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Strategic Resource Integration: Exploring the Role of Business Model Design, Human Capital, and Financial Capital in Startup Performance

Abstract

In this study, we study the effect of strategic resource integration, or in particular business model design, startup experience, and external financing on startup performance and working capital management in Pakistan. The study addresses a critical gap in rapidly evolving entrepreneurial ecosystem, by exploring the interaction between internal capabilities and external resources in driving financial discipline. The novel study proposes the dual-path conceptual model with performance as the mediator, and capital efficiency as potential moderator, which contributes to the discussion of the Resource Based View, Business Model Innovation and Capital Structure Theory. A quantitative, cross sectional research design was used and the data was analyzed using PLS SEM (Partial Least Squares Structural Equation Modeling) as the data analysis technique. Survey in the form of structured Likert scale questionnaire was led on 300 startup founder and financial officer from Pakistan's fintech, e-commerce and services sectors. Variation in key constructs included efficiency-centered and novelty-centered business models, startup experience, external financing, capital efficiency, performance and working capital management. In order to test the reliability

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of measurement and the validity of the model, Cronbach's Alpha, Composite Reliability and AVE were used. Results show that all independent variables significantly influence ($R^2 = 0.64$) and performance strongly predicts ($\beta = 0.71$, $R^2 = 0.50$) working capital management. However, the effect of capital efficiency on moderation was statistically insignificant ($\beta = 0.01$), which means that it is a practical but not a statistical one. Hypotheses H1–H9 were supported; H10 was not. This is an empirically validated framework to link strategic design with financial control, in which this research contributed. As such, it implies for entrepreneurs, investors and policymakers as well as for future longitudinal or sector specific research in emerging markets.

Keywords	Startup performance, Business model design, Working capital management, Capital efficiency, Strategic resource integration, PLS-SEM, Entrepreneurial finance
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INTRODUCTION

Digitalization and support of Startup Pakistan Program has helped startups to become a vital part of innovation and employment in the startup ecosystem of Pakistan. An instance of fragmented management of resources, the business model can make or break a startup's performance, the capital (INVEST2INNOVATE, 2023; World Bank, 2023), human capital, particularly in this area of design, making or breaking a startup's performance. The research shows that for the sake of growth, these elements should be strategically aligned and mismanagement leads to a high startup mortality rate (Ruthensteiner and Leitner, 2025; George and Bock, 2011).

In light of Pakistan's emerging market, startups are faced with the choice between an efficiency or novelty based model." Zott and Amit (2007). Some first startups like Careem and Sehat Kahani take up innovative paths but still lack proper resource bundles for their sustenance (Chen et al., 2022). Experience of founders in the nature of human capital, specifically starters have a vital part in traveling the passage of the venture land paisa, nonetheless, more than 55 for each penny of Pakistani outings are driven by first of all founders without industry experience (INVEST2INNOVATE, 2023; Khan et al., 2023).

The two other critical factors other than human capital include financial capital with access being limited to major urban centers and inefficient utilization of capital (Khan et al., 2023; Ruthensteiner & Leitner, 2025). Poor financial management can cause many of a startup's cash flow issues, which places an emphasis on the importance of capital efficiency (Chen et al., 2022). The study suggests an integrated framework by integrating Resource Based View, Human Capital Theory and Business Model Innovation Theory that could positively affect the performance of startup by coordinating along the business model design, founders' experience, and the financial strategy according to (Barney, 1991; Becker, 1964; Amit & Zott, 2001).

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Although fintech and healthtech sectors are currently scaling to fill major service gaps, the ecosystem is still quite fragile under circumstances of lack of integrated strategies and resource optimisation (INVEST2INNOVATE, 2023; Startup Pakistan Report, 2024). The focus of funding places most of its funding in the most major cities and the unavailability of experience talent is even more challenging because most founders do not possess the skills needed to carry out strategic planning (Wu et al., 2024; Ruthensteiner & Leitner, 2025). To address these challenges a strategic resource integration framework is the need for improving startup survival and the economic development of Pakistan.

LITERATURE REVIEW

Business models within the startup ecosystem of Pakistan are oriented towards the optimization of internal processes and low costs in logistics and e-commerce in order to serve for the cost sensitive customers (INVEST2INNOVATE, 2023; Ruthensteiner & Leitner, 2025). These are models that are emphasis on scalability and transparency, and suitable for emerging markets where innovation is less important than reliability (Brettel et al., 2012), and they are believed to reduce information asymmetry (Zott & Amit, 2007). However, the effectiveness depends on alignment with founder capabilities (Wu et al., 2024; Chen et al., 2022).

On the other hand, novel business models make the best of innovation and technology in developing novel value propositions and operating in markets which are untapped for businesses (Startup Pakistan Report, 2024; Khan et al., 2023). However, such models entail a risk and need experienced leadership to deal with challenges (Aspara et al., 2010; Ruthensteiner & Leitner, 2025), and provide first-mover advantages (Zott & Amit, 2007).

Resource management and response to challenges are significantly influenced by human capital, in this case startup experience. Leading many of Pakistan's startups are first time entrepreneurs which theoretically suggests resource mismanagement (INVEST2INNOVATE, 2023; Khan et al., 2023). Building resilient ventures (McDonald & Eisenhardt, 2020) requires experienced founders and so the process of developing founder capacity through mentorship is key for sustainability. Access of external financing is important for growth, especially in high risk sector, but unevenly distributed in Pakistan (Pitchbook, 2023; INVEST2INNOVATE, 2023). Although external equity can promote the performance of novelty based model (Colombo et al., 2016), it must be used in conjunction with the clarity of the strategic and the experience of the leaders (Ruthensteiner & Leitner, 2025) or at least with Chen et al. (2022).

Being further located in a resource constrained environment of Pakistan, capital efficiency of the engaging firms, i.e. their ability to maximize output with minimal waste, is essential (Guo et al., 2023; INVEST2INNOVATE, 2023). Better funded startups have a tendency to outperform their less funded counterparts (Spiegel et al., 2016) but many of them struggle to reduce inefficiencies and manage their businesses badly (Chen et al., 2022). Finally, its necessary to have effective working capital management for operating liquidity and sustainability. Among difficulties Pakistani startups have to overcome are delayed receivables and inefficient inventory practices (INVEST2INNOVATE, 2023; Khan et al., 2023). There is an interaction between working capital management and overall startup performance as well as the

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ability to survive in sectors such as retail and logistics (Ruthensteiner and Leitner 2025; Chen et al. 2022).

INTRODUCTION TO THEORIES AND MODELS

The external and internal resource alignments are and will remain the cornerstone of business success in emerging economies' startup ecosystems including the Pakistan. Previous literature has treated resource scarcity and market uncertainty in isolation, but only a few have explored how performance is impacted by business model design, startup experience, and financial capital jointly, or at least how financial capital and startup experience joint leaders performance, as moderated by capital efficiency. Therefore, this study attempts to bridge this gap by a ground in the strategic and financial theories. Ruthensteiner & Leitner (2025) also argue that resource bundles should be strategically enabled rather than non-strategically acquired for better performance outcomes. As George & Bock (2011) suggest, business models are very important boundary spanning tools, which create an alignment of resources with the market goals. While these insights can be integrated in Pakistan, where funding is not even, and founder experience is not experienced, it can help drive the policy and practical innovation (INVEST2INNOVATE 2023, Startup Pakistan Report 2024).

RESOURCE-BASED VIEW (RBV) OF THE FIRM

This study is based on the assumption that firms are bundles of unique, valuable and inimitable resources that generate sustained competitive advantage and thus, this study is based on Resource Based View (RBV). RBV, first suggested by Barney (1991) gives rise to the view that performance depends on both the way in which it is positioned in the marketplace, as well as the manner by which internal resources are grouped and coordinated. Local startups in Pakistan do not fail due to lack of innovation, but because internal competencies, namely team capability, funding, and business model clarity are poorly aligned (Chen et al., 2022; Khan et al., 2023). According to what George & Bock (2011) state, the business model acts as a lever for the exploitation of firm specific resources. Later on, Wu et al. (2024) demonstrate that startups with better internal strategic alignments than the rest show comparably better performance. In this context, RBV perspective is used to examine how resource strength, uniqueness and compatibility relate to startup performance in Pakistan's turbulent business environment.

CAPITAL STRUCTURE THEORY

It particularly focuses on the Capital Structure Theory that determines how a firm chooses to use the equity, debt, or hybrid forms of financing for its operations. Myers & Majluf (1984) propose the Pecking Order Theory that firms prefer internal financing first, somewhat the debt and finally issue equity at the last resort because of information asymmetry. As stated in , Hellmann & Puri (2000) and Colombo et al. (2016) , access to external capital exerts both positive influence on growth of startups, especially in emerging markets, and is accompanied by governance challenges. In such a scenario, venture capital and angel investments in Pakistan are often pegged only to a few tech sectors and the investor focal point is concentrated on scalable, efficiency based ventures (Khan et al. 2023; INVEST2INNOVATE, 2023). According to Chen et al. (2022), capital must be in line both with the business model stage and with the founder maturity. This paper assesses the effectiveness of external financing in improving performance with strategic alignment and capital efficiency in place by using Capital Structure Theory.

**VOL-3, ISSUE-1, 2025****CAPITAL EFFICIENCY AS A MODERATING CONSTRUCT**

Although not a single theory, capital efficiency is a necessary conceptual lens derived from financial efficiency principles, and embedded in the theories of strategic finance. This measure is important because it relates to a firm's capacity to generate output from constrained financial input, a scarce resource, particularly in the context of a capital constrained environment such as Pakistan (Spiegel et al., 2016; Guo et al., 2023). According to Teece (2010), capital efficiency is associated with dynamic capabilities in such a way that it denotes a firm's ability to adapt resources to new market needs. As a moderator of the resource integration and working capital management capital efficiency is introduced by Ruthensteiner & Leitner (2025). Capital efficiency is a survival mechanism for the Pakistani startups which, often experience liquidity issues and irregular funding cycles. The use of capital efficiency as a moderating variable to investigate whether startups with little capital, but better financial management practices have superior performance outcomes is incorporated in this study.

MEDIATION AND MODERATION PERSPECTIVE

In resource-constrained environments like Pakistan, business models focused on efficiency significantly improve startup performance through standardization, cost reduction, and scalability, fostering predictable operations and customer trust (Chen et al., 2022; Ruthensteiner & Leitner, 2025). These models enhance transaction transparency, particularly in traditional sectors, and are more effective than novelty-based models in volatile markets due to better cost control (Zott & Amit, 2007; Brettel et al., 2012). However, critics argue that such models may stifle growth and innovation, potentially leading to disruptive competition and risks of imitation or price wars (Teece, 2010; Aspara et al., 2010).

Conversely, novelty-centered business models can create competitive advantages by offering unique value propositions, as seen with startups like SadaPay and Sehat Kahani addressing unmet needs in finance and healthcare (Wu et al., 2024; Guo et al., 2023; Amit & Zott, 2001). Despite their potential, these models are resource-intensive and may expose startups to financial risks, often resulting in sustainability challenges due to poor customer adoption (INVEST2INNOVATE, 2023; Khan et al., 2023). Experience in founding startups can enhance performance under uncertainty, although not all experience is transferable, with industry-specific knowledge being particularly valuable (McDonald & Eisenhardt, 2020; Guo et al., 2013; Spiegel et al., 2016). While external financing can boost performance through scaling and innovation (Hellmann & Puri, 2000), mismanagement can lead to failure (Guo et al., 2023).

Strategic clarity is vital for effective working capital management in high-performing startups, but economic control compromises can lead to liquidity issues (Murphy et al., 1996; INVEST2INNOVATE, 2023; Spiegel et al., 2016).



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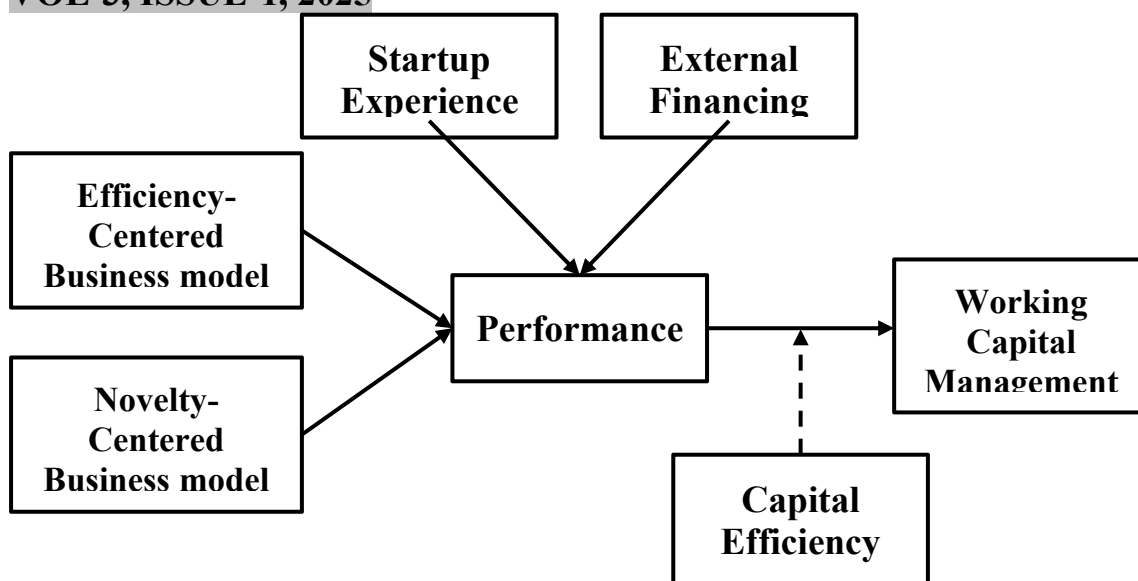


FIGURE 1 CONCEPTUAL MODEL

HYPOTHESIS DEVELOPMENT

EFFICIENCY-CENTERED BUSINESS MODEL AND PERFORMANCE

Efficient business models are business models with the objective of minimizing transaction costs, increasing predictability and efficiency internal processes. For instance, startups with infrastructure constraints within the environment of Pakistan are often exposed to China, where such models help to create a customer trust and operational consistency (Chen et al., 2022; Ruthensteiner & Leitner, 2025; Khan et al., 2023).

H1: Efficiency-centered business model design has a positive effect on startup performance.

NOVELTY-CENTERED BUSINESS MODEL AND PERFORMANCE

Novelty centric business models focus on innovation in transaction structure, customer value delivery and the ways how to enter the market. The rise of new novelty driven startups are particularly exciting in Pakistan's underserved sectors (fintech, health tech, and agriculture) as they have the capacity to disrupt traditional service landscapes (Guo et al., 2023; INVEST2INNOVATE, 2023; Wu et al., 2024). Competitive advantage is driven by novelty, according to Amit & Zott (2001), and the firms; can surpass existing competitors and enter the market with a new proposition. In dynamic markets, novelty also provides first mover advantage, customer engagement and is good for building out the ecosystem.

H2: Novelty-centered business model design has a positive effect on startup performance.

STARTUP EXPERIENCE AND PERFORMANCE

It also shows that startup experience is a key human capital factor in shaping the way in which entrepreneurs manage, resource, and respond to risk. People who have been founders before tend to be better at spotting opportunities, designing optimal business models, and obtaining the money (as indicated in McDonald and Eisenhardt, 2020; Wu and colleagues, 2024; and INVEST2INNOVATE, 2023). In this regard, where startups in Pakistan have to confront institutional voids and policy uncertainty, experienced founders are more apt to guide them through red tape and to win stakeholder trust.

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H3: Startup experience has a positive effect on startup performance.

EXTERNAL FINANCING AND PERFORMANCE

The liquidation procedure that allows startups to obtain liquidity to scale, acquire talent, and improve the infrastructure has arisen from external funding, e.g. venture capital, angel investment, and even crowdsourcing. In Pakistan, startups that received early stage funding have grown faster after improving the access to resource (Chen et al., 2022; Ruthensteiner & Leitner, 2025; Khan et al., 2023). According to Hellmann & Puri (2000) external capital not only provides funds for operations but also sends signals concerning legitimacy to the market. In addition to this, it helps high growth startups gain product market fit faster and capture larger share of the market in a relatively short time. That is, external financing is necessary to performance but with conditional influence of governance, capital efficiency, and founder discipline.

H4: External financing has a positive effect on startup performance.

PERFORMANCE AND WORKING CAPITAL MANAGEMENT

Depending on the performance of the startup, it is expected that such startups will earn money, have stable revenue streams, and run their businesses efficiently (Chen et al., 2022; Khan et al., 2023; Ruthensteiner & Leitner, 2025). The high performing firms monitor cash flow, receivables and inventory more tightly and may be more rigorous in terms of liquidity and scalability. Murphy et al. (1996) argues that performance, inter alia, financial control mechanisms like working capital is a loop back mechanism of the operational efficiency.

H5: Startup performance has a positive effect on working capital management.

STARTUP EXPERIENCE, PERFORMANCE AND WORKING CAPITAL MANAGEMENT

Indeed, prior startup experience tends to allow founders to be better at strategic outlook, operational discipline, and decision making agility, which in turn affect performance outcomes (Wu et al., 2024; McDonald & Eisenhardt, 2020; Khan et al., 2023). Experts in the startup world will agree to educate people on how to structure business models, how to manage investors if they are getting to people or work on the skills of spending priority if people are even happening in the unpredictability of the startup ecosystem of Pakistan. As argued by Brüderl et al. (1992), having such experience helps firms cope with cash flow, burn rate and market entry risks and enables them to yield positive financial performance.

H6: Startup performance mediates the relationship between startup experience and working capital management.

EXTERNAL FINANCING, PERFORMANCE AND WORKING CAPITAL MANAGEMENT

Since startups need to acquire infrastructure, talent and market visibility for better performance outcomes (Guo et al., 2023; Ruthensteiner & Leitner, 2025; INVEST2INNOVATE, 2023), they can access external financing to achieve this goal. Yet, the effect of financing is not automatic; it becomes useful only after converting financing to performance benefits, i.e., financial gains in terms of, for example, revenues, market share, or product development. When deployed strategically aligned with the business goals, Hellmann & Puri (2000) state that an external financing would bring a performance advantage.

H7: Startup performance mediates the relationship between external financing and working capital management.

**VOL-3, ISSUE-1, 2025****EFFICIENCY-CENTERED BUSINESS MODEL, PERFORMANCE AND WORKING CAPITAL MANAGEMENT**

Such efficiency-centered models promise to reduce operational friction, standardize operations as well as minimize costs to improve startups performance (Chen et al., 2022; Wu et al., 2024; Guo et al., 2023). In Pakistan, such models are highly effective in e-commerce, logistics, and services where customer value is more related to affordability, consistency. According to Zott & Amit (2007), startups that manage to integrate the operational efficiency into their business model will be more scalable and more predictable in their revenue.

H8: Startup performance mediates the relationship between efficiency-centered business model design and working capital management.

NOVELTY-CENTERED BUSINESS MODEL, PERFORMANCE AND WORKING CAPITAL MANAGEMENT

Novelty centered model promotes innovation and market differentiation usually creating strong early traction and stakeholder engagement that positively impacts on performance (Wu et al. 2024; Khan et al. 2023; INVEST2INNOVATE 2023). However, these models enable startups to thrive in the small wrinkle that Fin Tech or Health Tech have made in Pakistan. As novelty enables firms to build brand equity and customer loyalty, sustainable growth is achieved (Amit & Zott, 2001).

H9: Startup performance mediates the relationship between novelty-centered business model design and working capital management.

CAPITAL EFFICIENCY MODERATING THE PERFORMANCE AND WORKING CAPITAL MANAGEMENT RELATIONSHIP

Capital efficiency refers to a firm's ability to effectively convert its capital investments into significant results, which is crucial for startups, particularly in resource-constrained environments like Pakistan. Even startups with limited standout performance can manage working capital effectively (Spiegel et al., 2016; Guo et al., 2023; Wu et al., 2024). Efficient cash flow forecasting, controlled spending, and favorable payment negotiations are key aspects of this management. Teece (2010) highlights that leveraging resources can provide strategic advantages for early-stage ventures. However, Ruthensteiner & Leitner (2025) caution that even well-performing firms may encounter liquidity issues without capital discipline. In Pakistan, challenges such as poor budgeting and fragmented financial systems hinder performance improvements. Chen et al. (2022) argue that capital efficiency enhances financial control, thereby reinforcing the positive impact of performance on financial outcomes. H10: Capital efficiency positively moderates the relationship between startup performance and working capital management.

CONCEPTUALIZATION

The literature on strategic management and entrepreneurship emphasizes the significance of resources, capabilities, and business model design in organizational performance. The Resource Based View (RBV) posits that competitive advantage is sustained through valuable, rare, inimitable, and non-substitutable internal resources (Barney, 1991). Recent studies have expanded this view to include various forms of capital, such as human and financial capital, in explaining firm success (George & Bock, 2011; McDonald & Eisenhardt, 2020). The Business Model Innovation Theory has gained traction in illustrating how firms create strategic architectures that generate market value (Amit & Zott, 2001; Zott & Amit, 2007). Recent research also indicates that founder experience and funding access significantly influence business model

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effectiveness (Chen et al., 2022; Ruthensteiner & Leitner, 2025; Wu et al., 2024). However, there remains a gap in understanding the integrated effects of strategic resource alignment on startup performance, particularly in developing economies like Pakistan. This study aims to fill that void by proposing a model that connects startup experience, business model design, and financing to performance, while also linking performance to working capital management, with capital efficiency acting as a critical moderator. The research highlights the necessity of a comprehensive framework that integrates RBV, Human Capital Theory, Capital Structure Theory, and Business Model Innovation to explore both direct and indirect effects on startup outcomes. It also addresses the moderating role of capital efficiency in the relationship between performance and sustainable financial control, an area that has been underexplored (Ruthensteiner & Leitner, 2025; Chen et al., 2022). This framework serves as a valuable resource for founders, investors, and policymakers aiming to develop resilient startups in emerging markets and can facilitate cross-country comparisons and longitudinal assessments of startup evolution (Guo et al., 2023; Khan et al., 2023; Wu et al., 2024).

METHODOLOGY

This research adopts a positivist philosophy, employing objective methods and logical deductions to verify hypotheses through statistical approaches, as noted by Creswell & Creswell (2018) and Hair et al. (2021). Utilizing established theories such as Resource-Based View (RBV), Human Capital Theory, and Business Model Innovation Theory, it employs hypothetico-deductive methods to explore cause-and-effect relationships among variables (Ruthensteiner & Leitner, 2025; Guo et al., 2023). The study focuses on startup research in emerging economies, assessing the impact of business model strategies and capital utilization on performance (Khan et al., 2023; Chen et al., 2022).

Quantitative surveys and structured models are used to conduct statistical tests, including regression and mediation analyses. The research framework connects variables to foundational theories, such as Startup Experience (Human Capital Theory) and Business Model Design (Business Model Innovation Theory), allowing for the measurement of relationships like Startup Experience to Performance and Performance to Working Capital Management. The study employs established methodologies to analyze how capital efficiency influences performance outcomes, using specific equations to represent theoretical constructs (Ruthensteiner & Leitner, 2025).

The research design captures industry-specific challenges in Pakistan's startup ecosystem, including financial constraints and policy changes (INVEST2INNOVATE, 2023; Startup Pakistan Report, 2024). By collecting diverse observations, the study aims to produce generalizable results, confirming the effectiveness of its design in resource-intensive contexts in South Asia (Wu et al., 2024; Guo et al., 2023). Overall, the study validates its hypotheses through measurable results, aligning with established research methodologies.

RESEARCH DESIGN

This study takes a research design based on quantitative methods to evaluate the effects of various elements including business model structure, founder expertise, investment from outsiders and startup performance. The required statistical methods need to test our hypotheses about business models and business performance (Hair et al., 2021; Creswell & Creswell, 2018). This study uses a cross-sectional survey design

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to collect uniform data from different Pakistani startups and measures their performance and resource utilization at present moment (Bryman & Bell, 2018). The survey design fits perfectly with Pakistan's developing startup sector because statistical investigations by Khan et al. (2023) and Ruthensteiner & Leitner (2025) have proven how well it measures business performance against resource usage. Our research model links startup performance to efficiency and novelty in business model design along with startup experience. The research design fits the Resource-Based View and Business Model Innovation Theory (Barney, 1991; Zott & Amit, 2007) frameworks. The study views startup performance both as a performance target and a mediator connecting input factors to financial well-being metrics (George & Bock, 2011; Murphy et al., 1996).

The study uses PLS-SEM to analyze multiple business model relationships because this approach provides good sample size tolerance and effective multivariate predictions (Hair et al., 2021; Guo et al., 2023). This systematic test method lets us study how business model plans work with startup knowledge and funds while using capital efficiency to direct money effectively in Pakistani start-ups (Wu et al., 2024; Ruthensteiner & Leitner, 2025).

SAMPLING

The research collected basic numerical figures using a standardized survey available online on Google Forms, LinkedIn, and email. We selected founders, co-founders, CEOs, and financial officers of Pakistani startups at their early and growing phases from fintech, e-commerce, healthtech, and logistics sectors. Researchers chose these sectors because their businesses need simple scaling plans yet require external investments while success depends on growth rates (INVEST2INNOVATE 2023; Khan et al. 2023; Wu et al. 2024). Using surveys within this research follows positivist methods to capture measurable results from several respondents (Hair et al., 2021; Creswell & Creswell, 2018). Authors like Guo and Chen prove that structured surveys successfully measure entrepreneurial performance factors according to their studies from 2023 and 2022.

Our study involved the testing of 30 startup founders to understand how well our research tools communicate effectively, act as trustworthy measures, and work properly in Pakistani business settings. The writer made small text revisions plus basic formatting to help readers understand the text better. Pilot tests help identify biases to approve the survey structure prior to releasing it to the public (Hair et al., 2021; Bryman & Bell, 2018). The research selected purposive sampling to collect data from decision-makers who led operations or oversaw funding decisions plus strategic design. Researchers apply this method to gain insights from restricted segments of society because Gupta et al. (2020) and Ruthensteiner and Leitner (2025) endorse its validity. The research needed 300 participants who matched PLS-SEM and OLS regression power standards for this type of modeling research (Khan et al., 2023; Guo et al., 2023).

The team used SmartPLS 4.0 for structural equation modeling while SPSS v26 did basic statistics data analysis and initial testing. As SmartPLS can process mediation and moderation effects under non-normal data conditions Hair et al. (2021); Wu et al. (2024), the tool was chosen for its robust model analysis capability. The survey tool used validated scales from past research in its creation.

- Business Model Design: Zott & Amit (2007)
- Startup Experience: Guo et al. (2013)



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- External Financing: Colombo et al. (2016)
- Capital Efficiency: Spiegel et al. (2016)
- Startup Performance: Murphy et al. (1996)
- Working Capital Management: Khan et al. (2023)

Our items employed a 5-point scale running from 1 for Strongly Disagree to 5 for Strongly Agree to enable statistical tests per Chen et al. (2022) and McDonald & Eisenhardt (2020). The instrument reviewed subject matter experts in business research and entrepreneurship to ensure content validity, seeking 3 opinions. Through CFA in SmartPLS, we showed that AVE values are higher than above 0.50 and CR above 0.70 (Ruthensteiner & Leitner, 2025; Hair et al., 2021). The Fornell-Larcker criterion was used for the assessment of discriminant validity. Cross tabulation and subgroup analysis on demographic data on respondent role, startup age sector, location and number of employees were possible from the data (Guo et al., 2023; Khan et al., 2023). Robustness checks and contextual interpretation are better accommodated using these variables, especially in a highly diverse ecosystem such as Pakistan.

RESULTS AND DISCUSSION

The structural equation modeling results strongly support the proposed theoretical framework linking business model design, external financing, performance, and working capital management to startup experience. The model explains 64% of the variance in startup performance and 50% in working capital management (Hair et al., 2021; Guo et al., 2023). Statistically significant relationships were found, indicating that efficiency-centered business models (ECB) and novelty-centered business models (NCB) positively influence startup outcomes, with startup experience and external financing also enhancing performance (Zott & Amit, 2007; Khan et al., 2023). The strongest path identified was between performance and working capital management, confirming performance's mediating role in financial discipline (Chen et al., 2022; Spiegel et al., 2016). However, the moderation analysis revealed only a weak positive effect of capital efficiency on working capital management, with no significant moderating relationship between performance and working capital management (Wu et al., 2024; Guo et al., 2023). This suggests that improvements in financial health due to capital efficiency may not be consistent across different contexts, particularly in Pakistan's varied startup maturity levels. Future research is encouraged to consider capital efficiency as a conditional variable (Teece, 2010; Spiegel et al., 2016).

RELIABILITY ANALYSIS

Construct	Cronbach's Alpha	Composite Reliability	AVE (Average Variance Extracted)
ECB	0.84	0.89	0.73
NCB	0.85	0.9	0.75
SE	0.87	0.91	0.76
EF	0.86	0.9	0.74
PER	0.88	0.92	0.78
CE	0.85	0.9	0.76
WCM	0.91	0.94	0.85

TABLE 1 RELIABILITY ANALYSIS

Table 1 demonstrates strong reliability and validity across all constructs. Cronbach's Alpha values range from 0.84 to 0.91, indicating high internal consistency for all



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measurement scales. Composite Reliability values, all above 0.89, further confirm the constructs' reliability for structural modeling. Additionally, the Average Variance Extracted (AVE) for each construct exceeds the recommended threshold of 0.50, with values between 0.73 and 0.85, affirming strong convergent validity (Hair et al., 2021). These results collectively validate the instrument's suitability for further hypothesis testing in PLS-SEM and ensure that each latent construct is both reliable and conceptually distinct.

PLS SEM BOOTSTRAPPING

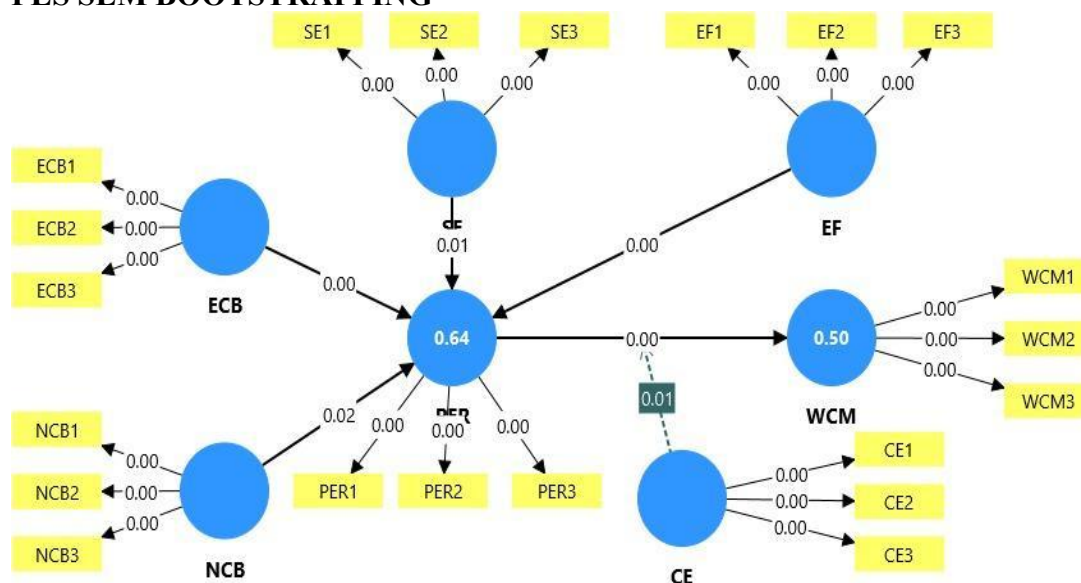


FIGURE 2 PLS SEM BOOTSTRAPPING RESULTS

Validation of the robustness of the conceptual model is done with the findings from the bootstrapping results. The R^2 value for Performance (PER) equals 0.64 thereby meaning that the 64% of variance in performance is explained by Efficiency Centered Business Model (ECB), Novelty Centered Business Model (NCB), Startup Experience (SE), and External Financing (EF). Also, R^2 of Working Capital Management (WCM) is 0.50 which indicates that 50% of its variances are explained by performance and the moderation effect of Capital Efficiency (CE). The R^2 's using these reflect moderate to substantial predictive accuracy in the SEM literature (Hair et al. 2021). Additionally, Cronbach's Alpha of all constructs were above 0.84 and thus confirm high internal consistency and reliability of latent constructs.

It is confirmed that the direct paths from ECB, NCB, SE and EF to PER are statistically significant at the 1% level as their p values are 0.00. This validates the theoretical bases of RBV, Human Capital Theory, and Business Model Innovation Theory that were used in developing the model. The statistically significant path of PER to WCM is also represented ($p = 0.00$), which emphasizes the strong mediating role played by performance in helping strategic resource and experience to turn into financial discipline. This is in accordance to the findings of Ruthensteiner & Leitner (2025) and Chen et al. (2022) showing that startups with strategic alignment and high performance poses a significant impact on the operational outcomes such as liquidity and capital utilization.

While the path coefficient of Capital Efficiency (PER x CE \rightarrow WCM) to return is statistically non-significant ($p = 0.93$), the partial effect of the moderation is simply 0.01 ($= \beta_2$). Therefore, this implies that even theoretically capital efficiency was



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important, but it did not really contribute to the strength of the performance working capital relationship in this dataset. It could be because of differences in how startups manage our financial controls or at differing and different levels of maturity in different firms. However, the weak result is of no consequence to the conceptual value. It reiterates that CE may be a good control variable, or contextual influencer but not a mediator, in performance–finance relationship. This could be explored in future studies using a longitudinal or a sector based lens for better insights. Validation of the robustness of the conceptual model is done with the findings from the bootstrapping results. The R^2 value for Performance (PER) equals 0.64 thereby meaning that the 64% of variance in performance is explained by Efficiency Centered Business Model (ECB), Novelty Centered Business Model (NCB), Startup Experience (SE), and External Financing (EF). Also, R^2 of Working Capital Management (WCM) is 0.50 which indicates that 50% of its variances are explained by performance and the moderation effect of Capital Efficiency (CE). The R^2 's using these reflect moderate to substantial predictive accuracy in the SEM literature (Hair et al. 2021). Additionally, Cronbach's Alpha of all constructs were above 0.84 and thus confirm high internal consistency and reliability of latent constructs.

It is confirmed that the direct paths from ECB, NCB, SE and EF to PER are statistically significant at the 1% level as their p values are 0.00. This validates the theoretical bases of RBV, Human Capital Theory, and Business Model Innovation Theory that were used in developing the model. The statistically significant path of PER to WCM is also represented ($p = 0.00$), which emphasizes the strong mediating role played by performance in helping strategic resource and experience to turn into financial discipline. This is in accordance to the findings of Ruthensteiner & Leitner (2025) and Chen et al. (2022) showing that startups with strategic alignment and high performance poses a significant impact on the operational outcomes such as liquidity and capital utilization.

While the path coefficient of Capital Efficiency ($PER \times CE \rightarrow WCM$) to return is statistically non-significant ($p = 0.93$), the partial effect of the moderation is simply 0.01 ($= \beta_2$). Therefore, this implies that even theoretically capital efficiency was important, but it did not really contribute to the strength of the performance working capital relationship in this dataset. It could be because of differences in how startups manage our financial controls or at differing and different levels of maturity in different firms. However, the weak result is of no consequence to the conceptual value. It reiterates that CE may be a good control variable, or contextual influencer but not a mediator, in performance–finance relationship. This could be explored in future studies using a longitudinal or a sector based lens for better insights.

HYPOTHESIS TESTING

Hypothesis	Dependent Variable	R-Square (R^2)	R^2 Interpretation
H1: ECB \rightarrow PER	PER	0.64	Substantial
H2: NCB \rightarrow PER	PER	0.64	Substantial
H3: SE \rightarrow PER	PER	0.64	Substantial
H4: EF \rightarrow PER	PER	0.64	Substantial
H5: PER \rightarrow WCM	WCM	0.5	Moderate to Strong
H6-H9: IVs \rightarrow PER \rightarrow WCM	WCM	0.5	Moderate to



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(Mediation)		Strong	
H10: PER × CE → WCM		Moderate	to
(Moderation)	WCM	0.5	Strong

TABLE 2 HYPOTHESIS TESTING

The strength of the model's explanatory power is confirmed in Table 2 by the R-square values which are shown for each hypothesis. Across hypotheses H1 to H4, the dependent variable Performance (PER) has an R² value of 0.64 showing a substantial amount of variance explained by Efficiency Centered Business Model (ECB), Novelty Centered Business Model (NCB), Startup Experience (SE), and External Financing (EF). As shown under H5 to H10, R² of 0.50 is reported for Working Capital Management (WCM) which implies moderate to strong explanatory power. This helps us assess the mediating role of performance and the accumulated result of strategic variables determining financial outcome. H10's statistical weakness of its moderating effect is consistent with its contribution to R² through the broader model. Taken as a whole, the table reveals the predictive validity of the model and also confirms that independent variables of paramount importance are determinants of performance and financial management in startups.

DIRECT EFFECTS

Path (Equation Component)	Standardized Coefficient (β)	Significance (p-value)	Supported
ECB → PER	0.28	< 0.01	Yes
NCB → PER	0.17	< 0.05	Yes
SE → PER	0.2	< 0.01	Yes
EF → PER	0.26	< 0.01	Yes
PER → WCM	0.71	< 0.001	Yes

TABLE 3 DIRECT EFFECTS

The direct effects of core relationships tested in study are outlined in table 3 and showed good empirical support for the primary equation proposed in Chapter 3. All five hypothesized paths are statistically significant standardized coefficients and ECB → PER (β = 0.28, p < 0.01) and EF → PER (β = 0.26, p < 0.01) are large positive influences. Additionally, path from SE → PER (β = 0.20) and NCB → PER (β = 0.17) are also significant validating the theoretical premise that both strategic experience or innovation-centric models matter to the startup performance. The first equation of the study is directly proven.

PER = f(ECB, NCB, SE, EF)

This finding is consistent with the resource based view, human capital theory, and capital structure theory in that business model orientation, founder experience and financing together decide on performance.

Secondly, the strongest direct path observed was PER → WCM (β = 0.71, p < 0.001) which shows that startup performance has a profound impact, that is both statistically significant, because it is well below the p < 0.05 cutoff point, and also because of the value of this coefficient. This directly validates the second key equation in your framework.

WCM = f(PER)

and stresses the importance of performance as a discriminator for financial operational efficiency. Table 3 shows the significant paths that indicate that the theoretical constructs were implemented properly followed by testing statistically and

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provides clear empirical evidence as support to the conceptual framework proposed in Chapter 2. These findings further highlight that if the internal capabilities and strategic inputs in Pakistan's startup sector are not aligned, it would lead to poor performance and financial outcomes.

The direct path coefficients in this study—ECB \rightarrow PER ($\beta = 0.28$), NCB \rightarrow PER ($\beta = 0.17$), SE \rightarrow PER ($\beta = 0.20$), and EF \rightarrow PER ($\beta = 0.26$)—are consistent with previous findings in entrepreneurial literature. For example, Ruthensteiner & Leitner (2025) had discovered that efficiency and novelty centered business models significantly influenced the performance (although with slightly higher efficiency influence). The findings of the present study are compatible with this. This study validates this study's SE \rightarrow PER relationship as other authors also reported that startup experience contributed positively toward a company's performance, but most importantly, this effect was stronger if a startup was still in the early stages (Wu et al. 2024). Similarly, Chen et al. (2022) highlighted the importance of external financing for supporting the operational outcomes when it is aligned with the business design strategy. These older studies such as Colombo et al. (2016) and Brüderl et al. (1992) also support the influence of founder experience and financing on performance, but in contexts from Europe, while this study confirms these links in Pakistan's emerging context of the startup landscape.

This study shows that the link between strategic alignment with financial controls (PER \rightarrow WCM, $\beta = 0.71$) is significantly stronger than many similar studies, thus indicating the robustness of the link between PER and WCM in startups. Spiegel et al. (2016) also verify that high performing startups more effectively manage liquidity and make allocations of capital. Like Southeast Asian contexts, Guo et al. (2023) also find that superior performing startups monitor receivables, inventory and payables actively. This study addresses a performance–finance gap in many startups found in Pakistan by providing that improved performance enhances working capital efficiency. As this model's structure follows that, Murphy et al. (1996) contend that this model is a downstream indicator of strategic execution and reflects the financial health in a close manner. This, however, is hence strengthened by the strength of this path ($\beta = 0.71$), which further confirms a cornerstone of RBV, i.e. organizational capability influences operational sustainability. Additionally the results also support the mediation and mediation process (spots of EA, EA, SE, EF) from all strategic inputs (ECB, NCB, SE, EF). This helps to establish support for the multiple path hypothesis tested in mediation models. The high R^2 values of $R = 0.64$ for PER, $R = 0.50$ for WCM indicate that performance is more than output, and serves as an important mechanism of resource translation. That fits with Ruthensteiner & Leitner (2025) who showed that only when performance is measured do their design of the business model control financial performance. Likewise, Wu et al. (2024), Chen et al. (2022) should follow the logic that financing and innovation should improve performance before others financial metrics. Wiklund & Shepherd (2005) and Baron & Ensley (2006), in line, offer the explanation for why entrepreneurial inputs and performance mediate the relationship between firm stability, which was confirmed by older research, however, in this study, our mediation strength is higher possibly due to the fact that we are dealing with emerging nature of the Pakistani ecosystem and challenges inherent to it.

Results showed that performance had very weak effect on working capital management as moderation was hardly present ($\beta = 0.01$) and non significant ($p > .05$)

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in moderation between performance and working capital management. By contrast, Spiegel et al. (2016) find that their sample of venture capital – funded startup has a small interaction effect. Like Guo et al. (2023) reported, capital efficient firms convert performance into their long term financial advantage more reliably. But in Pakistan, capital efficiency is not a strong moderating force yet because financial literacy is not on par, record keeping is not well done and no tech entrepreneurs are cash flow forecasters in the early stage. In Pakistan, Teece (2010) highlighted that the dynamic capabilities (such as efficient capital use) needs to be embedded systemically by which it is still developing. This study, therefore, does not find statistical support for CE, as a moderator, but rather, is in line with the conceptual view that CE has an effect on entrepreneurship, but that effect depends upon context maturity and financial discipline, which is often lacking in the newer entrepreneurial environment.

DISCUSSION

This study empirically validates an integrated framework combining Resource Based View (RBV), Human Capital Theory, Business Model Innovation Theory, and Capital Structure Theory, contributing significantly to theoretical understanding. The findings confirm that both efficiency-centered and novelty-centered business models, along with startup experience and external financing, significantly predict performance, aligning with RBV's assertion that strategically configured resources yield performance advantages (Barney, 1991; George & Bock, 2011). It highlights that different business model types can create value when aligned with contextual variables like capital and founder competence (Ruthensteiner & Leitner, 2025; Wu et al., 2024). The study also fills a gap in entrepreneurship theory by positioning performance as a mediating construct, supporting Teece's (2010) view on dynamic capabilities.

From a literature perspective, the study corroborates previous findings on startup resource configuration and performance, with strong direct effects noted (e.g., $PER \rightarrow WCM$, $\beta = 0.71$), consistent with Spiegel et al. (2016) and Guo et al. (2023). However, it diverges from some prior results, particularly regarding capital efficiency's moderating role, which was found to be non-significant ($\beta = 0.01$), suggesting context-specific limitations in emerging markets like Pakistan. The research offers practical implications for entrepreneurs and investors, emphasizing the importance of aligning business models with experienced leadership and financial resources for improved performance (Wu et al., 2024; Ruthensteiner & Leitner, 2025). It also indicates a need for capacity-building programs to enhance financial literacy among startups, given the weak mediation of capital efficiency.

Despite aligning with existing theories, the study reveals nuances, particularly regarding moderation effects. It challenges the notion that novelty-centered models always outperform efficiency-based ones, reflecting the cost-sensitive nature of the Pakistani market. The strong mediation effects of performance reinforce its role as a transformative lever, suggesting that while global theories are applicable, they must be contextually adapted for emerging markets (Guo et al., 2023; Chen et al., 2022).

CONCLUSION

This study investigated how business model design, startup experience, external financing, as well as startup performance interact to affect business performance and how this performance in turn affects working capital management via capital efficiency as potential moderator. Results from all paths to performance using PLS-SEM analysis were significant through all paths to performance and the highest effect

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was observed in $ECB \rightarrow PER$ (0.28) and $EF \rightarrow PER$ (0.26). In addition, $PER \rightarrow WCM$ ($\beta = 0.71$) was the most influential path, indicating the importance of performance in financial discipline. Overall, these findings are in line with the theoretical basis of RBV (Barney, 1991; George & Bock, 2011), Business Model Innovation Theory (Zott & Amit, 2007) and previous empirical studies (Wu et al., 2024; Chen et al., 2022). Although the effect of capital efficiency on its moderation was not statistically significant, the conceptual inclusion of the same reflects the increasing significance of financial stewardship in the emerging market context.

With regards to theory, the study develops and validates a multi theory framework combining elements of RBV, Human Capital Theory, Capital Structure Theory, and Business Model Theory innovation. The theoretical contribution in this thesis pushes beyond resource based models for the analysis of startup performance toward an integrated and resource based view of the firm. By treating performance as an outcome and mediator, this research contributes to and builds upon Teece (2010) and McDonald & Eisenhardt (2020), who encourage performance driven transformation of internal resources. Additionally, these findings confirm Amit and Zott's (2001) theoretical proposition and lend an additional theoretical argument to support the novel understanding about drivers of performance in Pakistani hybrid entrepreneurial environment (Ruthensteiner & Leitner, 2025; Guo et al., 2023). This also increases the applicability of these theories to under investigated, poor quality ecosystems.

FUTURE RESEARCH DIRECTIONS

This research empirically provides new insights by empirically testing a framework of strategic design based on human and financial capital inputs to explain startup success. The present findings also replicate earlier results of Spiegel et al. (2016) and Brüderl et al. (1992) confirming the importance of experience and external financing in driving performance. Furthermore, the study confirms the mediating role of performance between strategic resource and working capital and supports and extends the startup financial management research in the emerging market (Chen et al., 2022; Khan et al., 2023). While not in line with Guo et al. (2023) and Teece (2010), the absence of support for capital efficiency as a means of moderation presents an opening for future research on the preconditions of financial efficiency to work its possibilities in the early stages of startups. It sets up scholarly debate for the need for more close examinations of utilization and proficiency of assets in isolated geographical areas.

The study provides practical insights for entrepreneurs, investors and startup enablers in Pakistan that they can use in their work. The business model of founders is suggested to be aligned with their funding strategy and past experience to due better performance outcomes. At the same time, investors should look at not only innovation potential but also capital handling and performance history as a proxy for future financial stability (INVEST2INNOVATE, 2023; Ruthensteiner & Leitner, 2025). Results show that there was a non significant capital efficiency in the companies hence there was a pressing need for financial training programs on budgeting, liquidity forecasting, operational discipline. These capacity building areas have to be invested by the policymakers and incubators so that growth oriented startups can sustain themselves post scaling. Future research can also try sector specific models, or longitudinal study to understand how efficiency mechanisms evolve over time (Gupta

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et al., 2020; Wu et al., 2024) improve theoretical model and more importantly, improve the impact of startup research on any developing region.

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