial orientation and competency	Dynamic capabilities and organizational learning	-0.160	0.011
Entrepreneurial orientation and competency	Environmental and organizational culture	-0.178	0.005
Entrepreneurial orientation and competency	Access to strategic and financial resources	-0.159	0.012
Entrepreneurial orientation and competency	Overall innovative performance	-0.218	0.001
Executive behavior and corporate governance	Social capital and knowledge sharing	0.165	0.009
Executive behavior and corporate governance	Dynamic capabilities and organizational learning	0.162	0.011
Executive behavior and corporate governance	Human resources and intellectual capital	0.136	0.032
Executive behavior and corporate governance	Access to strategic and financial resources	-0.127	0.045

Risk-taking dimension	Innovation dimension	r	p
Executive behavior and corporate governance	Overall innovative performance	0.178	0.005
Psychological traits and financial literacy	Dynamic capabilities and organizational learning	0.327	<0.001
Psychological traits and financial literacy	Environmental and organizational culture	0.460	<0.001
Psychological traits and financial literacy	Overall innovative performance	0.490	<0.001
Overall sensible risk-taking	Overall innovative performance	0.195	0.002

Note: The archived results available for this manuscript retained only statistically significant coefficients. Table V should therefore be interpreted as a partial reporting of the correlational pattern rather than as a full correlation matrix. Digital transformation and strategic-cultural context did not show significant reported correlations with the innovation dimensions in the archived output.

D. Correlation Analysis

The correlational evidence indicates that overall sensible risk-taking is positively associated with overall innovative performance ($r = 0.195$, $p = 0.002$). This result is consistent with the general expectation that better-structured risk-taking tends to coexist with stronger perceived innovation conditions, although the effect size is modest and should not be interpreted causally.

The strongest positive associations appear in psychological traits and financial literacy. This dimension is positively associated with dynamic capabilities and organizational learning ($r = 0.327$, $p < 0.001$), environmental and organizational culture ($r = 0.460$, $p < 0.001$), and overall innovative performance ($r = 0.490$, $p < 0.001$). These coefficients suggest that respondents who perceive stronger financial confidence and psychological readiness also tend to perceive stronger learning-oriented and innovation-supportive conditions in their firms.

Executive behavior and corporate governance also show consistent positive associations with social capital and knowledge sharing ($r = 0.165$, $p = 0.009$), dynamic capabilities and organizational learning ($r = 0.162$, $p = 0.011$), human resources and intellectual capital ($r = 0.136$, $p = 0.032$), and overall innovative performance ($r = 0.178$, $p = 0.005$). One negative association is also reported for access to strategic and financial resources ($r = -0.127$, $p = 0.045$), which suggests that the governance dimension is not uniformly positive across all innovation-related subdomains.

Foundational risk models and decision frameworks show a narrower pattern, with a significant association only with social capital and knowledge sharing ($r = 0.136$, $p = 0.031$). This limited result is consistent with the possibility that formal decision routines may help coordination, but do not by themselves map strongly onto broader innovation conditions in these firms.

A particularly noteworthy result concerns entrepreneurial orientation and competency. Contrary to a simple “more entrepreneurship equals more innovation” narrative, this dimension is negatively associated with dynamic capabilities and organizational learning ($r = -0.160$, $p = 0.011$), environmental and organizational culture ($r = -0.178$, $p = 0.005$), access to strategic and financial resources ($r = -0.159$, $p = 0.012$), and overall innovative performance ($r = -0.218$, $p = 0.001$). This pattern is consistent with a mismatch interpretation: initiative may be present, but the organizational conditions needed to absorb and implement it may be weaker.

Digital transformation and technological adaptation, as well as strategic and cultural context, do not show significant reported correlations with the innovation dimensions in the archived results. These null findings should be interpreted cautiously. They may reflect incomplete embeddedness, conceptual breadth in measurement, or both.

V. DISCUSSION

The present study does not demonstrate that risk-taking causes innovation. Rather, it shows that some employee-perceived forms of sensible risk-taking co-occur with stronger employee-perceived innovation conditions than others. This is an important distinction because the manuscript deals with broad multidimensional constructs measured through the same survey at one point in time.

The first contribution of the study is definitional. By positioning sensible risk-taking as an umbrella term rather than as a synonym for generic boldness, the article clarifies that the practically relevant issue in small firms is not risk appetite alone. What appears more consequential is whether risk-taking is bounded by judgment, governance, financial competence, and routines that make action intelligible and manageable. This broader framing fits the small-business context, but it also means the construct should be treated as exploratory and perception-based.

The strong positive pattern for psychological traits and financial literacy is especially noteworthy. One interpretation is that respondents who feel financially knowledgeable and psychologically prepared under uncertainty also perceive their organizations as more adaptive and innovation-supportive. In small firms, where formal innovation systems may be thin, this type of readiness may serve as a practical substitute for more elaborate infrastructures. The result is consistent with prior work linking financial understanding, self-confidence, and action under uncertainty [5], [6], [18].

The governance pattern is also meaningful. Executive behavior and corporate governance are associated with several innovation dimensions, which suggests that visible leadership discipline and perceived oversight may help create legitimacy for innovation-related action. In smaller firms, where procedures may remain informal, governance may work less as a fully codified architecture and more as a signaling mechanism that tells employees which forms of experimentation are acceptable [4], [22].

The negative entrepreneurial-orientation pattern is the most revealing result in the article. Rather than implying that entrepreneurship is harmful, the result is more plausibly read as evidence of organizational mismatch. Employees may perceive proactivity and initiative, yet at the same time perceive weak knowledge-sharing routines, limited resource support, or insufficient implementation channels. Under those conditions, entrepreneurial orientation may be experienced as pressure or unrealized aspiration rather than as effective innovation. This interpretation aligns with the study's mismatch expectation and with the broader idea that initiative must be matched by absorptive and implementation capacity if it is to translate into innovation-related outcomes [13], [14], [23], [24].

The null findings for digital transformation and strategic-cultural context should be framed carefully. A plausible interpretation is that technology or context may be present at the level of infrastructure or rhetoric without being deeply embedded in daily routines. At the same time, measurement issues are also possible. Both domains are broad and were measured perceptually, so the absence of significant associations in the archived results should not be treated as proof of irrelevance. Instead, these nulls are better viewed as signals for future research to use narrower measures and richer designs.

The group-difference findings further suggest that the constructs are experienced more as shared organizational conditions than as sharply segmented demographic experiences. Age, education, and position do not differentiate the reported results, and years in service shows only small effects on selected risk-related dimensions. This pattern is consistent with the idea that employees learn about risk structures through organizational exposure, while innovation-related conditions are perceived more broadly across the firm.

VI. IMPLICATIONS FOR SMALL-BUSINESS MANAGEMENT

The managerial implications of the study should be read as tentative because the design is cross-sectional and perceptual. Even so, the results suggest several priorities for practice.

First, small firms may benefit from strengthening financial literacy and decision confidence. If the most robust positive associations cluster around psychological readiness and financial understanding, then training in basic financial interpretation, consequence mapping, and decision discipline may support better innovation-related judgment.

Second, firms may benefit from converting visible leadership responsibility into more explicit governance routines. Rather than relying only on informal signals, managers could clarify acceptable innovation boundaries, review practices for experimentation, and the criteria used to evaluate risk-taking. Such routines may help translate perceived leadership legitimacy into more stable organizational practice.

Third, the negative entrepreneurial-orientation pattern suggests that exhorting employees to be proactive is not enough. Firms may need stronger bridges between initiative and implementation, including clearer knowledge-sharing channels, mechanisms for idea refinement, recognition practices, and realistic resource support.

Fourth, digitalization should be treated not only as a technology purchase but also as an adaptation and learning challenge. The absence of significant reported digital correlations is compatible with the idea that tools alone are insufficient unless employees actually integrate them into ongoing work routines.

Finally, the results point toward an incremental rather than heroic view of innovation in small firms. Innovation may be more closely associated with learning, review, confidence, and bounded experimentation than with abstract celebrations of boldness.

VII. LIMITATIONS AND CONCLUSION

This study has several limitations. First, the data are cross-sectional and correlational, so causal claims are not warranted. Second, the study relies on self-reported perceptions from the same respondents at the same time, which means common method bias remains a plausible validity threat. Third, firm-level constructs such as governance, culture, and innovative performance are measured through employee perceptions rather than through objective organizational indicators. Fourth, the sample is a non-probability respondent pool with an unusually highly educated profile, which limits representativeness. Fifth, the archived material used to prepare this version does not preserve the full psychometric record, full correlation matrix, or complete assumption diagnostics; the findings should therefore be interpreted as transparent but still partial evidence.

Within those limits, the study offers a clearer and more defensible interpretation of the empirical pattern. Overall sensible risk-taking is positively associated with overall innovative performance, but the relationship is uneven across dimensions. Psychological traits and financial literacy show the strongest positive associations, and executive behavior and corporate governance provide a second, smaller but consistent positive pattern. Entrepreneurial orientation and competency, by contrast, display negative associations with several innovation dimensions, which is more consistent with organizational mismatch than with a simple entrepreneurship benefit story.

The broader conclusion is that, in the participating Hunan small businesses, innovation appears to be more closely linked to disciplined confidence, governance cues, and learning-compatible conditions than to undifferentiated boldness. Future research would benefit from multi-informant data, objective innovation indicators, full measurement validation, and longitudinal designs capable of testing how risk-taking and innovation influence one another over time.

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