



Recognized by: Higher Education Commission (HEC), Government of Pakistan

Modelling SME Investment Behavior Using PLS-SEM: Evidence from Pakistan

Saqib Ullah Khan*

PhD Scholar, Preston University, Islamabad

saqibbnu@gmail.com

Dr. Akmal Shahzad Butt

Associate Professor, Preston University, Islamabad

Dr.akmal@preston.edu.pk

*** Corresponding Author**

ABSTRACT

Small and medium-sized enterprises (SMEs) play a crucial role in the economic development process and, consequently, their behavior forms a major difficulty in investment decisions due to the numerous interconnected behavioral and structural factors that influence them. The main objective of the research is to determine the roles of psychological traits, financial status, economic conditions, and government policies in the investment decisions of SMEs in Pakistan, with risk perception as the mediator. A quantitative research method was applied in the study, and the owner-managers of 356 SMEs in Khyber Pakhtunkhwa were surveyed for data collection. Partial Least Squares (PLS) Structural Equation modeling was adopted for assessing both measurement and structural relationships, which enabled the identification of characteristics of the linkages and indirect effects in an integrated framework. It was necessary to supplement the above-mentioned analysis to delve more profoundly into the mediation links more profoundly. Findings indicate that factors relating to psychology and finance had the most significant combined impact on the selection of an investment option, while the economic scenario appeared to be a less influential factor. The interplay between government policy and risk perception was noted to be the strongest, which points to the vital role that institutional stability plays in impacting actions during times of uncertainty. The mediation analysis implies that risk perception assumes a prominent role in the cause-and-effect relationship where all explanatory variable effects transit through investment behavior. To a great extent, the results indicate that the investment decisions of SMEs are a product of both objective economic situations and personal risk evaluations rather than being solely influenced by the determinants. From a

methodological perspective, the study highlights the empirical applicability of PLS-SEM in research involving SMEs and offers certain policy recommendations to mitigate perceptions of risk at the micro level, thus encouraging investment activities in emerging economies.

Keywords: SMEs investment decisions, risk perception, psychological traits, government policy, PLS-SEM

INTRODUCTION

Small and medium enterprises (SMEs) form a critical feature of economic activity in developing countries, not merely because of their size but also because of their contribution towards employment, regional development, and income diversification. In Pakistan, SMEs account for a significant share of non-agricultural labor and meaningfully contribute to industrial output. Despite this, investment behavior among SMEs remains unbalanced and varies according to changing economic conditions, financial constraints, institutional arrangements, and individual decision-making criteria. It is therefore crucial for both economic policy-making and firm-level strategic planning to understand how SMEs form their investment decisions.

Two factors prevent SME investment from working as large corporations do. SMEs are usually proprietorships; they have restricted access to the capital markets and rely mainly on the cash created by their operations or bank credit. The result is that, for SME owners, investment is made under more financial uncertainty and more stringent financial constraints. The use of quantitative indicators, such as expected returns or costs of capital or an efficient frontier, mixed with subjective judgments concerning returns, limits, and risks necessary for decision-making, but some environmental concerns can be implemented in recognition of environmental and ethical performance. These pose significant challenges when we try to understand investment behaviors of SMEs, as these can never be dissected using linear or on-equation models.

Previous studies into SME investments in Pakistan have mostly examined different determinants, like access to financial capital, interest rates, etc. While some of these initiatives have offered useful insights, considerable attention is needed to scrutinize some or all objective determinants or overlook the implicit or "hidden" constraints that influence decision-making. Financial conditions, economic prospects, institutional signals, and psychological attitudes are not items of consideration independently for the business by the owners; they are jointly negotiated, usually through some consideration as to how risky or uncertain an opportunity might appear. Ignoring such interactions in decision-making clouds our vision and impairs the apparent behavior of SMEs with respect to investments.

Another limitation in much of the literature comes in its methodological choice. Classic econometric models, like OLS and single-equation regressions, are good at directly testing relationships but cannot encompass latent constructs,

indirect effects, and simultaneous relationships. Unobservable psychological factors, such as confidence, optimism, and perceived uncertainty in SME investment decision-making, cannot be measured directly as they drive behavior. Due to neglecting or approximating these latent factors inadequately, the empirical results may suffer from omitted-variable bias or weak explanatory power.

Therefore, a modelling approach that has apparent and unobservable dimensions of less analyzed investment behavior in one unified framework; this is the focus of the present study. Partial Least Squares Structural Equation Modelling (PLS-SEM) simultaneously tests theoretically that psychological factors, economic conditions, financial constraints, and government policy together influence the decisions of SME to invest, and then explores, with respect to each factor, the mediating role of perceived risk. PLS-SEM seems best suited for this study because of the complex causality structures that it permits, relaxing assumptions on distribution to a considerable extent, as well as placing more importance on explanatory strength and prediction rather than the mere estimation of parameters.

Drawing on the Pakistani evidence while focusing on the economic and institutional diversity in the SME sector of the former, this study proceeds with two central contributions: first, it provides a comprehensive synopsis and a critical evaluation of the direct and indirect relationships governing investment behaviors by SME, with respect to some significant natures of SME management and organizational environment; and, second, it explores the utility of structural equation modeling-based techniques in conducting some applied economic and business studies that involve intertwining of behavioral and structural predicaments. Through so doing, this study responds to a call from both econometric and SME literatures for methods that mirror more closely the realities of decision-making in SMEs.

Conceptual Model and Hypotheses Development

The cumulative probability of SME investment choices seldom endures the weight of a single factor. This is due to the significance of the economic upheaval, financial predicaments, institutional envelopment, and cognitive functions of owner-specific policies converging in one form or another on the scene. The inherent multilayered nature of such phenomena already becomes hostage to both interior and foreign influences. For sure, the combination of both external and internal inputs into the decision spectrum appears pivotal in the development of the theoretical construct, the most substantial contribution of this working paper. With respect to the entanglement occurring between the actor variables in the model to unveil them as intertwined, it is clear that the clustered placement of the variables from historical and audacious behavior prescriptions and risk-propelled outlook toward the center of the decision-making process.

Psychological Factors and Investment Decision

Psychological factors are about the individual qualities of the small and medium enterprise (SME) owners that directly affect how information is processed and how business opportunities are evaluated. Concerning attributes like confidence,

optimism, and tolerance for uncertainty, these qualities play a significant role in the owners' enthusiasm to deploy resources. In small firms where the owners are subjected to a greater portion of the business risk, these attributes become all the more important. More confident entrepreneurs are likely to view investment in opportunities as possible and to focus on potential gains, rather than potential losses. Conversely, low self-confidence or a stronger fear of failure could stop them from investing, never mind the favorable objective circumstances. It is therefore almost certain that psychological factors will assert their direct influence on investment decisions.

H1: Psychological factors have a significant effect on SME investment decisions.

Economic Factors and Investment Decision

Economic aspects in general mirror the overall circumstances within which small and medium-sized enterprises (SMEs) operate, including the expectations concerning demand, inflation, or even general business conditions. While large concerns have their own means to harness against such economic shocks, SMEs are always highly susceptible to changes in the economic outlook. What generally happens is that when the economy seems promising, SMEs will start to expand industrial capacity or adopt fresh technologies. On the other hand, fear and uncertainty generated by economic issues often double the sensitivity of SMEs because cash flow predictions could come into question. This, in essence, should be acknowledged, as economic situations are crucial for SMEs' financial decisions, far aside from firm-level fundamentals being constant.

H2: Economic factors significantly influence SME investment decisions.

Financial Factors and Investment Decision

In terms of sources of financial capital, however, constraints arise or are created by factors such as the interest rate on borrowing, money supply conditions, or the limited depth and breadth of financial systems. Yet, future investment necessitates looking at the effects that decisions made today have; the effect on investment could be heavily affected by a combination of these financial factors, lending credence to the highly bursty nature of the investment decision space..

H3: Financial factors have a significant effect on SME investment decisions.

Government Policy and Investment Decision

Policy formation sows the institutional background to the conduct of small and medium-sized enterprises. Good regulatory stability, tax policies, and administration critically underpinned investment along such parameters as regulation and predictability. In the serene and well-applied policy environment, the SME is hedged against a high degree of uncertainty and is much better placed for long term investment planning. The contrary takes place when this occurs too often in the fickle tax and regulatory regimes, resulting in uncertainty and considerably high transaction costs. Government policy is thus expected to bear on SME investment behavior.

H4: Government policy has a significant effect on SME investment decisions.

Risk Perception as a Mediating Mechanism

Psychological, economic, financial, and policy-related elements could have an effect on investment directly. Nevertheless, the overall implication of their influence is often filtered through risk perceptions. This risk perception conveys how SME owners interpret uncertainty and potential loss, beyond the risks involved. The same conditions external to two export-oriented firms could drive those specific companies in two different directions, depending on whether the firms' decision makers view the situation as being risky. Hence, economic volatility, financial constraints, and policy uncertainty could indirectly shape investment decisions by reshaping the perceived risk. From this point of view, risk perception acts as a behavioural mechanism linking external and internal factors to observable investment behaviour.

H5: Risk perception mediates the relationship between psychological factors and SME investment decisions.

H6: Risk perception mediates the relationship between economic factors and SME investment decisions.

H7: Risk perception mediates the relationship between financial factors and SME investment decisions.

H8: Risk perception mediates the relationship between government policy and SME investment decisions.

METHODOLOGY

Research Design

The current study has used a quantitative research type to probe the structural factors underlying the investment behavior of SMEs. For any attempt to model direct and indirect effects of a few determinants, the analytical tool must treat latent constructs, mediating mechanisms, and growing associations so as to identify the phenomena in question. The design of the research is explanatory because of its focus on finding mechanisms through which psychological, economic, financial, and institutional factors might impact investment decisions.

Data Collection and Sample

Primary data were collected through a structured survey conducted in various key districts of Khyber Pakhtunkhwa with SME owners being the definite respondents. Respondents were selected utilizing stratified sampling to represent different sectors such as manufacturing, services, and trade. Enterprises where the owner played a direct role in strategic and investment choices were selected as respondents, as they are the ones who have the most pertinent information about investment behavior in a risk assessment system. After filtering out any incomplete or inconsistent answer sheets, a total of 356 responses has been kept.

Measurement of Variables

All the constructs were universally, long ago, well-defined and earned recognition in using multi-item scales. Under the ones of SME investments. Behavioral finance. and risk sovereign. Indirect variables were adjusted to meet the local customs while retaining the basic conceptual contexts. Responses were

provided in a Likert scale ranging from strong disagreement to strong agreement. The latent constructs help to deliver a more precise and accurate account of unobserved entities, like psychological tendencies and perceived risk, which could not otherwise be accurately revealed by a single measure from observable proxies.

Econometric Rationale for Using PLS-SEM

Econometric analysis suggests that one of the primary reasons Partial Least Squares Structural Equation Modelling (PLS-SEM) are chosen is the design of the research problem itself, rather than just convenience. Classical econometric procedures like ordinary least squares or single-equation models work when relationships are linear, the dependent variables are directly observable, and error terms are assumed to be independently distributed. SME investment behavior might not adhere to such conditions. Key explanatory variables in this study, particularly psychological factors and perceptions of risk, are latent in nature and cannot be directly observed. Treating these constructs as unique proxies in the study may bias parameter estimates and cause measurement error.

This limitation is nullified within PLS-SEM, which allows for the modeling of the measurement model and estimating relationships between common and associated latent variables together. While covariance-based SEM stands for a confirmatory proposal, it needs a large sample size and distributional assumptions; the PLS-SEM model should be prediction-oriented and aptly fitted to applied economic research where theory is developing, and model complexity is high because this technique is specially structured so. The method is particularly useful if the aim is to drive the power of explanation toward maximization, together with the exploration of mediation effects, rather than definitely test some theoretically proposed structures.

Credit is the most important factor for households' decision-making in SME lending. Credit thus provides the mechanism for addressing the availability of asymmetric information. In the SME sector, due to their limited access to data and well-devised procurement frameworks, the financial market is widely hit by these factors. Cutting out the most significant perspective, therefore, allows for a distilled assessment of the importance of the credit scoring model.

Estimation Procedure

Analysis proceeds via two stages. In the first stage, the measurement model is evaluated for assessing reliability and validity. It includes testing on internal consistency, convergent validity, and discriminant validity. This actually confirms that the measurements' latent are accurate before reading structural relationships. The second stage offers an estimation of the structural model to test both direct effects and mediation, as the overall explanation capacity. To support the interpretation, the significance level can be determined with 2000 bootstrapping resamples. Bootstrapping results in robust standard errors that do not rely on normality assumptions.

Model Evaluation Criteria

The evaluation of the model is carried out in a structured, step-by-step manner in which a clear-cut distinction is made between measurement quality and the structure of the later. The measurement model will first be examined to ascertain the authentic or precise representation of latent constructs. Among the issues considered in measurement quality, internal consistency is examined using Cronbach's alpha and composite reliability; while the convergent validity is assessed by using average variance extracted (AVE). Discriminant validity is considered through an assessment of the heterotrait–monotrait (HTMT) ratio for supporting the argument that the constructs are truly distinct from each other. Only after the measurement models satisfy all the conditions of IAM, structural model interpretation is to be grounded.

To assess the structural model, estimated path coefficients and their statistical significance are examined for the magnitude and direction of hypothesized relationships. Explained variance is evaluated by coefficient of determination (R^2) on the endogenous constructs for the model's explanatory power. Explained predictive relevance is measured using Stone–Geisser's Q^2 for the model's predictive abilities on observed outcomes. In addition, examining effect sizes (f^2) offers insight into the relative contribution of each exogenous construct to endogenous variables. These evaluation indicators are therefore apt in the necessary context of illustrating behavioral phenomena and predicting small enterprise investment behavior rather than estimating population parameters according to rigid assumptions. The interplay of these indicators gives a comprehensive evaluation framework coherent towards econometric reasoning when applied to structural modeling.

Results and Model Evaluation

Data Preparation and Preliminary Analysis

Before the model estimation, it was carefully scrutinized to achieve relevance and validity. For instance, responses with missing entries and out-of-range values, and those with logical inconsistencies, were carefully examined. Replacement with paired means was used where information was missing due to one or two items, whereas subjects with four missing responses were excluded from the study to protect the analytical integrity at that point. All the variable replies were given numerical encoding form; whichever needed some formatting inconsistencies were settled down on time. These were thought to be important steps to cater for data completeness, which underpinned two main requirements needed for multivariate analysis and provided a very genuine platform from which the model could be developed.

Measurement Model Assessment

Reliability and Convergent Validity

Reliability was assessed using factors such as Cronbach alpha and composite reliability. All the constructs exceeded the threshold of 0.70, suggesting that they have strong internal consistency. These composite reliability estimates have been ascertained in the confines of the 0.874 and 0.927 marks, while the former confirmed the stability of the measurement across various variables. Convergent

validity was tested by using the Average Variance Extracted (AVE). The AVE levels appeared to be between 0.537 for Investment Decision and 0.679 for Financial Factors, higher than the AVE (0.50) benchmark. All these differences confirm that each construct accounts for a large portion of its indicator variance.

Table 4.1: Convergent Validity and Reliability

Construct	AVE	Composite Reliability	Cronbach's Alpha
Economic Factors	0.650	0.920	0.896
Psychological Factors	0.644	0.915	0.889
Financial Factors	0.679	0.927	0.905
Government Policy Factors	0.655	0.919	0.895
Risk Perception	0.574	0.889	0.851
Investment Decision	0.537	0.874	0.827

Discriminant Validity

The use of Fornell–Larcker discriminant validity criteria and heteroscedasticity of homotrait-monotrait ratio allows the assumptions of discriminant validity to be confirmed. Within the constructs, the square root of AVE always exceeds the values of the inter-constructs correlations, indicating that the Fornell–Larcker approach was introduced. The least-indexed HTMT was below the conservative threshold of 0.85, though the highest value (0.870 between Investment Decision and Risk Perception) exceeded the liberal threshold. A different indication of independent measures with no-ending obstacles is that none of the constructs studied had hypothetical overlaps.

Table 4.2 Heterotrait–Monotrait (HTMT) Ratio

Constructs	EF	FF	GP	ID	PF	RP
Economic Factors						
Financial Factors	0.788					
Government Policy	0.750	0.776				
Investment Decision	0.775	0.808	0.804			
Psychological Factors	0.775	0.785	0.771	0.802		
Risk Perception	0.762	0.777	0.833	0.870	0.769	

Structural Model Assessment

Model Fit and Predictive Power

The model fits were reviewed based on several criteria. The Standardized Root Mean Square Residual (SRMR) amounted to 0.036 and showed an excellent fit of the model itself. The value of the Normed Fit Index (NFI) was above the recommended threshold at 0.920. The predictive relevance was probed through Q^2 , which was at 0.481 for the Investment Decision and represents strong predictive ability for this variable. The parameter R^2 for Investment Decision was 0.697, meaning the model is able to explain almost 70% variance. With an adjusted R^2 of

0.694, it further demonstrates the veracity of the model.

Table 4.3 Model Fit and Robustness Indices

Indicator	Value
SRMR	0.036
NFI	0.920
Q ² (Investment Decision)	0.481
R ² (Investment Decision)	0.697
Adjusted R ²	0.694

Structural Path Analysis

The structural model was evaluated to verify the hypothesized relationships between latent constructs and to assess the explanatory power of the proposed framework. The path coefficients were estimated with the use of bootstrap procedures for a large number of re-samples in order to ensure the robustness of inference, and t-values and associated p-values were needed for the significance level tests, allowing inferences to be drawn with respect to the direction and the strength of each link.

Our findings indicate that the coefficients of the direct effects are all positive and significant. Psychological factors have a very strong positive correlation with investment decisions, meaning that confidence, optimism, and any kind of orientation show a very strong role in shaping the investments by SMEs in this study. Financial factors significantly affect investment decisions, crying aloud on the importance of liquidity conditions and full access to finance in the act of bringing firms to commit resources to new projects. Economic factors show a positive influence on investment decisions, but in comparison to the former, the influence is moderate, suggesting that market-wide expectations do indeed affect investment decisions but that they take a back seat when compared to company-level or behavioral considerations.

Government policy has its effects on investment choice and has the strongest influence on the perception of risk. This suggests a role of institutional clarity as well as policy stability in the way SME owners handle uncertainties. The perception of risk itself plays an important role with regard to investment choice and therefore further confirms the importance it already had on the structural model. SMEs that experience risk at a substantially lower level are likely to embark on additional investment even under tight constraints. Overall, support for the hypothesized model is forthcoming from structural path results, thus confirming the interferences of direct structural influences and behavioral mechanisms through perceived risk on SME investment behavior.

Table 4.4 Structural Path Coefficients

Path	β	t-Statistic	p-Value
EF → ID	0.120	3.659	0.000
EF → RP	0.176	5.160	0.000

Path	β	t-Statistic	p-Value
FF → ID	0.185	5.623	0.000
FF → RP	0.180	5.423	0.000
GP → ID	0.138	3.769	0.000
GP → RP	0.371	8.922	0.000
PF → ID	0.185	5.410	0.000
PF → RP	0.173	5.072	0.000
RP → ID	0.326	6.952	0.000

Mediation Analysis

Evaluating avoidance level as well as their mental disposition towards chance or disequilibrium in valuing irrational ways of decision-making was dodged. Platforms were bought to appraise these sub-linear, indirect mediations in forecasting valuation. Some items have been proposed to serve as proxies for the last three heads of the agreement. Splendidly through initial relationships present there, the proposals have shown a validity in excess of convergent and linearized validity in their attempt to indistinguishable correspondence and divergence.

The results have shown that whether it is a psychological, economic, or financial factor, the risk perception has partial mediation. As far as psychological factors are concerned, the indirect effect that the risk perception induces accounts for a considerable proportion of the total effect, stating that behavioral traits influence investment decisions indirectly as well as the way in which uncertainty is perceived. In terms of economic variables, partial mediation maintains that broader changes in the economic environment also affect investment behavior, but only partially, via modifications for the perception of the risk. This is also applied in the financial part, where a similar partial mediation role leading to financing conditions alters people's perception of vulnerability and control.

The strongest mediating relationship was observed for government policy in terms of risk perception, with the highest proportion of effect on investment decision: this suggests that institutional stability and policy clarity most influence SME investment behavior by reducing perceived uncertainty as opposed to direct cost or incentive channels. The mediation-based results support the primary role played by risk perception as a mechanism, bringing together external and internal determinants on SME investment decisions.

Table 4.5: Mediation Analysis

Path	Direct Effect (β)	Indirect Effect (β)	Total Effect (β)	VAF (%)	Mediation Type
PF → ID → RP	0.185	0.057	0.242	23.6	Partial
EF → ID → RP	0.120	0.057	0.177	32.2	Partial
FF → ID →	0.185	0.059	0.244	24.2	Partial

Path	Direct Effect (β)	Indirect Effect (β)	Total Effect (β)	VAF (%)	Mediation Type
RP					
GP → ID → RP	0.138	0.120	0.258	46.5	Partial

DISCUSSION (Theory-Driven and Empirically Anchored)

The data from this study provides strong empirical support that the interaction of behavioral and structural forces is a significant determinant of the revenge salamander investment climate and to some extent supports the notion that it is not simply a matter of rational calculation. The very strong evidence suggests that this decision has been largely influenced by psychological factors. There was a clear indication that the investment decisions were heavily based on cognitive judgment by SME-owners. According to Prospect Theory, decision-makers see potential losses from the same viewpoint as gains and thus form such views that greatly influence their risk-taking behavior (Kahneman & Tversky, 1979). This piece of evidence supports the hypothesis about confidence, behavioral orientation, and the way uncertainties might affect investment. This kind of inference may also be drawn from past stories of SMEs and entrepreneurs that the level of optimism of the entrepreneurs was significantly correlated with risk-taking and capital allocation decisions (Barber & Odean, 2001; Puri & Robinson, 2013). The findings therefore highlight the importance of viewing the investment behavior of SMEs from a behavioral perspective.

In most cases, the financial facet is the one that proves to be the most powerful factor supporting the investment decision, thus confirming the gap financing theory, which states that SMEs suffer from a lack of funds mainly due to information asymmetry and poor credit (Stiglitz & Weiss, 1981). The positive relationship between financial conditions and investment behavior corresponds to previous empirical research regarding the importance of access to credit and internal liquidity for the growth and expansion of SMEs (Beck & Demirgüç-Kunt, 2006; Beck et al., 2008). Unexpectedly, mediation results imply that financial constraints do have an impact on investment not only through affordability but also due to a lower perception of vulnerability. This behavioral stream might explain why some SMEs shy away from investing even in situations where, from an objective standpoint, very little or no financing is available and so has been the case in empirical research regarding SME risk behaviors in emerging markets (Hussain et al., 2021).

Economic factors have a positive but lesser effect on investment decisions which is in line with the findings of the current study, which depict SMEs as being relatively more influenced by macro-economic factors but basically giving priority to firm-level considerations in broader issues. Research carried out in Pakistan and countries with similar financial conditions suggests that while demand uncertainty and inflation pressures affect the expectations, SMEs rather frequently switch their

investments to the economic atmosphere through confidence adjustment rather than through immediate behavior change (Khan & Gill, 2021; Ullah et al., 2019). Our findings provide evidence for this view, suggesting that instead of directly influencing behavioral consequences, economic conditions exert their effect through the perception lens.

Government policy definitely plays a crucial role in shaping the investment behavior especially due to the fact that it has a strong influence on the perception of risk. Institutional theory stresses that stable and clear-cut regulatory frameworks decrease uncertainty and thus create conditions for long-term planning (North, 1991). The strong mediating role revealed in this research indicates that the stability of policies extends its influence over SME investment mainly by lowering perceived risk rather than by cutting into the calculations of value and benefits. This observation is consistent with the current body of literature that suggests how regulatory clarity and administrative efficiency lead to and sustain SME investment by reviving expectations about future operational conditions and imposing policy risk, thus preventing investments even in an environment conducive to funding (Djankov et al., 2002; Khwaja & Iyer, 2006).

The mediation of risk perception invites us to behavioral theories that base decision-making as applicable in the SME context. The way risk perception acts as a cognitive filter allows wider economic-financial-institutional signals to be filtered, permitting different empirical paths to confirm that perceived risk is a better predictor of investment behavior compared to objective measures of uncertainty, i.e., the uncertainty problem (Sitkin & Pablo, 1992; Weber et al., 2002). This partial mediation suggests that, even when dealing with fundamental structural constraints, the responses might involve some level of subjective assessment against automatic reactions. This is in line with recent empirical evidence showing that, under similar circumstances, different SMEs exhibit varied investment behavior because of differing perceptions and their judgments (Coad et al., 2020).

This research also adds to the existing literature. It illustrates, in the context of the integrative theory, that there is a bidirectional process by which the behavioral dimension of the investment behavior interacts with the structural background. The previous literature has primarily concentrated on one aspect at a time, whether it is financial, economic, or institutional, but our results imply that the impacts of these factors are interrelated and may be moderated by the investors' risk perception. Thus, the present study promotes high-impact interdisciplinary research that is mutually supportive in demonstrating empirical evidence for the institutional theory and behavioral finance developed within a composite framework.

CONCLUSION

This study models SME venture investment behavior. This model integrates the behavioral and structural determinants within a common analytical framework. The model constructs that the investment decisions depend on psychological characteristics, financial environment, economic environment, and government

policy, with risk perception being recognized as a mediator. Financial and psychological factors are significantly important in determining the investment decisions directly, while government policy is likely to affect investors through the provision of mechanisms in relation to perceived risks. The model is conferred heavy explanatory and predictive force: this shows that SME investment behavior in Pakistan might undertake a process of decision that is systematic and not one of random responses.

Methodologically, they contribute by showing that PLS-SEM is suitable for analyzing latent constructs and mediation effects in SME research. Theoretically, they support the integrated behavioral-structural perspective by pointing out perception as somewhat relevant in making economic decisions. Practically, the findings underline the pervasiveness of policy stability, transparent regulation, and improved access to finance. The only limitations are the use of cross-sectional self-reports and a specific regional focus. Future research can use a longitudinal design, objective measures of data, and different intercountry comparisons.

REFERENCES

- Akhtar, S., & Khan, M. L. (2021). Receiver Operative Characteristics Analysis for Validation of Parental Expressed Emotions Scale. *Webology (ISSN: 1735-188X)*, 18(6).
- Al Lawati, T., Rana, A. M., Sohail, A., & Ul Haq, A. (2024). Examining the impact of green supply chain management practices on organisation performance and how to create a sustainable GSCM. *Environment and Social Psychology*, 9(9).
- Ali, A., Khan, M. L., & Atta, N. (2024). Role of Parental Neglect in Shaping Resilience Among Individuals with Substance Use Disorder. *Journal of Development and Social Sciences*, 5(2), 186-198.
- Ambreen, F., Fatima, A., Khan, S., Anum, T., & Khilji, I. (2025). The Competitive Mind: Impact of Competitiveness on Mental Health. *Journal of Political Stability Archive*, 3(4), 734-746.
- Ashraf, S., Khan, M. L., & Mahmood, T. (2025). Social Capital, Interpersonal Communication Skills and Psychological Wellbeing among Young Adults. *Indus Journal of Social Sciences*, 3(1), 251-265.
- Aurangzeb, M. M., & Uddin, S. S. (2025). The Artificial Intelligence (Ai) Era: Challenges And Opportunities For Pakistan And The Global South. *Journal for Current Sign*, 3(2), 254-264.
- Aurangzeb, M., Uddin, S. S., Farooq, A., & Ali, R. A. (2025). *Offensive realism and the Pacific Ocean: Understanding geopolitical rivalries through Mearsheimer's lens*. *Policy Journal of Social Science Review*, 3(1), 268-278.
- Ayyagari, M., Beck, T., & Demirgüç-Kunt, A. (2008). Small and medium enterprises across the globe. *Small Business Economics*, 29(4), 415-434. <https://doi.org/10.1007/s11187-006-9002-5>
- Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2014). Who creates jobs in developing countries? *Small Business Economics*, 43(1), 75-99.

- <https://doi.org/10.1007/s11187-014-9549-5>
- Banerjee, A. V., & Duflo, E. (2014). Do firms want to borrow more? Testing credit constraints using a directed lending program. *Review of Economic Studies*, *81*(2), 572–607. <https://doi.org/10.1093/restud/rdt046>
- Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, *116*(1), 261–292. <https://doi.org/10.1162/003355301556400>
- Barberis, N., & Thaler, R. (2003). A survey of behavioral finance. In G. Constantinides, M. Harris, & R. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 1, pp. 1053–1128). Elsevier. [https://doi.org/10.1016/S1574-0102\(03\)01027-6](https://doi.org/10.1016/S1574-0102(03)01027-6)
- Beck, T., & Demirgüç-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, *30*(11), 2931–2943. <https://doi.org/10.1016/j.jbankfin.2006.05.009>
- Beck, T., Demirgüç-Kunt, A., Laeven, L., & Levine, R. (2008). Finance, firm size, and growth. *Journal of Money, Credit and Banking*, *40*(7), 1379–1405. <https://doi.org/10.1111/j.1538-4616.2008.00164.x>
- Blais, A.-R., & Weber, E. U. (2006). A domain-specific risk-taking (DOSPERT) scale for adult populations. *Judgment and Decision Making*, *1*(1), 33–47.
- Bloom, N. (2014). Fluctuations in uncertainty. *Journal of Economic Perspectives*, *28*(2), 153–176. <https://doi.org/10.1257/jep.28.2.153>
- Coad, A., Frankish, J., Roberts, R. G., & Storey, D. J. (2020). Fear of failure and entrepreneurship: A review and direction for future research. *International Review of Entrepreneurship*, *18*(1), 77–108.
- Cooper, D. R., & Schindler, P. S. (2022). *Business research methods* (14th ed.). McGraw-Hill Education.
- Djankov, S., La Porta, R., Lopez-de-Silanes, R., & Shleifer, A. (2002). The regulation of entry. *Quarterly Journal of Economics*, *117*(1), 1–37. <https://doi.org/10.1162/003355302753399436>
- Fatima, S., Khan, M. L., & Kousar, R. (2024). Emotional Intelligence, Religiosity and Quality of Life Among University Students. *Journal of Social & Organizational Matters*, *3*(2), 455-471.
- Firdos, S., Khan, M. L., & Atta, N. (2024). Intrinsic Motivation and Social Emotional Competence and Job Satisfaction Among School. *International Research Journal of Social Sciences and Humanities*, *3*(2), 58-79.
- Gurganari, L., Dastageer, G., Mushtaq, R., Khwaja, S., Uddin, S., Baloch, M. I., & Hasni, S. (2022). Assessment of heavy metals in cyprinid fishes: Rivers of district Khuzdar Balochistan Pakistan. *Brazilian Journal of Biology*, *84*, e256071.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). SAGE Publications.
- Hsu, W. K. K., Le, T. D. L., Le, T. N. N., & Huynh, N. T. (2025). An Advanced Risk

- Matrix Model for the Navigational Safety of Passenger-Cargo Ferries. *SAGE Open*, 15(3), 21582440251382306.
- Hsu, W. K., Huang, S. H., Le, T. N. N., Wahidah, U., Huynh, N. T., & Tai, H. H. (2025). Assessment of Logistics Operations for International Short-Sea Express: A Case Study in Taiwan. *Transportation Research Record*, 03611981251375008.
- Hussain, J., Salia, S., & Karim, A. (2021). Is knowledge that powerful? Financial literacy and SMEs' performance. *International Journal of Productivity and Performance Management*, 70(2), 371–390. <https://doi.org/10.1108/IJPPM-05-2019-0224>
- Irshad, A. F., Khan, M. L., & Mahmood, T. (2024). *Social Emotional Competence, Religiosity, and Pro-Social Behavior Among Adolescents. Global Sociological Review, IX (II), 153.*
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291. <https://doi.org/10.2307/1914185>
- Khan, A., & Gill, A. (2021). Macroeconomic determinants of SME investment: Evidence from South Asia. *Journal of Small Business Management*, 59(4), 655–674. <https://doi.org/10.1080/00472778.2019.1708654>
- Kayani, J. A., Faisal, F., Khan, S., & Anjum, T. (2023). Analysing Consumer's Intention to Buy Bottled Drinking Water in Pakistan Through Integrated Marketing Communication Framework. *Journal of Business and Management Research*, 2(2), 881-902.
- Khan, M. L., Farooq, S., & Kamal, R. (2023). Adapting Intrinsic Motivation Scale: Assessing Prospective Teacher's Motivation. *Orient Research Journal of Social Sciences*, 8(1), 21-26.
- Khan, S., Haq, A. U., & Naseer, M. (2022). The Influence of Guerrilla Marketing on Consumer Buying Behavior in the Beverage Sector of Rawalpindi and Islamabad, Pakistan. *Journal of Development and Social Sciences*, 3(4), 647-659.
- Khwaja, A. I., & Iyer, L. (2006). Do we have a problem? Governance, politics, and investment. *World Bank Policy Research Working Paper*.
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Masih, S., Khattak, M. N., & Khan, T. I. (2025). The association of leadership with nurses' turnover intention: A two-wave cross-sectional study. *International Journal of Nursing Studies Advances*, 100459. <https://doi.org/10.1016/j.ijnsa.2025.100459>
- Masih, S. H. A. H. B. A. Z. (2022). The Effect of Humor in Leadership on the Change-Oriented Organizational Citizenship Behavior in Telecom Sector of Pakistan: A Moderated Mediation Model of Power Distance Orientation and Leader-Member Exchange. *Limkokwing University of Creative Technology*.
- Nadeem, Z., Khan, M. L., & Atta, N. (2024). Investigating socio-emotional competence, sleep quality, and work-life balance among medical

- students. *Journal of Asian Development Studies*, 13(2), 1576-1594.
- Naseer, M., Haq, A. U., & Shah, S. M. A. (2024). Understanding Turnover Intentions in Pakistan's Healthcare Sector: A Qualitative Exploration of Supervisory Behavior, Stress, and Cultural Norms. *Annual Methodological Archive Research Review*, 2(5), 1-18.
- Ngo, T. T., Huynh, N. T., & Yang, C. C. (2026). A sequential approach to airport efficiency evaluation: Integrating two-stage DEA and truncated regression. *Journal of Air Transport Management*, 131, 102922.
- North, D. C. (1991). Institutions. *Journal of Economic Perspectives*, 5(1), 97-112. <https://doi.org/10.1257/jep.5.1.97>
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2003). Common method biases in behavioral research. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Puri, M., & Robinson, D. T. (2013). Optimism and economic choice. *Journal of Financial Economics*, 107(3), 579-601. <https://doi.org/10.1016/j.jfineco.2012.08.001>
- Rana, A. M., & Ahmed, A. M. (2022). A Propose Sustainable Mechanism For Academia And Industry Linkages: Perspective Of Transfer Of Innovation And Technology. *Journal of Positive School Psychology*, 6(8), 10012-10026.
- Sekaran, U., & Bougie, R. (2020). *Research methods for business* (8th ed.). Wiley.
- Shah, S. M. A., Ahmed, N., Haq, A. U., & Saba, S. (2025). Leadership for Innovation: Fostering the Culture of Creativity in Organization: A Systematic Literature Review. *Journal of Asian Development Studies*, 14(2), 945-957.
- Sitkin, S. B., & Pablo, A. L. (1992). Reconceptualizing the determinants of risk behavior. *Academy of Management Review*, 17(1), 9-38. <https://doi.org/10.5465/amr.1992.4279564>
- Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review*, 71(3), 393-410.
- Uddin, S. S. (2017). Existence of External Forces in Afghanistan: Pakistans Security Dilemma Since 9/11. *International Journal of Asian Social Science*, 7(4), 311-319.
- Uddin, S. S., Hussain, S. S., & Ali, N. M. (2025). Beyond Rivalry: Lessons from China-India Trade For Pakistan-India Relations through Economic and Media Engagement. *Journal of Religion and Society*, 3(02), 1037-1044.
- Ullah, S., Mahmood, T., & Afridi, F. (2019). Determinants of SME investment in Pakistan: A provincial comparison. *Asian Economic Review*, 61(3), 45-62.
- Weber, E. U., Blais, A.-R., & Betz, N. E. (2002). A domain-specific risk-attitude scale. *Journal of Behavioral Decision Making*, 15(4), 263-290. <https://doi.org/10.1002/bdm.414>
- World Bank. (2022). *SME finance: Improving access to finance for SMEs*. <https://www.worldbank.org>
- Yasmeen, K., Khan, M. L., & Imran, H. (2024). Exploring Emotional Intelligence, Remote Work Dynamics, Team Collaboration, and Adaptive Leadership for Enhanced Success in the Digital Workplace. *Pakistan Social Sciences*

Review, 8(2), 969-979.

Yazidi, R. A., & Rana, A. M. (2025). Impact of procurement management practices on the project performance: perspective of project management firms. *International Journal of Procurement Management*, 23(3), 346-359.