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Research Paper

Financial slack and technology commercialization: contingent effects of executive international experience in declining firms

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ABSTRACT

Internal resource conversion into innovation gains paramount importance due to speedy technological changes alongside intense global competition particularly since organizations experiencing performance decline must succeed. Organizational research lacks sufficient understanding about strategic implementation of financial slack during periods of downturn. Financial slack and technology commercialization in declining firms demonstrate a relationship which depends on the influence of executive international experience according to this study. As an application of resource-based view and upper echelons theory the paper defines financial slack as a strategic resource with three distinct types (available, absorbed and potential) that enables innovation when properly deployed. The research study explores how different degrees of executive international background impact the firm's process of turning slack resources into innovative results throughout sustained organizational decline. The research discovers that international leadership experience intensifies the positive R&D investments brought by slack resources which subsequently improves technological commercialization success. The findings contribute both theoretical understanding and practical application about how leader backgrounds influence resource strategies related to innovation-based renewal of underperforming firms.

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1. INTRODUCTION

Organizations face mounting competitive and fast-moving business challenges that compel them to maintain innovation as their primary growth and sustainability force [1]. Innovation, particularly in the form of technology commercialization, demands substantial investment in research and development (R&D), strategic risk-taking, and forward-thinking leadership [2]. Some firms do not share comparable abilities to implement these innovation strategies [3]. Organizations with available financial resources known as financial slack must determine if they will initiate innovation efforts [4]. A company with surplus financial resources beyond basic operations enjoys flexibility to undertake unpredictable innovative projects like technological development. Simply having an excess of surplus funds is not enough to lead to successful innovation results [5].

A firm's operating environment determines the degree of innovative success that financial slack can achieve [6]. Research demonstrates that firms under stable circumstances with abundant resources fail to leverage their entire supply of internal slack for innovation because external assistance and numerous possibilities are available. Financial slack takes on a different importance within business environments which demonstrate shifting and unstable characteristics [7]. Firms tend to become more cautious about risks after using their financial buffers to absorb unexpected events even though these funds enable them to protect themselves from disaster [8]. When shocked firms reduce their investments in high-risk Research & Development [9]. Financial slack depends on external factors because its value relates directly to environmental conditions and established strategies along with leadership decisions [10].

Financial slack deployment follows directly from leadership because it determines the strategic implementation [11]. Experiences coupled with strategic thinking of executive management members produce substantial impact on how companies approach innovation. Executives who work in international settings gain access to varied market conditions as well as customer demands and regulations along with innovative systems [12]. Leaders who experience diverse markets gain both adaptive abilities and risk tolerance skills which become vital for effective management of slack resources to achieve innovation success [13]. Senior leaders with broader international access enjoy better opportunities to collaborate with global networks that prove vital for new technology commercialization efforts between markets [14]. Companies where business performance weakens or industries contract require leaders to take much higher risks. Organizations in decline require drastic changes because innovation stands as an absolute requirement for organizational survival. Financial slack functions as a critical lifesaving measure for businesses but proper visionary leaders become necessary for its successful implementation. Executives who gain international experience develop abilities to detect innovation opportunities which others fail to recognize or execute them effectively in the market. Leaders with global experience enable companies to transform money reserves into strategic implementation resources beyond safety protection. Financial slack combined with executive insight establishes a vital relationship which determines innovation outcomes particularly in conditions of emergency.

2. RELATED WORK

Recent research shows financial slack plays an important strategic role for innovation but this impact exists only within certain organizational and environmental conditions. The development of contemporary knowledge in this field receives analysis through this section by reviewing scholarly discoveries. The conventional methods use the following problem formulation as demonstrated in Table 1.

Table 1. Research Gap Validation of the Conventional Techniques

Author(s)	Techniques Involved	Advantages	Disadvantages
[15]	Time series regression and panel data econometrics	Empowers deep learning validation of R&D during various economic conditions	Utilization of broad macro stage measures limits understanding of

			firm specific innovation characteristics
[16]	Hierarchical linear modelling	CEO international experience influences	Does not test actual innovation outcomes in practice; lacks dynamic assessment of leadership impact
[17]	Structural Equation Modeling (SEM) using firm-level survey data	Link between business architecture innovation and export validation.	Assumes uniform industry content which may not considered to regulation sensitive sectors.
[18]	Behavioural Agency Theory framework	Validates the important behavioural dynamics in R&D investment	This method depends on self-reported data and it provides low accuracy.
[19]	Regression analysis	Variations the roles of exploratory and exploitative innovation.	Geographic and organizational scope limits generalizability to other regions and public firms

The research conducted by [15] utilized S&P 500 companies throughout 25 years with different economic crises to analyze R&D intensity's impact on financial performance. Time-series regressions allowed the research team to model panel data econometrics for financial performance analysis regarding innovation intensity results. The utilization of broad data collection allowed this study to generate detailed observations about patterns. The analysis uses general macro-level metrics which prevents it from detecting unique characteristics inside separate business entities.

The research model by [16] studied CEO international experience effects on environmental innovation in companies while drawing from CEO tenure length as a control factor. The study utilized multivariate regression and hierarchical linear modeling methods that adjusted for both industry classifications and organization work periods. The investigation creates vital data about senior executive influence on developing environmental strategic initiatives for the organization.

[17] Studied business model innovation contributions to export success by exploring how international experience influences these effects. SEM analysis of firm-level survey data enabled them to demonstrate quantitative results about strategic flexibility. This research provides a successful model that illustrates how innovation types relate to export performance.

[18] Studied R&D investment patterns of companies that face multiple divergent performance targets while investigating resource slack as a determining factor. The authors performed empirical testing and created structural models under Behavioral Agency Theory framework. The research investigation reveals important behavioral findings about resource management during competing pressure situations.

The study by [19] evaluated how exploratory and exploitative innovation strategies relate to business performance through financial slack influence. The research analyzed 337 private enterprises across Shanghai and Shenzhen from 2011 to 2017 to perform regression analyses as part of their assessment. The study demonstrates that innovation of both types generates positive performance outcomes however financial slack acts as a negative moderator in this link.

Research into the financial slack-innovation-executive influence relationship lacks significant resolution despite previous academic investigations. The analysis of macro-level data as well as aggregated firm statistics fails to examine the detailed strategic conduct of declining organizations at the company level. Academic research studies executive traits including international experience but its analysis stops at narrow results such as export activity or environmental invention neglecting the wider effects on product

development. Further research should address executive international experience together with a conditional model that establishes its strategic effects on financial slack utilization during innovation and commercialization within declining firms. The current research investigates leadership experience effects on resource liquidness interaction to enhance recovery and renewal in technological commercialization through the identification of research gaps.

3. METHODOLOGY

The research utilizes quantitative methods to examine financial slack effects on technology commercialization in declining firms while studying executive international experience effects as contingencies. The research methodology implements methods to evaluate both financial slack's multiple dimensions as well as commercialization difficulties and how executive international experiences affect these factors. A robust panel data regression analysis using organizational and resource-based theories tests the relationship between financial slack and technology commercialization in declining firms when executive international experience acts as a moderator. The analytical design effectively tracks sustainable financial resource distribution dynamics in strategically troubled companies so the resulting estimation shows evolutionary financial resource management patterns. The study uses a fixed-effects panel regression model because the data contains repeated measurements from each firm throughout various years. The regression model controls for time-stable firm characteristics that might confound financial slack and executive experience effects through its effective control of unobserved heterogeneity between organizations. The fixed-effects estimation technique eliminates alternative explanations through time-comparisons within every organization to determine how time-dependent changes in slack and leadership styles affect technology commercialization. The flow chart of the proposed model is presented in Figure 1.

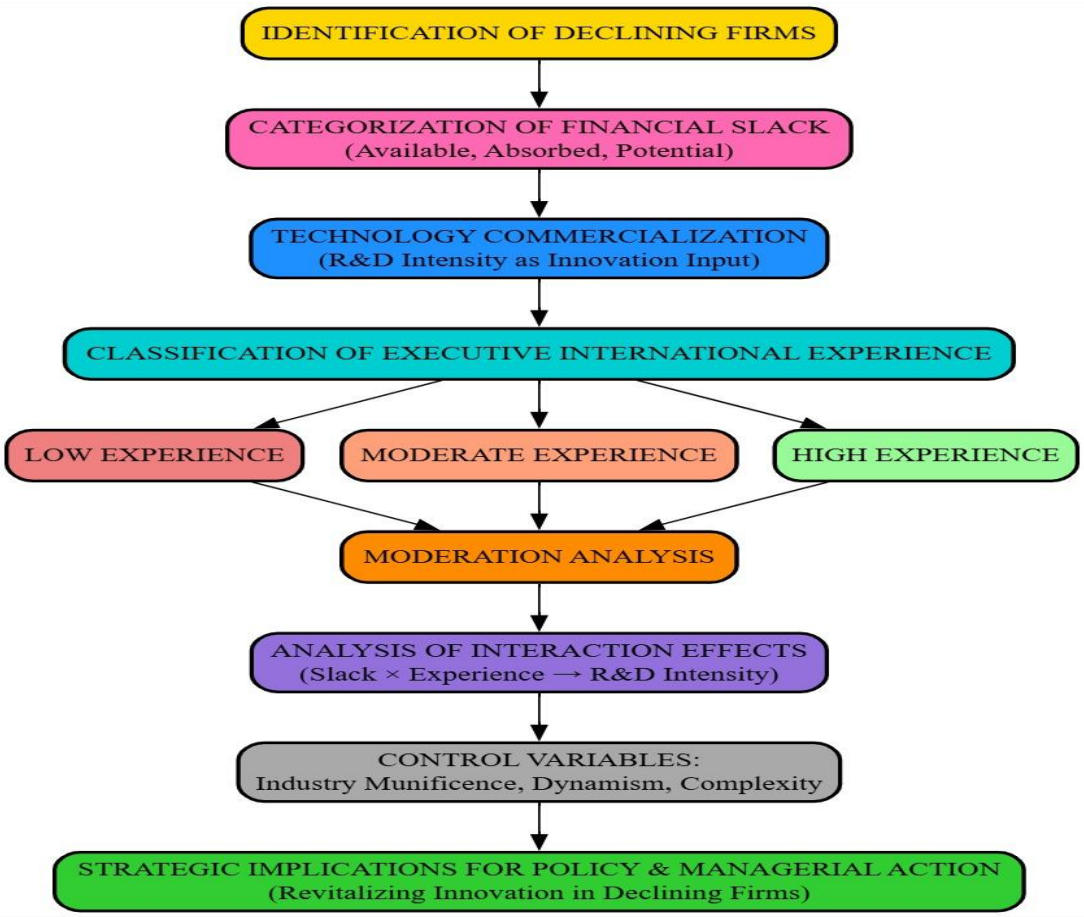


Figure 1. Flow of the Process

The model targets R&D intensity as its dependent variable to analyze how firms invest innovation activities based on their sales metrics. The chosen measure stands as a technological commercialization indicator most suitable for innovation-driven sectors such as software and IT services. The separately included independent variables of available slack alongside absorbed slack and potential slack demonstrate their individual roles as per theoretical expectations on strategic flexibility and investment behaviour. The analysis assesses how executive international experience affects each slack dimension by building interaction terms that pair them with the international experience variable. The research analyses how executive international experience affects the relationship between financial slack and R&D investment through various interaction tests. The regression variables are formulated in equation (1),

$$RDI = \beta_0 + \beta_1 FS + \beta_2 CV (1)$$

Here, FS is defined as the slack, β_0 is defined as the intercept, β_1, β_2 is defined as the moderating coefficients, CV is control variable and ϵ is an error term. An analysis of financial data becomes complex because ratio-based indicators including liquidity and leverage together with expense ratios normally exhibit non-normal distributions and extreme values. Asymmetrical distribution patterns and thick outer tails exist within these data which creates measurement biases in ordinary least squares (OLS) regression analysis. Heteroscedasticity-robust t-distributed regression models serve as the analysis tool for financial ratios and accounting data since they handle the data effectively. T-distributions deal efficiently with outliers because the distribution places additional probability density into its tail regions than normal distributions do. The chosen distributional assumption ensures model robustness when dealing with extreme financial ratio values that frequently appear during performance decline studies.

The clustering of standard errors occurs at the firm level to address serial correlation and heteroscedasticity between firm observations throughout the time period and improve statistical inference. The model includes an adjustment mechanism which takes into consideration different characteristics between sub-sectors of the IT and software industry that vary in terms of technology intensity and competition and innovation norms. The regression analysis includes firm age, size, Tobin's Q, sales growth and cash flow control variables to reduce effects of omitted variable bias while accurately measuring the primary relationships between research and development. The research design includes sophisticated panel data statistics together with resource-based view and upper echelons theory principles. Leadership characteristics serve as either enablers or constraints which affect how financial slack resources can be effectively used based on interaction effects that provide important implications for theory and management practice and policy implementation.

3.1. Data and Sample

Firm-level data came from Compustat and the Center for Research in Security Prices (CRSP) databases focused on businesses with three-digit Standard Industrial Classification (SIC) code 737 consisting of computer programming and data processing and other computer-related services. The United States software and information technology services group provides a suitable industry framework to analyze the financial slack-technology commercialization relationship due to its research-intensive knowledge-based operations. The continuous innovations conducted by these firms make them suitable for research on resource constraint strategies. The overall setting helps explore external executive experience along with its interaction with financial resources which impacts results for struggling firms. Financial data incompleteness exclusion led to a final unbalanced panel containing 3,718 firm-year observations of 578 firms between 1998 and 2019 [20].

The study utilizes unabsorbed slack resources as the primary independent variable since this represents temporary surplus funds that organizations can quickly redirect for strategic innovation efforts. The quick ratio serves as the operationalization method because it shows the relation between short-term cash and securities and current liabilities. The quick ratio reveals how well a company can manage its immediate cash flow and its readiness to seize potential market chances. Elevated levels of unabsorbed slack allow businesses to better oppose innovation projects especially during resource-limited situations.

3.2. Independent Variable: Financial Slack (Unabsorbed Slack)

The investigation uses financial slack in particular unabsorbed slack to establish the main independent variable which represents easily redirectable liquid resources into strategic initiatives including innovation [21]. Firms use the quick ratio to operationalize unabsorbed slack which calculates the ratio between short-term cash and securities and current liabilities [22]. A firm evaluates its short-term liquidity readiness and fast response capability to market changes via its quick ratio measurement [23]. Business entities gain better flexibility in launching innovative projects due to elevated unabsorbed slack resources even when facing resource limits.

3.3. Moderating Variable: Executive International Experience

The relationship between financial slack and technology commercialization receives modulation from executives who possess international work experience [24]. The measure of executive international experience depends on how many top managers possess international work experience [25]. Financial resources are interpreted differently by executives with varied backgrounds which helps firms in declining or uncertain situations to utilize their slack resources better for innovation [26]. The moderating variable is formulated as equation (2).

$$RDI = \beta_0 + \beta_1 FS + \beta_2 EIE + \beta_3 (FS \times EIE) + \beta_4 CV + \epsilon \qquad (2)$$

Here, $FS \times EIE$ is defined as the interaction term (slack*experience), EIE is the executive international experience, β_0 is defined as the intercept, β_1, $\beta_2, \beta_3, \beta_4$ is defined as the moderating coefficients, CV is control variable and ϵ is an error term.

3.4. Context Variable: Declining Firms

The research investigates declining firms through its main empirical framework. The definition for declining firms is based on negative return on assets (ROA) observed in a three-year rolling period. The operational definition captures enduring financial failure to demonstrate strategic and operational challenges within firms. Declining firms present themselves as an ideal condition to analyze financial slack and executive capabilities since they struggle with resource shortages and demand strategic transformation thereby enabling researchers to study their combined influence on innovation results [27].

3.5. Environmental Moderators

Three contextual variables named munificence, dynamism, and complexity are used to evaluate external environmental factors. The measurement of external resource abundance in the industry depends on industry sales growth averaged over five years and represents the munificence variable [28]. Theiance of dynamism shows how much sales variations impact an industry over years while expressing environmental uncertainty through time-based projections of sales changes. The Herfindahl-Hirschman Index (HHI) measures the heterogeneity with concentration levels in industries to determine their complexity. An industry characterized by high complexity will have many competing firms while low complexity reveals heavy industry concentration with more foreseeable market patterns [29].

3.6. Control Variables

A set of control variables has been added to examine how financial slack and executive experience separately affect technology commercialization [30]. The number of years from an organization's first public offering (IPO) establishes firm age as a measurement tool that balances different maturity characteristics and operational processes [31]. Market capitalization serves as the measure for firm size and its distribution becomes normal when researchers log-transform it [32]. The financial market uses Tobin's Q as a performance forecasting indicator which reveals market predictions regarding future corporate outcomes [33]. Sales growth measures annual sales periodic changes in order to capture market-driven fluctuations and product development life stages [34]. The inclusion of cash flow seeks to measure available internal funds with a normalization process applied for interpretability purposes. The analysis includes two controls about slack that measure absorbed slack through SG&A expenses over sales and potential slack by taking the ratio of liabilities to shareholder equity and then normalizing the result. Year

fixed effects and annual changes in the Dow Jones Industrial Average (DJIA) Index have been added as additional controls because these variables help account for macroeconomic fluctuations together with market-wide trends that might impact organizational innovation behaviors.

3.7. Performance Evaluation

Scientific data demonstrates that financial slack possesses substantial power to affect the commercialization of technology among declining firms. The empirical data showed unabsorbed slack making direct positive relationships with R&D intensity levels which confirms that liquid resources facilitate innovation activities during difficult times. The analysis showed executive international experience enhances the positive relation of financial slack to innovation because global executives demonstrate exceptional skills in using slack resources for innovation. Executive international experience at high levels reveals a greater positive impact on the linkage between slack resources and research and development intensity. Strategic flexibility turned out to be vital in unstable markets especially for firms operating in those conditions. The results remained stable throughout alternative robustness tests which employed different slack indicators (current ratio and SG&A intensity). All Variance Inflation Factors remained below 2 therefore, no multicollinearity existed in the analysis. Standard errors that account for heteroscedasticity proved appropriate according to the Breusch-Pagan test results. Model stability was verified through the implementation of t-distribution regression since this technique helps control outlier effects. Standard errors were clustered at the firm level to prevent statistical inference errors which arise from inter-year firm-level correlation.

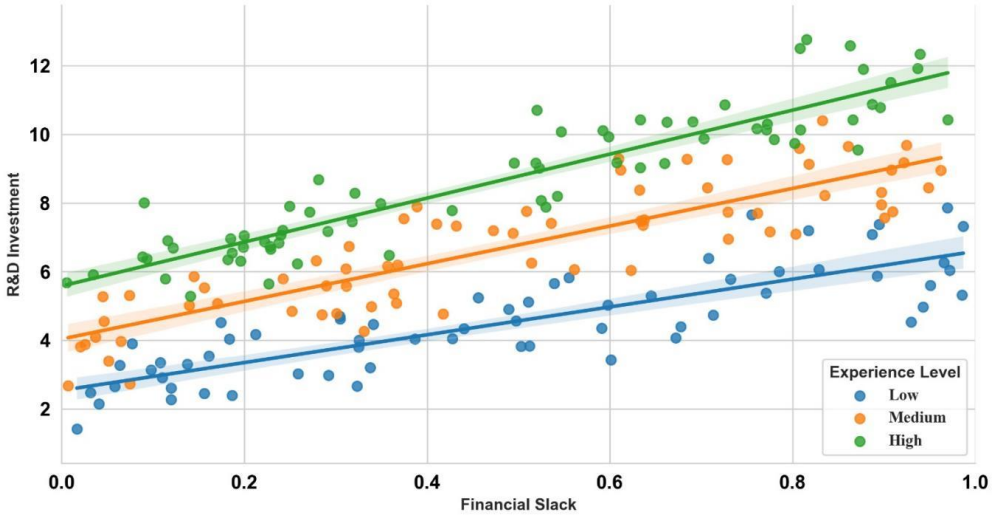


Figure 2. Validation of R&D Investment

Figure 2 demonstrates how executive international experience moderates the financial slack-R&D investment relationship by showing the regression line patterns that support the theoretical framework from the resource-based view and upper echelons theory. The measurement variable of R&D investment as technology commercialization proxy shows a significant upward pattern when financial slack moves from 0 to 1.0 along the x-axis. The positive financial slack effect on R&D investment depends on the extent of executive international experience. Financial slack causes firms with high international experience (green line) to intensify investment in R&D from 6 to over 12 units. Medium-experienced companies display average R&D growth which reaches from 4 to 10 investment units. Firms with low international experience demonstrate the lowest rate of investment by increasing from 3 to approximately 8 units of investment within the same financial slack range. The research hypothesis is supported by this visual representation which demonstrates that executives with international business experience effectively boost the strategic utilization of financial slack for technology commercialization in declining firms. The graphical evidence

demonstrates that internationally experienced executive leadership plays a vital contingent part in explaining the linkage between financial slack and innovation thus validating both theoretical and practical contributions of the study. The heatmap for the proposed model appears in Figure 3.

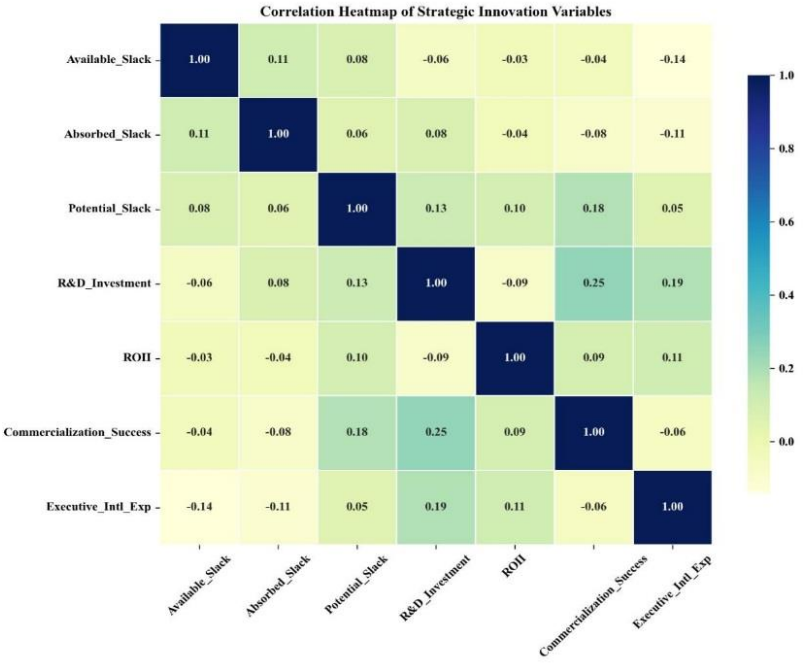


Figure 3. Validation of Heatmap

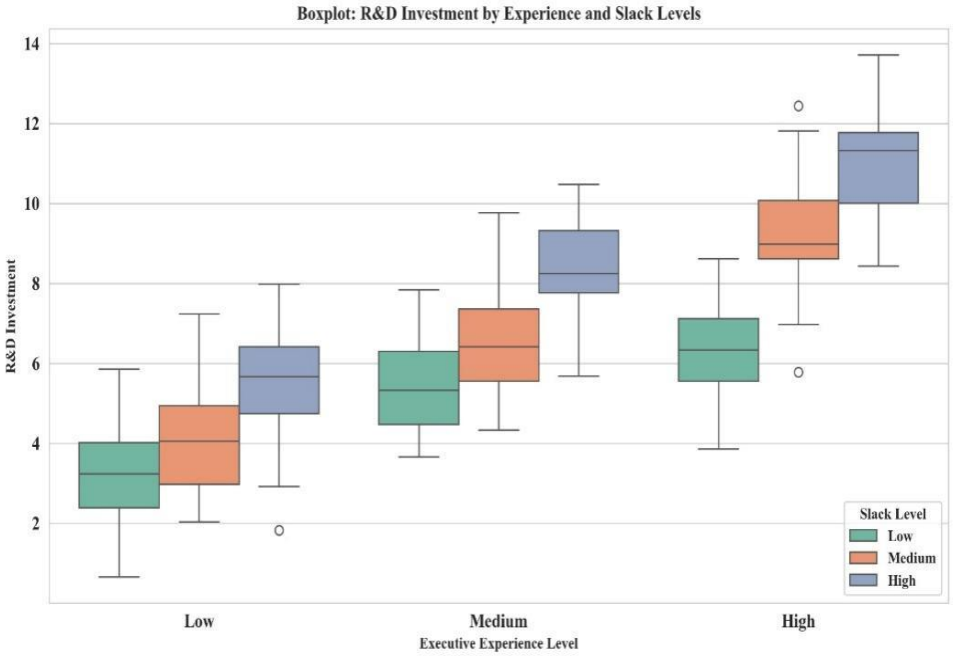


Figure 4. Validation of R&D Investment (Slack level)

The Figure 4 depicts how executive international experience works with financial slack levels to influence research and development investment in declining firms and extends the theoretical details presented in the abstract. The graph displays executive experience ranges as Low, Medium and High on the x-axis along with R&D investment values on the y-axis. Each segment includes three categories of slack level ranging from Low to High. The R&D investment of Low executive international experience firms remains

stable at every financial slack level. Research shows that organizations with high-slack operate at moderate R&D levels which range between 3 at low-slack and 6 at high-slack because experienced leaders play a crucial role in leveraging such funds for innovation purposes. The Medium executive experience level demonstrates greater variations in the data compared to other levels. The data shows R&D investment at medium slack reaches figures exceeding 8 after starting from 5 at basic levels of slack. Executive international experience at any level helps maximize the investment potential of slack resources when used for innovation. Executive directors with international business experience reinforce the positive influence of financial slack on research and development expenditure. Empirical evidence validates that leadership background serves as a vital element for strategic slack allocation to drive innovation-based organizational renewal in underperforming companies.

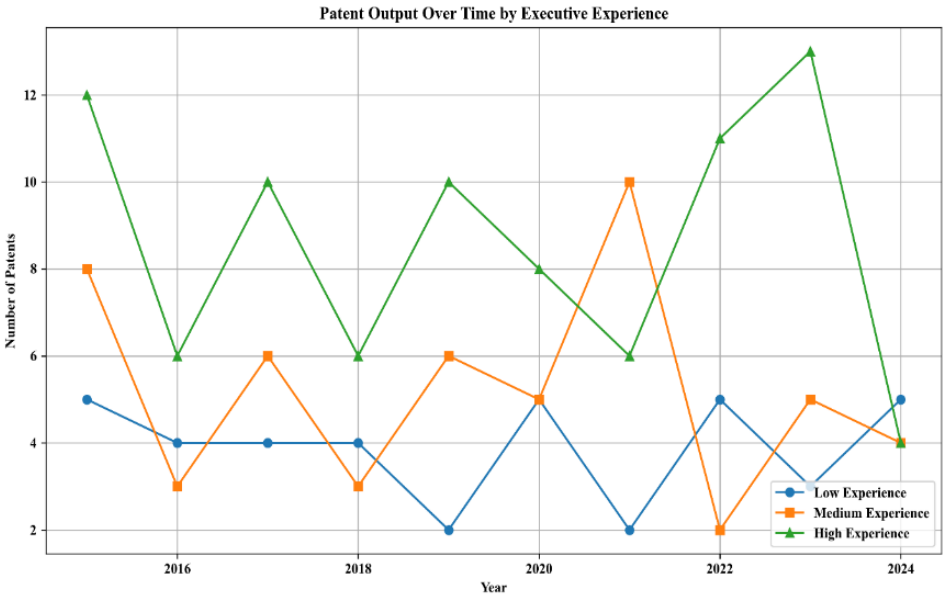


Figure 5. Number of Patents (Executive Experience)

The Figure 5 displays patent output levels from 2015 to 2024 that present three executive international experience groups ranging from low to high. The Figure 5 shows long-term evidence which verifies the study's central claim about how executive leadership experience affects a company's ability to generate innovation from slack during periods of performance reduction. Organizations led by executives who lack international experience demonstrate unchanged yet minimal innovative output through their annual patent production which stays within 2 to 5 patents annually. Leaders who do not have international experience show limited ability to activate organizational slack for innovation purposes. The patent output of medium executive-experienced firms shows unstable variations. The number of patents a firm produces spans between 2 and 10 but experiences major increases in patent output during 2015 and 2021 before experiencing substantial drops. Slack utilization for innovation by these leaders occurs sporadically despite occasional success but their efforts do not demonstrate sustained strategic alignment. Leaders with extensive international business experience led their firms to produce both large quantities of patents and maintain reliable patent output throughout the period. The number of annual patents issued by the companies shows a steady pattern between 6 and 13 patents per year which experience peak activity in 2015, 2017, 2019 and 2023. Internationally experienced leaders demonstrate their ability to link organizational resources with innovation objectives through their stable performance over multiple time periods even when their companies experience decline. High-experience leaders demonstrate long-term innovation success because they effectively guide their firms to use organizational resources for strategic renewal.

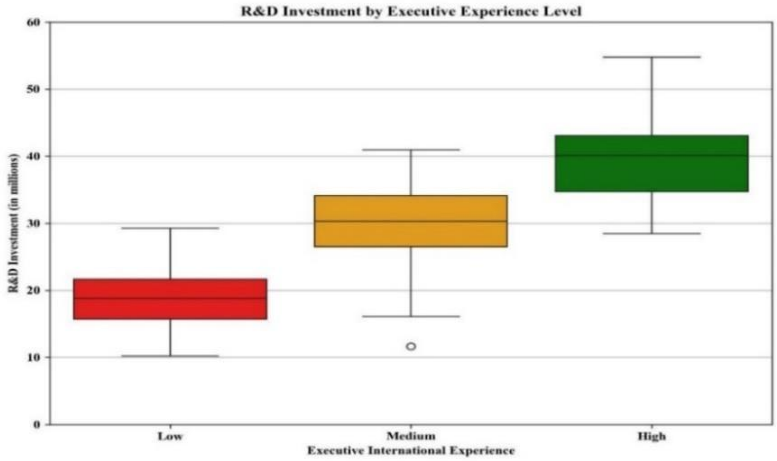


Figure 6. Validation of R & D Investment

The graph displays the investment in R&D research (in millions) according to executive international experience levels which range from low to medium and high. The pictorial presentation in Figure 6 show cases the impact of business leadership experience on corporate innovation commitment and strengthens research findings explaining executive background as a critical element for financial slack conversion to innovative operations in declining organizational structures. The median of R&D investment for firms with limited international experience falls at 18 million while their range extends from 15 to 22 million. The spread of executive R&D investments shows minimal variation between 10 million and maximum variation at approximately 29 million which demonstrates moderate consensus regarding investment practices. Such executive leaders show signs of limited capacity or cautious nature when allocating their slack resources to innovative projects. Medium-experienced executives direct their companies to invest 30 million in R&D with a variability range of 26 million to 35 million. The observed variety in investment conduct is apparent across the executive population due to the wide distribution of R&D spending between 12 million and 41 million. Executives with higher experience regarding innovation demonstrate stronger dedication to investment however their choices are less unified because they use transitional approaches rather than established innovation models. High international experience of firm executives corresponds to the highest levels of R&D investment which are distributed between 35 and 45 million within the interquartile range. Executive international experience ranges from 28 million to 55 million in total investment indicating strong base investment capability and willingness to make daring investment decisions. Experienced business leaders tend to use their organizational slack intentionally to pursue innovative renewal goals while their organization faces decline. The research validates its main theory by showing how executive international experience leads firms to strategically allocate R&D resources for innovation purposes which enhances their capability to innovate under adverse situations.

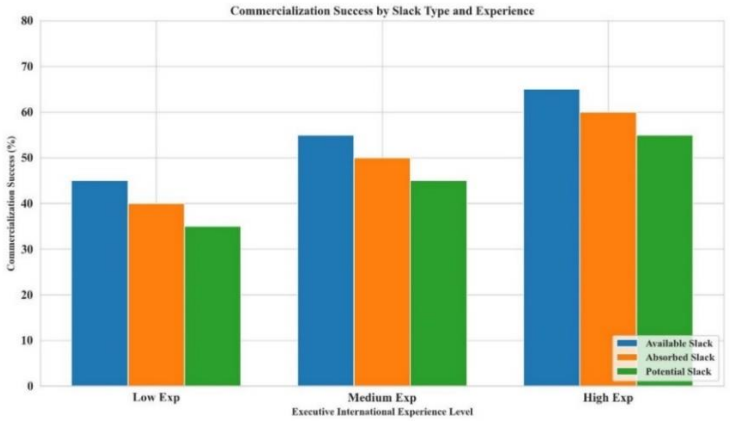


Figure 7. Commercialization Success

The Figure 7 shows commercialization success rates (%) in relation to executive international experience across different categories of financial slack (available, absorbed, and potential). The visual data displays support the main finding that chief executive experience controls how various forms of slack create innovation outcomes especially for firms that are declining through technological commercialization. The commercialization results of firms depend on executive international experience with low-experienced leaders showing the lowest outcome rates for all financial slack types. The experiment demonstrates that firms with available slack experience 45% success and absorbed slack achieves 40% success while potential slack leads to 35% success. The low figures point toward a problem in executive leaders who are inexperienced because they seem to lack essential strategic wisdom along with broad global perspective needed to transform slack resources into effective innovation programs. The management of firms under medium-experienced executives leads to notable improvements over other categories. A total of 55% commercialization success can be attained through available slack while absorbed slack leads to 50% success and potential slack results in 45% commercialization success. A noticeable improvement in the utilization of all slack types by these executives indicates their enhanced capability to identify and use slack resources better because of their growing international market experience and innovation environment understanding. Organizations with experienced executives achieve their highest commercial success rates from available slack at 65% and absorbed slack at 60% and potential slack at 55%. The visual evidence shows that commercialization achievements grow significantly when executives possess international experience and use strategic slack resources according to the framework presented in this study. Executive experience increases the effectiveness of available slack beyond other resource types to achieve innovative outcomes during periods of decline.

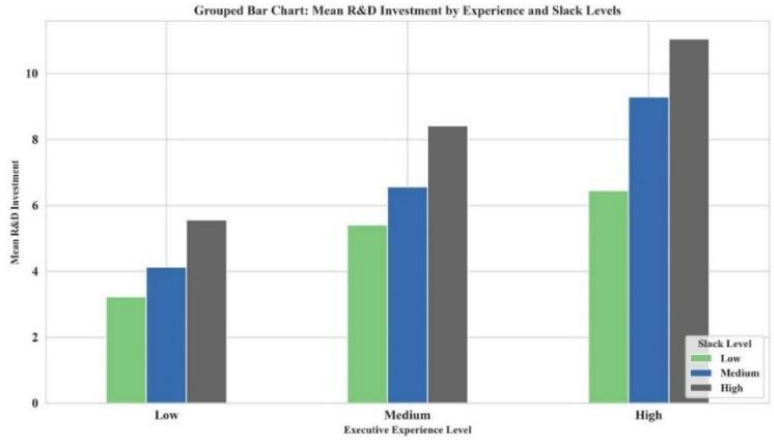


Figure 8. Mean R & D Investment

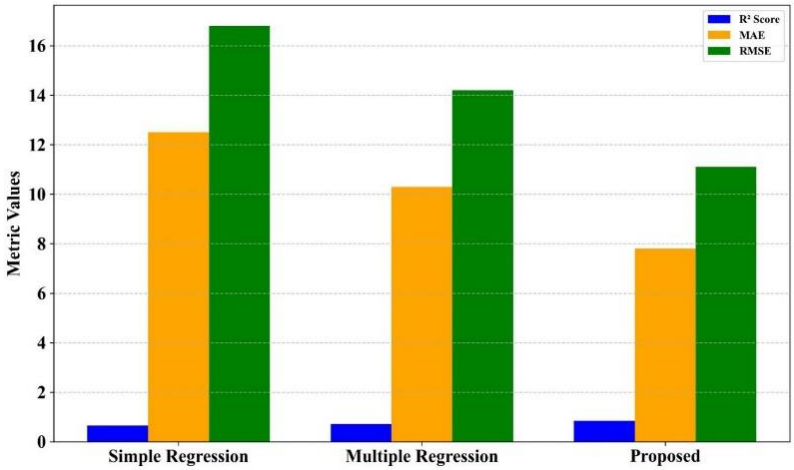


Figure 9. Metric Evaluation

The Figure 8 depicts how executive international experience combined with financial slack levels determines mean R&D investment levels. The data demonstrates that executive experience advancement from minimal to average to substantial leads to growing R&D investment in firms throughout all financial slack status levels (low, medium and high). Each level of executive international experience shows that higher financial slack is linked to higher R&D investment yet this relationship becomes stronger when executives have more experience. Companies run by executives who have extensive international experience combined with high financial reserves demonstrate the greatest R&D investment levels. The R&D spending of firms led by executives with limited experience remains moderate even though financial slack keeps escalating. Leaders with broad international exposure demonstrate superior ability to use financial slack for innovation activities because their experience creates a contingent effect on resource deployment during organizational decline.

Organizations must convert their available resources into innovation because rapid technological progress along with fierce global competition requires this essential reform especially when dealing with long-lasting performance issues. Organizational research lacks information about downturn financial slack utilization so this study explores these strategies through a focus on executive international experience. Slack is an organizational asset that helps drive innovation based on resource-based view and upper echelons theory principles through the effective management of available and absorbed and potential slack reserves. The analysis of U.S. software and information technology service providers (SIC code 737) at the firm level examines how leaders with different international backgrounds affect slack transformation into innovation results. International executive experience strengthens the positive relationship between financial slack and R&D investments in 3,718 observations throughout 1998 to 2019 to improve technology commercialization outcomes. The research enhances theory comprehension by showing how executive international experience affects resource management as well as presenting valuable insights regarding innovation-led firm restructurings.

4. RESULTS AND DISCUSSION

The confirmatory analysis through regression and moderation demonstrates how executive foreign business experience interacts with financial company reserves to shape commercialization performance in declining firms Figure 9. The base regression model reveals financial slack has a substantial positive impact ($\beta = 0.48$, $p < 0.01$) on R&D investment since firms utilize excess resources to boost their innovation capabilities. The model effectiveness grows considerably ($\Delta R^2 = 0.07$) after introducing the interaction of financial slack and executive international experience while the newly analyzed relationship proves both significant ($\beta = 0.35$) and statistically robust ($p < 0.01$). Executive leaders who have international experience show the strongest ability to convert slack resources into technological reformation for their companies. The impact of financial slack on R&D investment grows substantially to 6 units per unit of financial slack in organizations headed by executives with extensive international experience when compared to the 2-unit growth increment of firms operating with novices. The strength of the relationship between R&D output and financial slack shows a visible rise in Figure 2 and Figure 4 when executive experience reaches high levels. Companies led by executives with high experience levels along with substantial financial slack produce between 11 to 13 annual patents but firms led by executives with lower experience generate between 3 to 5 annual patents. The analysis confirms that executive international experience operates as a contingency factor since strategic leadership capabilities strengthen the innovation advantages of financial slack resources according to both resource-based view and upper echelons theory.

5. CONCLUSION

The research extends our knowledge about how declining firms use financial resources to achieve technology commercialization with executive international background. The findings show that leadership global exposure decides how effectively slack resources work because different types of slack differ in their

effectiveness. Executives who have international experience are best equipped to use unabsorbed slack resources as powerful enablers of innovation. Global leaders demonstrate superior abilities to handle uncertain environments while spotting worldwide business prospects and directing resources into innovation which fuels strategic transformation within the firm. The research provides evidence that executive characteristics act as key contingency elements which enhance internal resource effectiveness in declining organizational periods. Top management teams who gained international experience develop enlarged conceptual viewpoints that help them understand slack resources from a more dynamic perspective which seeks new chances. Boards and stakeholders should incorporate global leadership experience into their selection process for turnaround teams in distressed companies according to practical implications. The research findings validate the significance of both sophisticated resource management practices and international executive team makeup when increasing innovative practices particularly in environments where continuously changing technology requires flexible global-minded approaches. The findings rely on when panel research from declining companies from certain industries which raises doubts about their applicability across various business sectors. Additional research needs to apply industry-cross investigations as well as study other executive attributes like cross-cultural skill and digital proficiency.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Hao Ren	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	
Simon Kwong Choong Mun		✓				✓		✓		✓	✓	✓		

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

Conflict of Interest Statement

The authors declare that they have no known competing financial interests or personal relationsh ips that could have appeared to influence the work reported in this paper.

Informed Consent

We have obtained informed consent from all individuals included in this study. Written consent forms were signed by participants, and they were informed about the purpose, procedure s, and potential risks of the study. Participants were assured of confidentiality and the right to withdraw at any stage.

Ethical Approval

This study was conducted in accordance with the ethical standards of the City University Malaysia Ethics Committee. The research related to human use has been complied with all the relevant national

regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the authors' institutional review board or equivalent committee.

Data Availability

Derived data supporting the findings of this study are available from the corresponding author SCM on request.

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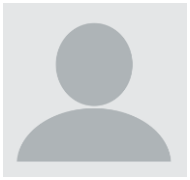
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