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Charting The Course of Investing Decisions Through Management Accounting Techniques, and Operations Quality in Manufacturing Landscape of Pakistan

¹Muhammad Adnan Afzal, ²Sadia Munir, ³Nasir Abbas, ⁴Muhammad Nadeem

ABSTRACT

Keywords:

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Companies can reduce operational costs and improve their reputation by ensuring consistent product quality allowing for more accurate cost analysis and better-informed investment decisions. Therefore, this research aims to probe the interplay between management accounting techniques (MATs) and investing decisions through moderation of operations quality control (OQC) in manufacturing firms of an emerging economy, Pakistan. The results indicate that MATs like just in time (JST), target costing (TRC), and balanced scorecard (BSR) have empirically positive and significant impacts on investing decisions (IDN). On the other hand, operations quality control (OQC) plays moderating role in the linkage between TRC and investing decisions (IDN), highlighting its critical role in cost management and efficacy improvement. The OQC was insignificantly moderated among just in time, balanced scorecards, and investing decisions. These findings contribute to the understanding of factors influencing investment decisions and emphasize the synergy between OQC and explicit management accounting approaches in the Pakistani manufacturing landscape. This study explores the categories of MATs and the production quality control driving these techniques which have rarely been probed in an emerging economy like Pakistan.

INTRODUCTION

Globalization leads to a swift and ongoing growth of the business industry and has a substantial impact on the manufacturing, distribution, and provision of goods and services by businesses (Elfaki & Ahmed, 2024). The criteria for assessing the productivity, quality, cost, and performance of organizations are getting extremely rigorous. Economic integration

¹ Lecturer, Faculty of Economics and Management, Government College University, Faisalabad, Pakistan. Email: adnanafzal@gcuf.edu.pk.

² Teaching Assistant, Faculty of Economics and Management, Government College University, Faisalabad, Pakistan. Email: saidamunir@gcuf.edu.pk.

³ Lecturer, College of Commerce, Government college University, Faisalabad, Pakistan. Email: nasirabbas@gcuf.edu.pk. (Corresponding Author)

⁴ PhD Scholar, Department of Agricultural Business and Marketing, Bahauddin Zakriya University, Multan, Pakistan. Email: greenwaves20@gmail.com.

has become an unavoidable phenomenon in nearly all countries (Wei & Duan, 2024). Thus, to succeed in the fast-paced business environment, organizations must cultivate distinctive competitive advantages and implement cutting-edge tactics. The management should enhance their professionalism in resource management to boost organizational performance. The managers must be keenly aware and accurately predict environmental changes in the business realm to boost operational effectiveness and achieve a competitive edge in the present globalized landscape (Semmler et al., 2024).

The decisions surrounding investments assume a pivotal role, as they define the framework and prospects for future growth (Rush & Roy, 2023). MATs enable investors for making informed decisions within their limited time by providing timely and accurate financial data. By continuance of critical business information and facilitating information flow aligned with the firm's strategic positioning, it contributes to the operative execution of obligations in varied businesses, further strengthening the inclusive progress and stability of the firm (Dlamini, 2024). Moreover, it could emphasize the importance of getting input from all stakeholders in shaping strategic and managerial decisions, thereby ensuring efficient operations that benefit all parties involved (Nwatu, 2024). These investing approvals are often considered by a readiness to distribute resources and effective information regarding activities possessing the capacity for long-term viability (Hans et al., 2024). MATs help in contributing rapid and detailed monetary information, allowing stakeholders to decide accordingly in their inhibited timeline (Thien & Hung, 2023). Besides, acquiescence with constitutional rations is levelled over appropriate financial reporting and adhering to regulatory procedures, enhanced by MATs evolving as a critical means for businesses (Hadid & Al-Sayed, 2021).

Our research investigates deeper into this topic by investigating the effect of MATs on investing decisions. These techniques include JST, TRC, and BSR which helps to improve investing decisions (Oyewo et al., 2024). In MATs, target costing sets itself apart from traditional methods by calculating product costs (Hadid & Al-Sayed, 2021). This innovative approach holds the potential to enable businesses to reduce costs and enhance profitability, especially in highly competitive market environments. Just-in-time operations optimize supply chains by reducing inventory, minimizing losses, and emphasizing product design, product quality, design, employee participation, and incessant development, potentially positively influencing investment decisions (van Klyton et al., 2024). Conversely, an organization's specific financial goals are synthesized with its strategies and mission with the

help of balanced scorecard which helps to facilitate decision regarding investing portfolio decision. These methods provide crucial resources for the decision makers to remain well informed to make better investing strategies, OQC can encourage this efficiency by enlightening the data credibility employed in MATs. It leads to more detailed and accurate financial intuitions, boosting the authenticity of investing decisions, diminishing perils and heightening efficient allocation of capital (Magnacca & Giannetti, 2024).

In the evolving manufacturing sector of Pakistan, investing decisions are vital to spurring prosperity and sustaining productivity. However, these decisions frequently encounter barriers because of erratic execution of MATs and varying operations quality checks (Ashfaq et al., 2024). Regardless of acknowledged benefit of MATs in presenting financial perspectives, numerous manufacturing concerns in a developing economy, Pakistan experience challenges in executing these techniques while making investing choices. This results in improper resource distribution, poor financial strategy, and inadequate investing returns. Moreover, despite its recognition that it has considerable consequences regarding investing decision, the OQC as a moderator remains uncharted. The lack of systematic framework to integrate OQC in investing decisions intensifies the matter. Consequently, this study intends to elucidate the linkage of MATs concerning investing decisions specifically through moderation of OQC investigating its interaction with overall pursuance of manufacturing concerns in Pakistan.

Prior research demonstrates that in the efficacy of strategic management, a key role is played by firm size. Generally, larger firms compared with SMEs employ MATs more efficiently and competently. Earlier studies have considered the implementation of MATs in their investing decisions (Hadid & Al-Sayed, 2021). For instance, Oyewo et al.(2024) proclaimed the usage of MATs for SMEs. Following empirical studies have unpacked the way SMEs deploy MATs to boost firm performance and managing cost (Rashid, Ali, & Hossain,2020). Besides, the interplay between MATs and investing decisions still lacks. Although some earlier studies revealed the positive liaison between some accounting procedures and investing efficacy (Jbarah, 2018; Magnacca & Giannetti, 2024) ,by giving more reliable financial information and decision-making tools. While, others have unfolded partial or no impact (Altin2020). These discrepancies may ascend from disparities in business context, or the particular practices employed. Additionally, the effectiveness of MATs in persuading investing decision can be influenced by issues like OQC. Preceding studies also have key attentive on the direct effect of MATs on investing adoptions and have limited devotion to the

moderating effect of OQC. This earlier linkage places a certain emphasis on probing the moderation of OQC can affect the interplay between these accounting techniques and investing. Moreover, earlier studies were mostly intensive on other countries or other sectors while having limited studies on Pakistan manufacturing companies (Munir et al., 2024). In Pakistan, the manufacturing sector plays an imperative role from societal and monetary viewpoints (Khokhar et al., 2020). For discoursing this momentous input, research intended to check the moderating upshot of OQC on the interplay between MATs and the investing decisions regarding manufacturing companies in Pakistan.

Significant conclusions of current research lie in its valued contributions in management accounting as well as investing efficacy, particularly in the background of manufacturing concerns in Pakistan. By empirically indicating the optimistic impacts of MATs, this research offers everyday intuitions for Pakistan manufacturing organizations to progress their monetary pursuance. Likewise, this study highpoints the critical role of OQC as a moderating factor, exhibiting that it augments the linkage between target costing and investing decisions. These findings provide policies for businesses in Pakistan, helping them arrange cost minimizing tactics unproductive manufacturing values, and quality regulating procedures to adjust investing decisions and contend effectually in the global market. Moreover, this research illustrates the worth of considering the exclusive market subtleties that influence investing decision, stressing the necessity for context-specific tactics and more investigation of these dynamics in future studies.

Theoretical Foundation: Cognitive theory

Cognitive theory (CGT) emerged in the middle of 20th century as the recognition of behaviorism, which only examined observable behavior. CGT illustrates the way decision makers within the firms acquire information, access choices, and make verdicts centered around their cognitive frameworks. It underlines that people's experiences, perceptions, and biases drive their decisions frequently resulting in distinct outcomes. CGT explicates the ways the managers evaluate financial data along with operational details to fuel corporate decision in management accounting and investing options. This study exhibits that the efficacy of MATs and IDN rely on factor like economic conditions, operations quality, and the organizational settings. CGT implies the linkage between MATs and investing conclusions are moderated by OQC. As OQC adheres to MATs, organization can make wiser and effective investing decisions causing better financial and operational benefits.

Management Accounting Techniques

A few decades before, a shift occurred in the perception of traditional management accounting, as it struggled to adapt to the evolving business landscape and provide effective support to managerial decision-making (Altın et al., 2020). This decline in the relevance of traditional management accounting could be attributed to several factors, including the rapid advancement of technology, heightened competition in the market, the emergence of new cost rationalization approaches, and increased consumer consciousness of quality, pricing, and products/services contributions (Johnson & Kaplan, 1987). Consequently, there arose a pressing need to transform management accounting into a more strategically oriented discipline in the firm's accounting systems (Dlamini, 2024). MATs emerged as the management solution to this challenge, focusing on providing, market-fueled technologies, customer-centric approaches, and externally focused information to organizations. Methods of accounting that are used to support strategic decision-making and planning (Mukwarami & van der Poll, 2024). The primary domains of focus are the entire life cycle of the product, the quality of the product, the market share, the growth rates of competitors, the amount of investment, the performance of the business, profitability measures, the structure of costs, and the management of personnel (Dlamini, 2024). The methodologies can be categorized into five main areas: costing and organizing, control and performance evaluation, strategic choices, competitive assessment, and customer analysis (Altın et al., 2020).

While much of the global research on MATs has centered on the cost and financial performance of manufacturing firms, these techniques exhibit variability based on business strategy types and geographic regions. However, a common limitation in these studies is the absence of detailed insights into how strategic management accounting techniques are applied, who employs them, and for what specific purposes. This study backs the field by bridging the gap between strategic management techniques and investment decisions, particularly within the domain of large-scale industrial operation. This study takes into account three techniques relating to management accounting (MATs) which are of central focus: balanced scorecard (BSR), target costing (TRC), and just-in-time operations (JST) (Altın et al., 2020). These techniques illustrate a nonlinear association, intertwining their influences in novel ways. In the application TRC, inside operational design, the BSR is crucial, equipping manufacturers with key information and dynamics to assess the influence of their design choices on production (Oyewo et al., 2024). Moreover, BSR acts as a way to evaluate performance which incorporates non-financial matrices like internal operations,

corporate creativity, customer retention, and expansion, along with accounting information system (Kaplan & Norton, 1996). Employing BSC can mitigate information gaps and discrepancies among managers and employees as well, thus eliminating role intricacy and job stress in the organizations BSC can support formulating qualitative goals, including reward system, motivating employees, satisfying customers, while TRC is employed in determining future expenses. However, this cause-and-effect relationship can sometimes be complex due to subjective managerial opinions and time lags between planning and execution. Conversely, BSC in conjunction with organizations employs JIT techniques (Altin et al., 2020). This linkage between MATs offers an effective way to handle various challenges and possibilities in the modern business settings (Magnacca & Giannetti, 2024).

Also, TRC is a systematic methodology concentrating on dealing price and quantity by outlining expenses related to entire products (Hilton & Platt, 2020). Several studies have probed the relevance of TRC in various scenarios like Bangladesh (Rashid et al., 2024), Jordan (Alsharari & Daniels, 2024), Saudi Arabia (Alsughayer, 2024), and Germany (Sadr et al., 2024). Additionally, third measurement is JIT, that concentrated in the firm's origination, encircling constant advancement, managing material flows, and production firms. JIT influences cost efficacy, quality increase, and productivity (Altin et al., 2020). It has attained connotation because of intensifying input costs such as raw material and labor. JIT boosts to manage cost along with fostering adaptability, autonomy, capability, and production quality. JIT tactics are appraised as per their probable paybacks and predicted execution costs and their adoption relies on blend of external as well as internal rudiments, encircling administrative positioning and conclusions in analogous settings (Nwatu, 2024). JIT intends to harmonize intrusions in several production extents, comprising planning, process, supplier relations, and control. To instigate JIT, gains contain greater affordability, waste lessening, enhanced viability, raised customer gladness, and better connects between suppliers and employees. Though JIT delivers much prosperity, its operative enactment imposes scrupulous appraisal of aspects such as relationships and number of sellers, demand-based operation, quality, teamwork, and product quality. JIT though conceptually simple can be challenging to implement, and any disruptions in the system, such as supply chain interruptions or machinery failures, can halt operation entirely (Sadr et al., 2024).

Management Accounting Techniques and Investment Decisions

Empirical research has comprehensively investigated the liaison between MATs and their association with investing decisions in various organizations. Concerning JIT, numerous

empirical inquiries have confirmed its positive effect on investing decision. Research has exposed that JIT adoptions, like condensed inventory levels and enhanced operation processes, augments money competence by dropping working capital necessities and dropping holding charges (Sadr et al., 2024). Companies adopting JIT incline to reduced lead times, upgraded resource provision, and amplified process elasticity, contributing to heightened investing decision. For instance, (Huson & Nanda (1995) and Nugroho et al. (2022) exposed that JIT in the manufacturing sector unveiled higher productivity, indicating better investing decisions. These outcomes jointly recommend that JIT adoption can result in effective financial resources distribution, eventually promoting a firm's investing decisions. Additional studies have exposed that BSC also has a noteworthy impact on investing decision. This wider perception permits firms to appraise the lasting influence of investments and resources more effectually, finally boosting IND. Salman, (2022) unpacked that the organizations employing BSC might attain healthier financial concert, signifying a positive link between BSC and IND. Also, Kumar et al. (2024) expanded the way the BSC facilitated firms recover their tactical attention, positioning investments with business goals. These outcomes feature the implication of seeing non-financial actions when appraising investing decision and the role of the BSC in smoothing this course.

Regarding TRC, empirical studies have probed its influence on investing verdict (Altın et al., 2020). TRC comprises setting cost goals for goods and aligning these goals with anticipated profit margins. By applying TRC firms aim to regulate costs proficiently from the beginning of product expansion, eventually manipulating their investing choices (Rush & Roy, 2023). It was more contended that businesses employing TRC tend to make more cost-effective investing alternatives. For example, Jbarah, (2018) emphasized the TRC in enlightening investing choice by certifying that goods are planned to encounter prearranged cost targets, dropping the prospect of cost assails during operation. Besides, TRC as a cost competition model for SMEs, stresses the worth of cost leadership in the market without conciliatory product eminence. So, based on prior discussion, it is hypothesized that:

H1: *JIT influences significantly to the investing decisions of manufacturing firms.*

H2: *TRC influences significantly to the investing decisions of manufacturing firms.*

H3: *BSR influences significantly to the investment decisions of manufacturing firms.*

Moderating role of quality control

The linkage between MATs and investment decision is inconclusive which shows that there is a need for any other variables to clear the relationship. Literature shows that quality control

acts as a crucial moderator in various studies. Therefore, quality control could become a potential moderator. For instance, in manufacturing firms, the adoption of JIT is more likely to yield improved investment decision when complemented by efficient quality control systems that ensure product quality and reduce flaws, leading to cost savings and enhanced resource allocation (Ye et al., 2022). Similarly, the balanced scorecard's contribution to investment decision is reinforced when quality control measures align with the objectives of satisfying customers and product quality, emphasizing the importance of integrating metrics related to quality and performance estimation (Popovičová, 2024) . Additionally, target costing effectiveness in guiding investment decisions toward cost-effective outcomes is strengthened when quality control practices ensure that cost targets are met without compromising product quality, resulting in efficient resource allocation. These empirical findings collectively indicate the harmonizing relationship between quality control and MATs in optimizing investing decisions, emphasizing the importance of a common approach that considers both cost management and quality assurance for greater investing conclusions. Thus, based on the previous discussion, the study has the following research hypothesis.

H4: *quality control significantly moderates between just-in-time and investing decisions of manufacturing companies in Pakistan.*

H5: *quality control significantly moderates between target costing and investing decisions of manufacturing companies in Pakistan.*

H6: *quality control significantly moderates between balanced scored cards and investing decisions of manufacturing companies in Pakistan.*

METHODOLOGY

The study employs positivist approach and the research design adopts a quantitative approach which is considered to be the best technique as compared to the qualitative technique (Creswell, 1999). Moreover, the study utilizes data gathered from 100 manufacturing firms listed in Pakistan Stock Exchange (PSX) from the province of Punjab. An organized self-administered questionnaire was circulated to 400 production managers and finance managers using a convenient sampling procedure receiving response from 300 managers.

For data collection, a self-administered survey questionnaire was used which was adopted from previous studies. The MATs namely just in time (JIT), target costing (TCS), and balanced scorecard (BSC). Among these constructs, JIT was measured using four items, TCS was measured on five items, and BSC was measured on four items adopted from the learning of The investment decision was measured using seven items which were adopted from the

study of (Jbarah, 2018). Lastly, quality control where procedure used and measured by seven items which were adopted from the study of (Imran et al., 2018). The adopted questionnaire is divided into three main categories. The first category delved into the demographic characteristics of manufacturing firms, exploring aspects such as the number of employees, firm age, initial investment cost, and primary activity areas, average annual turnover. In the second survey group, questions were presented on MATs, investing decisions, and quality control through the process which employed closed-ended questions using a 5-point Likert scale. The third category of the scale focused on assessing the effects of strategic management accounting techniques on investment decisions in terms of efficiency, speed, and ease, using the same closed-ended 5-point Likert scale. The developed questionnaire was distributed among 400 production and finance managers. A total of 300 valid surveys were collected. The collected data combined with descriptive analysis as well as multiple linear regression analysis, shaped this study's research design. Additionally, to assure the reliability as well as validity of the survey tool, Cronbach's alpha and various types of validity assessments were employed, contributing to the robustness of the research methodology.

Demographic Profile

Table 1 underneath exhibits a comprehensive understanding of the demographic profile and features of the respondents participating in the study. Concerning gender, most of the respondents were male, comprising 83% of the total sample, while females accounted for the remaining 17% when examining the age group of the respondents, it becomes apparent that the sample exhibited a wide range of ages. The largest age group was individuals between 36 and 45 years old, making up 40% of the respondents. This indicates that an extensive portion of the participants were mid-career professionals. Additionally, respondents aged 26-35 and 46-55 years each represented 30% and 20% of the sample, respectively. Furthermore, 7% of respondents belong to 18-25 years 3% to 56 years and above, suggesting the inclusion of more experienced individuals in the study. While in terms of education level, the survey apprehends a range of qualifications. The majority, at 50%, held Master's degrees, while 24% having a vocational or technical qualifications, 16% had Bachelor's degree. Another 10% of respondents had a high school education or below. This diversity in educational backgrounds among the respondents indicates that the study encompassed individuals with varying levels of academic preparation. Generally, the demographic profile of the survey sample presents a stable representation of gender, a diverse age range, and a mix of educational backgrounds,

making it well suited for a comprehensive study on manufacturing companies and their MATs, and investing decisions.

Table 1: Demographic characteristics

Demographics (n=300)	Respondents	%age
Gender		
Female	250	83%
Male	50	17%
Age Group		
18-25 years	21	7%
26-35 years	90	30%
36-45 years	120	40%
46-55 years	60	20%
56 and above	9	3%
Education Level		
High school or below	30	10%
Technical/Vocational	72	24%
Bachelor degree	48	16%
Master Degree	150	50%
years in Operations		
≤ 5 years	51	17%
5-10 years	90	30%
11-20 years	120	40%
21-30 years	30	10%
More than 30 years	9	3%

ANALYSIS

This study applies recognized and approved scales from previous literature for evaluating all variables thus assuring the reliability and severity of constructs. JST was evaluated with 9 items, TRC with 10 items, BSR with 9 items, originated by (Alamri, 2019), OQC with 7 items (Mitra, 2016) and investing decisions with 7 items (Carr et al., 2010) on a 5-point Likert scale. The researchers employed the SEM technique using Smart PLS which is considered to be good when data is non-normal (Hair et al., 2013) The PLS-SEM analysis was employed in two models namely measurement and structural model.

Measurement Model

The measurement model employed two validity criteria convergent and discriminant (Imran et al., 2018). Table.2 projected outcome indicates the convergent validity results for several constructs, including quality control, investment decisions, JIT, TCS, and BCS. Convergent validity is a critical aspect of construct validity in research, as it assesses the extent to which items that are supposed to evaluate the same variable do indeed converge or converge closely

(Hair et al., 2013). Essentially, it is imperative to note four key indicators are employed to evaluate the convergent validity such as Cronbach's Alpha, composite reliability, average variance extracted (AVE), and factor loadings signifying the strength of each item relative to its underlying construct. Table 2 prophesied values specify that factor loadings largely meet the suggested threshold of 5 % (0.50) or higher (Hair et al., 2013). This suggests that most items have strong association with their respective constructs, indicating good convergent validity. Secondly, Cronbach's Alpha assesses the internal consistency of the items within each construct (Peterson & Kim, 2013) .The values provided in your table range from 0.823 to 0.902, all of which surpass the commonly accepted threshold of 0.70 (Peterson & Kim, 2013). This indicates that items within each construct are reliably measuring the same underlying concept (Peterson & Kim, 2013). Thirdly, the recommended values for the composite reliability is 0.7 and Table 2 predicted values shown that the construct composite reliability value is greater than 0.70 which shows that construct has the convergent validity (Peterson & Kim, 2013). Lastly, one crucial element for assessing convergent validity is AVE which quantifies the variance explained by the construct compared to the variance attributed to measurement error.

To establish strong convergent validity, AVE values should generally exceed 0.50 (Peterson & Kim, 2013) Table 2 projected values exhibit that all values are greater than 5% (0.50) which meets the criteria of AVE (Purwanto, 2021). The above-discussed results on the measurement model exhibit a good convergent validity which is depicted in the following Table. 2 below.

Table 02: Convergent Validity Outcomes

Variables	Items	Mean	VIF	Factor Loading	Cronbach Alpha	Composite Reliability	Average
Quality Control	OQC1	3.63	2.13	0.85	0.894	0.902	0.733
	OQC2	3.24	1.35	0.75			
	OQC3	3.14	2.68	0.84			
	OQC4	3.42	1.46	0.95			
	OQC5	3.25	2.79	0.76			
	OQC6	3.41	1.57	0.83			
	OQC7	3.46	1.79	0.84			
Investing Decisions	IDN1	3.52	1.35	0.83	0.844	0.863	0.733
	IDN2	3.92	2.68	0.79			
	IDN3	3.23	2.99	0.83			
	IDN4	3.73	2.46	0.92			
	IDN5	3.17	1.47	0.8			

	IDN6	3.81	1.88	0.76			
	IDN7	3.48	1.68	0.89			
Just in Time	JIT1	3.35	1.57	0.89	0.871	0.894	0.735
	JIT2	3.57	2.77	0.77			
	JIT3	3.79	2.46	0.86			
	JIT4	3.9	1.68	0.93			
	TCS1	3.96	2.35	0.79	0.841	0.859	0.729
Target Costing	TCS2	3.57	3.57	0.84			
	TCS3	3.54	3.79	0.88			
	TCS4	3.46	3.68	0.81			
	TCS5	3.68	2.57	0.75			
	Balanced Scorecards	BCS1	3.49	2.31	0.89	0.823	0.843
BCS2		3.79	2.24	0.91			
BCS3		3.53	1.46	0.88			
BCS4		3.54	2.44	0.89			

The next requirement is discriminant validity which defines a subcategory of construct validity. It shows how effectively a test captures the concept (Henseler et al., 2015). Discriminant validity emphasizes on revealing the actual deficiency of linkage between concepts that theoretically could not be linked with each other (Henseler et al., 2015). The discriminant validity was evaluated from hetero trait mono trait correlation (HTMT) where correlation values should be less than 0.85 or 0.90 (Henseler et al., 2015). All of the numbers in Table.3 projected values are less than 0.85, which proposes that the notion has discriminant validity. The Table 3 predicted results shown the HTMT value.

Table 03: Discriminant Validity (HTMT)

	OQC	IDN	JST	TRC	BSR
OQC					
IDN	0.408				
JST	0.747	0.559			
TRC	0.587	0.164	0.606		
BSR	0.532	0.317	0.679	0.317	

Structural Model

After the measurement model, PLS-SEM structural model results conducted with 5000 bootstrap resampling, provide valuable insights into the relationships between various factors along with investing decisions in the setting of large-scale manufacturing organizations in Pakistan. The R Square before moderation was 0.45 which indicates that all explanatory variables create 45 percent changes in endogenous variables which is considered to be substantial change. After the moderation, R^2 increased from 0.45 to 0.56 which shows the

substantial moderating effect of OQC between SMATs and IDN. The PLS-SEM direct regression results indicate that JIT positively and significantly influences investing decisions which support to proposed H1. In addition, target costing also has a positive and significant influence on investing decisions which supports to proposed H2. Further results indicate that a balanced scorecard also positively and significantly affects investing decisions which supports proposed hypothesis H3. These findings indicate that large-scale manufacturing companies in Pakistan that adopt just-in-time practices, focus on TRC, and employ a BSR approach tend to achieve higher levels of investing decision. These findings align with the idea that efficient MATs could lead to improved investing decision in manufacturing industries.

While, H4 and H6, are not supported based on their p-values surpassing the communal significance level (0.05). This implies that quality control does not statistically significantly moderate the relationship between just-in-time and investing decisions or balanced scorecard and investing decisions in the context of Pakistani manufacturing companies. While this result suggests that quality control may not play a significant role in influencing the impact of these factors on investing decisions, businesses need to consider other potential factors or interactions that may affect these relationships. Lastly, H5 is supported, indicating that quality control" significantly moderates the nexus between target costing" and investing decisions in larger manufacturing companies in Pakistan. This suggests that the effectiveness of OQC can influence the linkage between TRC and investing decisions. It implies that firms that successfully integrate OQC measures into their TRC practices may realize more significant improvements in investing decisions efficacy. The discussion above results is prophesied in the following Table.4

Table 4: Hypotheses Outcomes

Hypotheses	Path Coefficient	T Statistics	Sig. Level	Decision
JST→IDN	0.547	4.633	0.001	Accepted
TRC→ IDN	0.318	2.813	0.005	Accepted
BSR→ IDN	0.428	3.718	0.001	Accepted
JST×OQC→ IDN	0.184	1.803	0.071	Rejected
TRC×OQC→ IDN	0.269	2.314	0.021	Accepted
BSR×OQC→ IDN	0.143	1.308	0.191	Rejected

Note: $p \leq 0.005$ OQC-Operations, JST-Just in time, TRC, Target costing, BSR-Balanced scorecard, IDN-Investing decision

DISCUSSION AND CONCLUSION

Quality control in operations could significantly augment MATs in larger companies. By ensuring consistent product quality and minimizing defects, companies can reduce operation costs and boost their reputation. This, in turn, allows for more accurate cost analysis and better-informed investment decisions, ultimately boosting investment decisions. This shows that operation quality control plays a pivotal role in enhancing MATs which help to increase investment decisions. Thus, current study intends to unveil the linkage between MATs and investing decisions through moderation of OQC in the manufacturing firms of an emerging economy like Pakistan employing PLS-SEM. The outcomes indicate that investing efficacy is influenced positively by JIT. It demonstrates that JIT affects largely the investing decisions of larger manufacturing concerns of Pakistan. These outcomes are inconsistent with the prior investigations (Khan et al., 2024). Besides, investing decisions are positively influenced by cost which is insistent with earlier researches (Saif Ul Islam et al., 2022; M. M. Ahmad et al., 2023).

This study substantiates these conclusions within the settings of Pakistan and highlights the implications of cost proficiency in smoothing complex investing decisions. Also, investing decisions are stimulated by BSC specifically in the settings of Pakistan and can also be ascribed to its function in integrating organizational goals, strengthening performance evaluation, and encouraging adjustments in volatile market. This tactical mechanism enables firms to strengthen resource deployment, adapt competently, and disclose their outcomes explicitly to stakeholders, eventually leading to stronger investing decisions. These findings coincide with prior research (Jbarah, 2018; Altın et al., 2020). Conversely, additional verdicts exhibit that the interplay among JST, BSR and investing decision through moderation of OQC does not prevail in Pakistan. Whereas, these outcomes are not in accordance with traditional intuition.

The role of OQC may change according to the situation and industry. These outcomes reveal that larger production organizations also consider many other aspects while making investing decision in Pakistan. It is notable that because of its multidimensional nature, investing decision may vary where strategic collaboration and competitive conditions may impose substantial affect along with operations quality in manufacturing concerns. Finally, the outcomes exhibit that OQC moderate the linkage of TRC with IDN illustrating that strong OQC can boost the effect of TRC regarding IDN. These outcomes inconsistent with prior studies point out the worth of OQC in managing cost and making proficient investing

decisions (Shahibah et al., 2020; Escrig-Tena et al., 2021; Ahmad et al., 2023). So, this research enriches the prevailing knowledge by notably addressing the interplay between OQC and TRC in a developing nation, Pakistan and possibly other developing nations.

Practically, it prevents mistakes, preserve over legal hazards, allocate resources accurately, encourage more suitable investing approach ultimately leading to more fruitful investing decisions. Additionally, in order to boost financial performance, it delivers critical guidance to manufacturers addressing the worth of OQC along with MATs like JST, TRC, and BSR. This study theoretically augments our conception regarding interplay between MATs and IDN through moderation of OQC, revealing a novel view on complexity involved while making investing decisions. The study further corroborates earlier outcomes concerning positive linkage among JST, TRC, BSR, and IDN, strengthening theoretical integrity of these hypotheses.

The present study unfolds the significance of OQC in making proficient decisions taking into account the important MATs in larger manufacturing concerns of Pakistan. The outcomes exhibited that MATs favorably influence investing decisions. The results illustrate that OQC employs its moderating role particularly in the linkage between TRC and IDN. These outcomes reveal valuable perspectives, and guiding the implementation of MATs and OQC procedures to boost the efficacy of investing decisions of firms in Pakistan. However, it is critical to realize that these outcomes are subject to particular circumstances and might differ among various regions and sectors, requiring more research to truly comprehend the Pakistani manufacturing sector and investing decision according.

Limitations and Recommendations

With significant findings, research has some limitations that could become new research areas in future. For instance, a study was conducted on Pakistan manufacturing firms which have different work cultures as compared to other developed nations, therefore future research could be explored on other developed nation's manufacturing companies to increase the research generalizability. The research has limitations on moderating effect while there are some other mediating variables like accounting information systems that could mediate between MATs and investment decisions. Therefore, future research could add another mediating variable to increase the research scope.

The study employed only a quantitative research approach, while there is also a qualitative research approach, therefore future research could be conducted on mixed methods to increase the research generalizability. Also, based on the research outcomes in the context of

large-scale manufacturing firms in Pakistan, several practical recommendations emerge to help these firms improve their investment decisions. Firstly, given the significant positive impact of Just in Time practices, manufacturing companies in Pakistan should prioritize the adoption of lean manufacturing principles. This involves reducing excess inventory, streamlining operation processes, and optimizing supply chain management. By doing so, they can effectively minimize operational costs, improve efficiency, and free up capital for more strategic investments.

Additionally, companies should focus on continuous improvement efforts to sustain the benefits of just-in-time practices over time. Secondly, the production industries in Pakistan must emphasize the execution of OQC measures, specifically in conformity with TRC approaches. Robust OQC can drastically improve the cost management and initiatives linked with target costing efficacy. Firms ought to concentrate towards quality control procedures and periodic audits to diminish flaws and associated cost. This technique assures operations quality whilst supporting economical operational goals. Additionally, these firms must constantly appraise and improve their production procedures to ensure compliance with growing industrial norms and customer preferences. Pakistani manufacturing firms can attain an appropriate balance between product quality and effectiveness by combining quality control and cost management procedures like TRC. It would eventually augment their capability to render competing assessments within the global market while enhancing their efficacy.

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