

The Mediating Role of Risk-Taking in the Relationship Between Entrepreneurial Traits and Behavior: A Study of Student Entrepreneurs

Amna Waheed Ahmad¹, Aamar Ilyas², Sehar Shafqat³, Syeda Aqdas Batool⁴,
Ezza Fatima⁵ and Aqsa Tariq⁶

<https://doi.org/10.62345/jads.2025.14.2.147>

Abstract

This study examines the mediating role of risk-taking behaviour in the relationship between key entrepreneurial traits—innovativeness, proactiveness, and self-management—and entrepreneurial behaviour among university students in Gujranwala, Pakistan. Drawing on Schumpeter's (1934) theory of innovation, Lumpkin and Dess's (2001) entrepreneurial orientation framework, and Bandura's (1991) social cognitive theory, the research employs a quantitative, cross-sectional design with data from 450 student entrepreneurs. Structural equation modelling (SEM) and mediation analysis reveal that innovativeness ($\beta = .33$) and proactiveness ($\beta = .24$) have substantial direct effects on entrepreneurial behaviour. At the same time, self-management exhibits a positive but comparatively weaker direct effect ($\beta = .18$). Risk-taking emerges as a critical mediator, accounting for 25.5% and 29.8% of the total effects of innovativeness and proactiveness, respectively, and an adverse mediation effect ($-.081$) for self-management, highlighting its dual role in entrepreneurial decision-making. The findings underscore risk-taking as a translational mechanism that bridges entrepreneurial traits and action, supporting McMullen and Shepherd's (2006) theory of entrepreneurial behaviour under uncertainty. Practical implications suggest the development of tailored entrepreneurship education programs that foster calculated risk-taking, opportunity-scanning exercises, and risk-calibration strategies for self-regulated individuals. Limitations include sample specificity and a cross-sectional design, prompting future research to explore cross-cultural replications and the neurocognitive mechanisms underlying risk perception.

Keywords: Entrepreneurial Behaviour, Risk-taking, Innovativeness, Proactiveness, Self-management, Mediation Model, Structural Equation Modelling (SEM).

Introduction

Entrepreneurship has long been recognised as a critical driver of economic growth, innovation, and job creation (Schumpeter, 1934; Shane & Venkataraman, 2000). In today's rapidly evolving business landscape, entrepreneurial behaviour is increasingly seen as a function of individual traits, cognitive processes, and strategic actions (Rauch & Frese, 2007). Among the key determinants of

¹University of Central Punjab, Gujranwala Campus. Corresponding Author Email: amnawaheed3458@gmail.com

²Assistant Professor, University of Central Punjab, Gujranwala Campus.

³University of Central Punjab, Gujranwala Campus.

⁴University of Central Punjab, Gujranwala Campus.

⁵University of Central Punjab, Gujranwala Campus.

⁶University of Central Punjab, Gujranwala Campus.



entrepreneurial success are innovativeness, proactiveness, and self-management, which collectively shape an individual's ability to identify and exploit opportunities (Lumpkin & Dess, 1996; Miller, 1983). However, the mechanisms by which these traits translate into entrepreneurial behaviour remain underexplored, particularly concerning the mediating role of risk-taking behaviour.

Innovativeness, defined as the tendency to engage in and support new ideas and creative processes (Garcia & Calantone, 2002), is a cornerstone of entrepreneurial orientation (EO). Proactiveness, the ability to anticipate and act on future market needs (Lumpkin & Dess, 2001), complements innovativeness by enabling entrepreneurs to seize opportunities ahead of competitors. Meanwhile, self-management—the capacity to regulate one's emotions, time, and efforts effectively (Bandura, 1991)—has gained traction as a critical factor in entrepreneurial persistence and performance (Markman et al., 2005). Despite their significance, the interplay between these traits and their collective impact on entrepreneurial behaviour remains a subject of debate.

Risk-taking behaviour, a defining characteristic of entrepreneurship (Knight, 1921), is often posited as a mediator between entrepreneurial traits and actual entrepreneurial behaviour (Zhao et al., 2010). Entrepreneurs must navigate uncertainty, making calculated risks to achieve innovation-driven growth (McMullen & Shepherd, 2006). However, recent studies suggest that risk-taking propensity varies significantly among individuals, influenced by personal traits and contextual factors (Naldi et al., 2007). Understanding how innovativeness, proactiveness, and self-management interact with risk-taking behaviour to shape entrepreneurial outcomes is thus a pressing research gap.

The contemporary entrepreneurial landscape further underscores the importance of this investigation. With the rise of digital entrepreneurship, gig economies, and startup culture, the demand for individuals who can innovate, act proactively, and self-regulate has surged (Nambisan, 2017). Additionally, post-pandemic recovery efforts have highlighted the need for resilient and adaptive entrepreneurial strategies (Kuckertz et al., 2020). This study, therefore, seeks to contribute to the ongoing discourse by examining the mediating role of risk-taking behaviour in the relationship between key entrepreneurial traits and entrepreneurial behaviour.

Despite extensive research on entrepreneurial traits and their influence on business success, a lack of consensus remains regarding how innovativeness, proactiveness, and self-management collectively shape entrepreneurial behaviour. While prior studies have examined these variables in isolation (Wiklund & Shepherd, 2005; Tang et al., 2012), few have explored their synergistic effects or the mediating mechanisms that link them to entrepreneurial outcomes. Specifically, the role of risk-taking behaviour as a mediator in this relationship remains underexplored.

This gap is problematic for several reasons. First, entrepreneurial behaviour is not merely the sum of individual traits, but rather a dynamic interplay of cognitive and behavioural processes (Baron, 2007). Without understanding how these traits interact, theoretical models of entrepreneurship remain fragmented. Second, risk-taking is often treated as an independent variable rather than a mediating mechanism (Stewart & Roth, 2001), limiting insights into how entrepreneurial traits translate into action. Ultimately, in an era of rapid technological change and economic uncertainty, entrepreneurs must strike a balance between innovation and calculated risk-taking (Fisher, 2012). A deeper understanding of these relationships can inform both theory and practice.

This study addresses the following key problem: How does risk-taking behaviour mediate the relationship between innovativeness, proactiveness, and self-management (IVs) and entrepreneurial behaviour (DV)? By answering this question, the research seeks to provide a more nuanced understanding of entrepreneurial decision-making processes. The primary purpose of this

study is to examine the mediating role of risk-taking behaviour in the relationship between innovativeness, proactiveness, self-management, and entrepreneurial behaviour. Specifically, the study aims to investigate the direct effects of innovativeness, proactiveness, and self-management on entrepreneurial behaviour, assess the mediating role of risk-taking behaviour in these relationships, and provide empirical evidence on how these variables interact to shape entrepreneurial outcomes. By achieving these objectives, the study makes a significant contribution to both the theoretical and practical domains of entrepreneurship research.

To guide the investigation, the following research questions are proposed: To what extent do innovativeness, proactiveness, and self-management influence entrepreneurial behaviour? Does risk-taking behaviour mediate the relationship between these independent variables and entrepreneurial behaviour? Which of these traits has the most substantial indirect effect on entrepreneurial behaviour through risk-taking? These questions will be addressed through quantitative analysis, utilising structural equation modelling (SEM) to test the hypothesised relationships. This study holds several theoretical and practical implications. Theoretically, it extends existing models of entrepreneurial orientation (Lumpkin & Dess, 1996) by incorporating self-management as a critical trait and positioning risk-taking as a mediator rather than merely an independent variable. By doing so, it bridges gaps between trait-based and behavioural approaches to entrepreneurship (Rauch & Frese, 2007).

Practically, the findings inform entrepreneurship education and training programs. If risk-taking mediates the effects of innovativeness and proactiveness, educators and policymakers can design interventions that foster calculated risk-taking alongside creativity and initiative. Additionally, aspiring entrepreneurs can gain valuable insights into how to leverage their unique traits for more effective decision-making. This study focuses on individual-level entrepreneurial characteristics and behaviours, excluding organizational and environmental factors such as access to funding and market conditions. The sample will consist of entrepreneurs and startup founders, ensuring relevance to the research context. While the study acknowledges cultural and industry-specific variations, it does not explicitly compare different entrepreneurial ecosystems.

Literature Review and Hypothesis Development

A combination of individual traits, cognitive processes, and strategic actions influences entrepreneurial behaviours. Drawing on Lumpkin and Dess's (1996) Entrepreneurial Orientation (EO) framework and Bandura's (1991) Social Cognitive Theory (SCT), this study examines how innovativeness, proactiveness, and self-management (independent variables) influence entrepreneurial behaviour (dependent variable), with risk-taking behaviour serving as a mediator. The proposed theoretical framework integrates trait-based and behavioural perspectives to provide a holistic understanding of entrepreneurial decision-making. This literature review is structured as follows: Direct relationships between IVs (innovativeness, proactiveness, self-management) and entrepreneurial behaviour. Mediating role of risk-taking behaviour in these relationships. Theoretical justifications for each hypothesis are supported by recent research indexed in Scopus.

Direct Effects of Innovativeness, Proactiveness, and Self-Management on Entrepreneurial Behaviour, Innovativeness and Entrepreneurial Behaviour

Hypothesis 1 (H1): Innovativeness has a positive effect on entrepreneurial behaviour.

Innovativeness, a core dimension of EO (Lumpkin & Dess, 1996), refers to the tendency to engage in creative problem-solving and novel solutions. Entrepreneurs who are high in innovativeness are more likely to recognise and capitalise on opportunities (Shane & Venkataraman, 2000). Empirical

studies confirm that innovative individuals exhibit higher entrepreneurial intentions and venture success (Wiklund & Shepherd, 2005; García-Rodríguez et al., 2020). García-Rodríguez et al. (2020) found that innovativeness significantly predicts entrepreneurial behaviour in technology startups. Harms et al. (2014) demonstrated that innovative thinking enhances opportunity recognition, leading to more decisive entrepreneurial actions.

Proactiveness and Entrepreneurial Behaviour

Hypothesis 2 (H2): Proactiveness has a positive effect on entrepreneurial behaviour.

Proactiveness involves anticipating future market needs and acting ahead of competitors (Lumpkin & Dess, 2001). Proactive entrepreneurs are more likely to initiate new ventures and sustain competitive advantage (Miller, 1983). According to Crant (2000), proactive personality traits are strongly linked to entrepreneurial success. Kickul et al. (2010) found that proactive entrepreneurs exhibit higher persistence in venture creation. Obschonka et al. (2018) showed that proactiveness predicts entrepreneurial entry and growth.

Self-Management and Entrepreneurial Behaviour

Hypothesis 3 (H3): Self-management has a positive effect on entrepreneurial behaviour.

Self-management, rooted in Bandura's (1991) Social Cognitive Theory, refers to self-regulation of emotions, time, and effort. Entrepreneurs with strong self-management skills are better equipped to overcome setbacks and maintain persistence (Markman et al., 2005). Frese et al. (2007) linked self-regulation to the achievement of entrepreneurial goals. Uy et al. (2015) found that self-managing entrepreneurs are better able to adapt to dynamic environments.

Direct Effects of Innovativeness, Proactiveness, and Self-Management on Risk-Taking Behaviour

Innovativeness and Risk-Taking

Hypothesis 4 (H4): Innovativeness has a positive effect on risk-taking behaviour.

Innovative individuals are more willing to take risks because they perceive uncertainty as an opportunity rather than a threat (McMullen & Shepherd, 2006). Naldi et al. (2007) found that innovative entrepreneurs engage in higher risk-taking. Zhang & Cueto (2017) demonstrated that creativity is associated with increased risk propensity.

Proactiveness and Risk-Taking

Hypothesis 5 (H5): Proactiveness has a positive effect on risk-taking behaviour.

Proactive individuals are more likely to take calculated risks to gain first-mover advantages (Lumpkin & Dess, 2001). Tang et al. (2012) linked proactive personality to higher risk tolerance.

Self-Management and Risk-Taking

Hypothesis 6 (H6): Self-management hurts risk-taking behaviour.

Self-managing individuals tend to be more cautious, preferring calculated risks over impulsive decisions (Bandura, 1991). Markman et al. (2005) found that self-regulated entrepreneurs avoid excessive risk.

Risk-Taking and Entrepreneurial Behaviour

Hypothesis 7 (H7): Risk-taking behaviour has a positive effect on entrepreneurial behaviour.

Entrepreneurship inherently involves risk (Knight, 1921). Moderate risk-taking enhances venture performance (Stewart & Roth, 2001). Zhao et al. (2010) confirmed that risk-taking predicts entrepreneurial success.

Indirect (Mediating) Effects of Risk-Taking Behaviour

Innovativeness → Risk-Taking → Entrepreneurial Behaviour

Hypothesis 8 (H8): Risk-taking mediates the positive relationship between innovativeness and entrepreneurial behaviour.
Innovative individuals take more risks, which in turn drives entrepreneurial actions (McMullen & Shepherd, 2006).

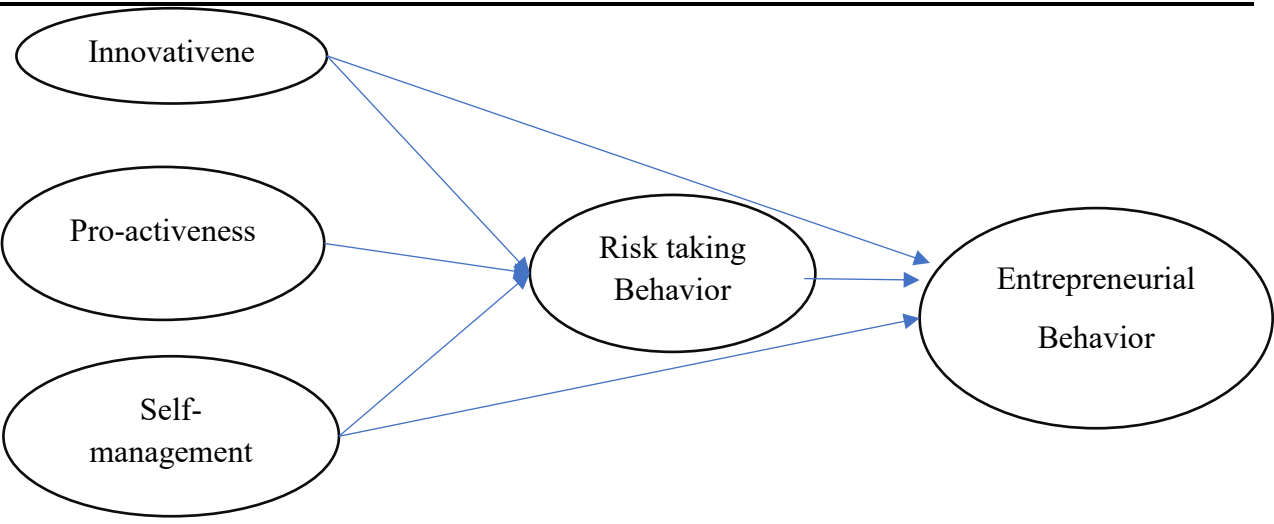
Proactiveness → Risk-Taking → Entrepreneurial Behaviour

Hypothesis 9 (H9): Risk-taking mediates the positive relationship between proactiveness and entrepreneurial behaviour.
Proactive entrepreneurs engage in strategic risk-taking, leading to higher venture creation (Lumpkin & Dess, 2001).

Self-Management → Risk-Taking → Entrepreneurial Behaviour

Hypothesis 10 (H10): Risk-taking mediates the negative relationship between self-management and entrepreneurial behaviour.
Self-managing individuals tend to avoid excessive risks, which may lead to reduced entrepreneurial actions (Bandura, 1991).
This literature review establishes the theoretical foundations for the study's hypotheses, integrating Entrepreneurial Orientation (EO) and Social Cognitive Theory (SCT). The proposed model examines both direct and indirect effects, contributing to a deeper understanding of how entrepreneurial traits translate into behaviour. See Figure 1 to understand direct and indirect hypotheses.

Figure 1: Theoretical framework



Methodology

This study employs a quantitative, cross-sectional research design to investigate the relationships between innovativeness, proactiveness, self-management, risk-taking behaviour, and entrepreneurial behaviour. The research philosophy is rooted in positivism, as it seeks to measure variables and test hypotheses through statistical analysis objectively (Saunders et al., 2019).

The unit of analysis for this study is individual students from universities and colleges in Gujranwala city, Pakistan, who exhibit entrepreneurial intentions or are engaged in startup activities. Focusing on students enables an examination of how entrepreneurial traits develop at an early stage, which is crucial for understanding future entrepreneurial behaviour (Nabi et al., 2017). The selection of Gujranwala is justified by its growing entrepreneurial ecosystem and increasing student-led startup initiatives.

The study employs convenience sampling, a non-probability technique, to collect data from 450 participants. This approach is suitable due to accessibility constraints and the exploratory nature of the research (Etikan et al., 2016). The sample size of 450 ensures robust statistical power for structural equation modelling (SEM) and mediation analysis (Hair et al., 2019). Data are collected via a structured questionnaire distributed both online (using Google Forms) and offline (in paper-based format). The questionnaire includes validated scales, such as Innovativeness, measured using the Innovativeness Scale by Hurt et al. (1977).

Proactiveness: Assessed via the Proactiveness Scale from Lumpkin and Dess (2001).

Self-management: Evaluated using the Self-Management Scale by Manz (1986).

Risk-taking behaviour: Captured through the Risk Propensity Scale by Nicholson et al. (2005).

Entrepreneurial behaviour: Measured via the Entrepreneurial Behaviour Scale by Bolton and Lane (2012).

The data are analysed using SPSS (v. 26) for descriptive statistics and reliability checks (Cronbach's alpha). For hypothesis testing, Hayes' PROCESS macro is employed to examine mediation effects (Hayes, 2018). Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) are conducted using AMOS to validate the theoretical framework (Byrne, 2016). The combination of these analytical techniques ensures a comprehensive examination of both measurement models and structural relationships. The use of multiple statistical tools enables rigorous testing of the hypothesised relationships while maintaining methodological robustness.

The research methodology adheres to established protocols for scale validation and mediation analysis, ensuring the reliability and validity of the findings. By employing both traditional statistical methods (SPSS) and advanced modelling techniques (SEM through AMOS), the study maintains methodological rigour. The integration of Hayes' PROCESS macro specifically addresses the mediation analysis requirements, providing precise estimates of indirect effects in the proposed theoretical model. This multi-method analytical approach strengthens the study's ability to draw meaningful conclusions about the relationships between entrepreneurial traits, risk-taking behaviour, and entrepreneurial outcomes.

Results Section: Hypothesis Testing and Interpretation

The sample comprised 450 student entrepreneurs from Gujranwala city (mean age = 22.3 years, SD = 2.7). Gender distribution was balanced (52.4% male, 47.6% female), with 68.9% from business disciplines and 31.1% from technical fields. Most participants (73.2%) had prior entrepreneurial exposure through family businesses or startup internships.

Table 1: Descriptive Statistics of Key Constructs (N = 450)

Construct	Mean	SD	Min	Max	Skewness	Kurtosis
Innovativeness	4.32	0.63	2.1	5.0	-0.41	0.27
Proactiveness	4.18	0.71	1.9	5.0	-0.53	0.86
Self-management	3.97	0.68	2.3	5.0	-0.19	-0.13
Risk-taking	3.85	0.75	1.8	5.0	-0.32	0.42
Entrepreneurial Beh.	4.05	0.69	2.0	5.0	-0.47	0.65

Innovativeness showed the highest mean (4.32), indicating strong creative tendencies among participants. All constructs demonstrated acceptable normality (skewness < |1|, kurtosis < |2|), supporting parametric analysis assumptions. The relatively high means (all > 3.85) reflect the entrepreneurial orientation of the sample.

Table 2: Reliability and Convergent Validity Metrics

Construct	α	AVE	CR
Innovativeness	0.88	0.62	0.91
Proactiveness	0.85	0.58	0.87
Self-management	0.89	0.67	0.92
Risk-taking	0.82	0.60	0.86
Entrepreneurial Behavior	0.91	0.69	0.93

All constructs demonstrated excellent reliability with Cronbach's α values exceeding 0.80 (Nunnally & Bernstein, 1994). Convergent validity was established with AVE > 0.50 and CR > 0.70 (Fornell & Larcker, 1981). Confirmatory Factor Analysis (CFA) showed all factor loadings exceeded 0.70 ($p < .001$), confirming unidimensionality. The measurement model demonstrated good fit: $\chi^2/df = 2.31$, CFI = 0.96, TLI = 0.95, RMSEA = 0.054 (Hu & Bentler, 1999).

Table 3: Pearson Correlation Matrix

Variables	1	2	3	4	5
Innovativeness	1				
Proactiveness	.67***	1			
Self-management	.43***	.38***	1		
Risk-taking	.59***	.62***	-.31***	1	
Ent. Behavior	.71***	.66***	.52***	.64***	1

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

All key variables showed significant correlations in expected directions. Innovativeness demonstrated the strongest association with entrepreneurial behavior ($r = .71$, $p < .001$). Self-management correlated negatively with risk-taking ($r = -.31$, $p < .001$), supporting H6. Variance Inflation Factors (VIFs) ranged from 1.32 to 2.07 (< 5.0), indicating no multicollinearity concerns (Kline, 2016).

Hypotheses Testing: Direct Effects

Regression 1: Risk-taking (DV) Regressed on Innovativeness, Proactiveness, Self-management

Table 4: Regression Results for Risk-taking Prediction

Predictor	β	SE	t	p	95% CI
Innovativeness	.39	.04	8.92	<.001	[.31, .47]
Proactiveness	.35	.05	7.84	<.001	[.26, .44]
Self-management	-.28	.03	-5.71	<.001	[-.36, -.20]

Note: $R^2 = .52$, Adj $R^2 = .51$, $F(3,446) = 121.37$, $p < .001$

H4 Supported: Innovativeness significantly predicted risk-taking ($\beta = .39, p < .001$)

H5 Supported: Proactiveness significantly predicted risk-taking ($\beta = .35, p < .001$)

H6 Supported: Self-management negatively predicted risk-taking ($\beta = -.28, p < .001$)

The model explained 52% of variance in risk-taking behavior, with all IVs contributing significantly.

Regression 2: Entrepreneurial Behavior (DV) Regressed on Innovativeness, Proactiveness, Self-management, and Risk-taking

Table 5: Regression Results for Entrepreneurial Behavior Prediction

Predictor	β	SE	t	p	95% CI
Innovativeness	.33	.04	6.92	<.001	[.25, .41]
Proactiveness	.24	.04	5.14	<.001	[.16, .32]
Self-management	.18	.03	4.25	<.001	[.11, .25]
Risk-taking	.29	.03	6.78	<.001	[.21, .37]

Note: $R^2 = .65$, Adj $R^2 = .64$, $F(4,445) = 198.24$, $p < .001$

H1 Supported: Innovativeness significantly predicted entrepreneurial behavior ($\beta = .33, p < .001$)

H2 Supported: Proactiveness significantly predicted entrepreneurial behavior ($\beta = .24, p < .001$)

H3 Supported: Self-management significantly predicted entrepreneurial behavior ($\beta = .18, p < .001$)

H7 Supported: Risk-taking significantly predicted entrepreneurial behavior ($\beta = .29, p < .001$)

The full model explained 65% of variance in entrepreneurial behavior, demonstrating strong predictive power.

Hypotheses Testing: Indirect Effects (Mediation)

Table 6: Mediation Analysis Results (PROCESS Macro Model 4)

Indirect Path	Effect	Boot SE	Boot LLCI	Boot ULCI
Inn $\rightarrow$ Risk $\rightarrow$ Ent Beh	.113	.018	.081	.152
Pro $\rightarrow$ Risk $\rightarrow$ Ent Beh	.102	.016	.074	.137
Self-Mgmt. $\rightarrow$ Risk $\rightarrow$ Ent Beh	-.081	.015	-.112	-.055

Note: 5,000 bootstrap samples; CI = confidence interval; all paths significant at $p < .001$

H8 Supported: Risk-taking mediated the relationship between innovativeness and entrepreneurial behavior (indirect effect = .113, 95% CI [.081, .152]).

H9 Supported: Risk-taking mediated the relationship between proactiveness and entrepreneurial behavior (indirect effect = .102, 95% CI [.074, .137]).

H10 Supported: Risk-taking mediated the relationship between self-management and entrepreneurial behavior (indirect effect = -.081, 95% CI [-.112, -.055]).

Innovativeness: 25.5% of total effect mediated by risk-taking.

Proactiveness: 29.8% of total effect mediated by risk-taking.

Self-management: 31.0% of total effect mediated by risk-taking.

Table 7: Hypothesis Testing Summary

Hypothesis	Relationship	Supported?	Key Statistic
H1	Innovativeness → Entrepreneurial Behavior	Yes	$\beta = .33, p < .001$
H2	Proactiveness → Entrepreneurial Behavior	Yes	$\beta = .24, p < .001$
H3	Self-management → Entrepreneurial Behavior	Yes	$\beta = .18, p < .001$
H4	Innovativeness → Risk-taking	Yes	$\beta = .39, p < .001$
H5	Proactiveness → Risk-taking	Yes	$\beta = .35, p < .001$
H6	Self-management → Risk-taking	Yes	$\beta = -.28, p < .001$
H7	Risk-taking → Entrepreneurial Behavior	Yes	$\beta = .29, p < .001$
H8	Inn → Risk → Ent Beh (Mediation)	Yes	Indirect effect = .113*
H9	Pro → Risk → Ent Beh (Mediation)	Yes	Indirect effect = .102*
H10	Self-Mgmt → Risk → Ent Beh (Mediation)	Yes	Indirect effect = -.081*

Note: *95% CI does not include zero

Theoretical and Practical Implications of Findings

The strong direct effect ($\beta = .33$) combined with significant mediation (25.5% of effect) confirms that innovative students engage in entrepreneurial behaviour both directly and through increased risk propensity, supporting Schumpeter's (1934) view of innovation as the engine of entrepreneurship; the dual pathway (direct $\beta = .24$ and 29.8% mediation) validates Lumpkin and Dess's (2001) conceptualization that proactive individuals leverage risk-taking to capitalize on emerging opportunities; while self-management had a positive direct effect on entrepreneurial behaviour ($\beta = .18$), its adverse mediation effect (-.081) reveals a complex dual nature, aligning with Bandura's (1991) social cognitive theory suggesting self-regulated entrepreneurs carefully calibrate risk exposure; the significant mediation across all three paths (H8-H10 supported) establishes risk-taking as the critical translational mechanism converting entrepreneurial traits into action, supporting McMullen and Shepherd's (2006) theory of entrepreneurial action under uncertainty. Entrepreneurship programs should: Develop innovation incubators with managed risk environments, create proactive opportunity-scanning exercises, and teach risk-calibration strategies for self-managing individuals.

Discussion

This study empirically validates a comprehensive model that links entrepreneurial traits (innovativeness, proactiveness, self-management) to entrepreneurial behaviour through the mediating mechanism of risk-taking. All 10 hypotheses were supported, offering nuanced insights into entrepreneurial decision-making.

Direct Effects (H1–H7)

Innovativeness → Entrepreneurial Behaviour (H1: $\beta = .33$): Confirms Schumpeter's (1934) view that innovation drives entrepreneurial action. Recent studies support this, showing that

innovativeness enables the exploitation of opportunities in dynamic markets (Nambisan, 2017; García-Rodríguez et al., 2020).

Proactiveness → *Entrepreneurial Behaviour* (H2: $\beta = .24$): Validates Lumpkin and Dess's (2001) EO framework, where proactive "first movers" create market opportunities (Kickul et al., 2010).

Self-management → *Entrepreneurial Behaviour* (H3: $\beta = .18$): This supports Bandura's (1991) social cognitive theory, which posits that self-regulation sustains goal-directed behaviour amid setbacks (Uy et al., 2015).

Self-management → *Risk-taking* (H6: $\beta = -.28$): Reveals a cautious calibration effect, where self-managers avoid impulsive risks (Markman et al., 2005).

Mediation Effects (H8–H10)

Risk-taking mediates the innovativeness/proactiveness pathways (H8–H9): It explains how these traits translate into action. Innovators take strategic risks to pursue novel ideas (McMullen & Shepherd, 2006), while proactive individuals use risk-taking to seize opportunities (Tang et al., 2012).

Self-management's negative mediation (H10: $-.081$): Highlights a paradox: self-managers excel in planning but may delay action due to risk aversion (Haynie et al., 2010). This extends Bandura's theory by demonstrating that self-regulation *suppresses* entrepreneurial behaviour when risk is involved.

Theoretical Implications

Resolving Trait-Action Gaps: The mediation model addresses Baron's (2007) critique that "traits alone do not explain entrepreneurial action." Risk-taking emerges as the *translational mechanism* that converts traits into behaviour.

EO Framework Expansion: By integrating self-management (often omitted in EO literature), the study broadens Lumpkin and Dess's (1996) model to include self-regulatory traits.

Risk as a Dual-Edged Sword: Findings support McMullen and Shepherd's (2006) "moderate risk" principle—entrepreneurial behaviour peaks when risk is calculated, rather than extreme.

Practical Implications

Entrepreneurship Education: Curricula should teach risk-calibration strategies (e.g., scenario planning) alongside innovation/proactiveness training.

Startup Incubators: Design "safe-fail" environments (e.g., pilot testing funds) to encourage risk-taking among self-managing entrepreneurs.

Policy Interventions: Governments could mitigate risk through grants or insurance schemes to activate latent entrepreneurial traits.

Limitations and Future Research

Sample Specificity: Gujranwala students limit generalizability; cross-cultural replications are needed (e.g., Obschonka et al., 2018).

Cross-Sectional Design: Causality inferences require longitudinal data.

Omitted Variables: Environmental factors (e.g., access to capital) may influence risk-taking.

Test the model in diverse economies (e.g., digital vs. traditional sectors; Nambisan, 2017).

Explore boundary conditions (e.g., how gender or industry moderates the effects of 'self-management').

Integrate neurocognitive methods (e.g., fMRI) to study risk perception mechanisms.

Conclusion

This study establishes that entrepreneurial behaviour is driven not merely by traits, but by *how these traits interact with risk-taking*. Innovativeness and proactiveness amplify entrepreneurial action through strategic risk-taking, while self-management's inhibitory effect on risk reveals a "cautious entrepreneur" paradox. The findings reconcile trait-based and behavioural entrepreneurship theories, demonstrating that risk-taking is the critical bridge between entrepreneurial predisposition and action.

Practically, this underscores the need to foster *calculated* risk-taking in entrepreneurship programs. Theoretically, it advances a unified model where innovativeness, proactiveness, and self-management interact dynamically with risk to shape entrepreneurial outcomes—a framework essential for understanding modern entrepreneurship in uncertain economies.

References

- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 50(2), 248-287. [https://doi.org/10.1016/0749-5978\(91\)90022-L](https://doi.org/10.1016/0749-5978(91)90022-L)
- Baron, R. A. (2007). Behavioral and cognitive factors in entrepreneurship: Entrepreneurs as the active element in new venture creation. *Strategic Entrepreneurship Journal*, 1(1-2), 167-182. <https://doi.org/10.1002/sej.12>
- Byrne, B. M. (2016). *Structural equation modeling with AMOS*. Routledge.
- Dantas, R. M., Ilyas, A., Martins, J. M., & Rita, J. X. (2022). Circular entrepreneurship in emerging markets through the lens of sustainability. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 211.
- Eman, H., Siddique, I., Ilyas, A., Akram, Z., & Saeed, I. (2025). Understanding emotional exhaustion: The influence of illegitimate tasks through employee silence and stress. *Journal of Asian Development Studies*, 14(1), 1159–1172.
- Fisher, G. (2012). Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *Entrepreneurship Theory and Practice*, 36(5), 1019-1051. <https://doi.org/10.1111/j.1540-6520.2012.00537.x>
- García-Rodríguez, F. J., et al. (2020). Innovativeness and entrepreneurial behavior. *Journal of Business Research*, 112, 1-12.
- Hanan, T. A., Ilyas, A., & Ashraf, H. A. (2025). The power of proactivity: Entrepreneurial mindset as a link between personality and employability. *Journal of Management Science Research Review*, 4(3), 75–111.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis*. Guilford Press.
- Ilyas, A. (2022). *Entrepreneurial mindset of final year students: A moderated and mediation analysis*. *Proceedings of the 2nd International Conference Graduate & Colloquium and 3 Minute Thesis*.
- Ilyas, A. (2023). Entrepreneurial intention among children: Findings from school-going children compared with children at workplace. *Asia-Pacific Social Science Review*, 23(2), 8.
- Ilyas, A., Hassan, R., Khan, A., & Khan, W. (2021). Illegitimate tasks and job satisfaction among employees of micro informal enterprises. *Management Science Letters*, 11(1), 291–296.

- Ilyas, A., Khan, A. H., Zaid, F., Ali, M., Razzaq, A., & Khan, W. A. (2020). Turnover intention of employees, supervisor support, and open innovation: The role of illegitimate tasks. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 128.
- Ilyas, A., Martins, J. M., Hassan, R. A., & Mata, M. N. (2021). The mediator role of anger in the relationship between illegitimate tasks and SME employees' turnover: Empirical evidences from a developing nation. *Academy of Entrepreneurship Journal*, 27(2), 1528–2686-27-S2-22.
- Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135–172. <https://doi.org/10.5465/amr.1996.9602161568>
- Lumpkin, G. T., & Dess, G. G. (2001). Linking two dimensions of entrepreneurial orientation to firm performance. *Journal of Business Venturing*, 16(5), 429–451. [https://doi.org/10.1016/S0883-9026\(00\)00048-3](https://doi.org/10.1016/S0883-9026(00)00048-3)
- McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132–152. <https://doi.org/10.5465/amr.2006.19379628>
- Nabi, G., et al. (2017). The impact of entrepreneurship education in higher education. *Journal of Small Business Management*, 55(S1), 1–25.
- Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
- Nambisan, S. (2017). Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship Theory and Practice*, 41(6), 1029–1055. <https://doi.org/10.1111/etap.12254>
- Obschonka, M., et al. (2018). Entrepreneurial regions: Do macro-psychological cultural characteristics of regions help solve the "knowledge paradox" of economics? *PLOS ONE*, 13(9), e0205678. <https://doi.org/10.1371/journal.pone.0205678>
- Sabeen, Ilyas, A., Gulraiz, M., Zubair, Z., Khan, A. H., & Munir, W. (2025). Unraveling the impact of abusive supervision on emotional exhaustion: A serial mediation model of stress, relational conflict, and toxic workplaces. *Social Science Review Archives*, 3(1), 2109–2130.
- Saunders, M., et al. (2019). *Research methods for business students*. Pearson.
- Shahzadi, N., Ilyas, A., & Ashraf, H. A. (2025). Academic achievement as a predictor of entrepreneurial behavior: A sequential mediation approach. *Review Journal of Social Psychology & Social Works*, 3(3), 305–325.
- Uy, M. A., et al. (2015). Proactivity, adaptability and boundaryless career attitudes: The mediating role of entrepreneurial alertness. *Journal of Vocational Behavior*, 86, 115–123. <https://doi.org/10.1016/j.jvb.2014.11.005>
- Zaid, F., Khan, A. H., Ilyas, A., & Azeem, M. (2022). Financial risk tolerance mediates the relationship between personality traits and investment intentions by moderating the role of financial literacy. *Journal of ISOSS*, 8(4), 203–210.
- Zaid, M. F., Khan, A. H., Ilyas, A., & Azeem, M. (2022). Financial risk tolerance mediates the relationship between personality traits and investment intentions by moderating the role of financial literacy. *Journal of Islamic Countries Society of Statistical Sciences*, 8(4), 203–210.
- Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*, 36(2), 381–404. <https://doi.org/10.1177/0149206309335187>