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The Role of Human Capital and Organizational Capital in the Profitability of Agricultural Bank Branches in Greater Tehran

ABSTRACT

The present study aimed to determine the role of human capital and organizational capital in explaining the profitability of Agricultural Bank branches in Greater Tehran and to examine whether these intellectual capital dimensions contribute to branch financial performance across different branch grades. This study employed a descriptive-correlational survey design. The statistical population consisted of employees and profitability records of Agricultural Bank branches in Greater Tehran. Using stratified random sampling, 141 employees from 39 profitable branches, including premium, Grade 1, Grade 2, and Grade 3 branches, were selected. Data on human capital and organizational capital were collected using a researcher-developed questionnaire whose validity was confirmed through expert evaluation and exploratory factor analysis, while reliability was established through Cronbach's alpha coefficients. Profitability data were extracted from official financial records of the selected branches. Data analysis was conducted using descriptive statistics, independent-samples t-tests, one-way analysis of variance, Pearson correlation coefficients, and simple and multiple regression analyses. The results indicated that there were no significant differences in human capital or organizational capital based on gender, age, organizational position, or work experience. Significant differences were observed across educational levels for both human capital and organizational capital. Correlation analysis revealed a significant positive relationship between human capital and profitability, whereas organizational capital was not significantly associated with profitability in the overall sample. Regression analyses demonstrated that human capital significantly predicted profitability and represented the strongest explanatory variable. At the branch level, intellectual capital significantly predicted profitability in premium and Grade 1 branches, while no significant predictive relationship was observed in Grade 3 branches. The strongest effects were observed for human capital, suggesting that employee knowledge, skills, and professional competencies constitute critical drivers of branch financial performance. The findings demonstrate that human capital is a key determinant of profitability in Agricultural Bank branches, while organizational capital plays a supportive but less direct role. The results emphasize the strategic importance of investing in employee development, knowledge enhancement, and competency-building initiatives to improve branch profitability and strengthen long-term organizational performance.

Keywords: Human Capital; Organizational Capital; Intellectual Capital; Profitability; Banking Performance; Agricultural Bank; Financial Performance; Greater Tehran

Introduction

In contemporary banking, profitability is no longer determined only by tangible assets, branch size, deposit volume, or the availability of financial capital. Banks increasingly operate in a knowledge-intensive environment in which service quality, employee expertise, organizational routines, technological infrastructure, decision-making capabilities, innovation capacity, and internal knowledge systems shape financial outcomes. This issue is particularly important for commercial and specialized banks because their operational performance depends heavily on intangible resources embedded in employees and

organizational structures. From the perspective of intellectual capital theory and the resource-based view, intangible assets can become sources of sustainable advantage when they are valuable, rare, difficult to imitate, and effectively organized. In this context, human capital and organizational capital are two central dimensions of intellectual capital that can influence how financial institutions generate value, manage resources, reduce inefficiencies, and improve profitability [1-3].

Human capital refers to the knowledge, skills, professional experience, creativity, learning capacity, motivation, and problem-solving ability of employees. In the banking sector, employees are not merely administrative agents; they are key carriers of financial knowledge, customer-service capability, credit-assessment expertise, risk judgment, and operational discipline. Studies on human capital and financial performance suggest that organizations with stronger employee competence and more effective human resource development are more capable of improving productivity, innovation, and profitability [4-6]. Evidence from banking and financial institutions also indicates that human capital development is associated with improved institutional performance because banking services require precision, trust, professional knowledge, and rapid adaptation to regulatory and market changes [7, 8]. Therefore, examining the role of human capital in bank profitability is essential for understanding whether employee-related capabilities are reflected in measurable financial outcomes at the branch level.

Organizational capital, as another core component of intellectual capital, refers to the institutionalized knowledge that remains within the organization beyond individual employees. This includes procedures, information systems, databases, internal processes, organizational culture, managerial systems, innovation mechanisms, documentation structures, and routines that support knowledge sharing and operational coordination. While human capital is embedded in people, organizational capital is embedded in the organization itself. It enables banks to transform individual expertise into consistent operational capability and financial performance. Previous research has shown that organizational structures, knowledge systems, technological routines, and innovation mechanisms can strengthen performance by improving efficiency, responsiveness, and strategic execution [9-11]. In financial institutions, organizational capital is especially important because branch profitability depends not only on employee competence but also on the quality of internal systems that guide service delivery, credit operations, documentation, compliance, and cost control [12, 13].

The relationship between intellectual capital and financial performance has received growing attention across different industries and national contexts. Empirical findings generally indicate that intellectual capital contributes to profitability, firm value, efficiency, sustainable performance, and competitive advantage, although the strength and significance of this relationship may vary depending on sector, measurement approach, and institutional setting [14-16]. In manufacturing firms, intellectual capital has been linked with financial performance by improving resource utilization, productivity, and value creation [3, 17]. In SMEs, intellectual capital improves performance through knowledge-based capabilities and efficient use of intangible resources [2, 6]. In hospitality, intellectual capital has been shown to support sustainable performance and organizational resilience, particularly during crisis conditions such as the COVID-19 period [18]. These findings support the broader argument that intangible resources are not secondary assets but core drivers of organizational performance.

In banking, the importance of intellectual capital is even more pronounced because banks compete primarily through knowledge, trust, information processing, risk management, and service capability. Cross-national evidence has shown that intellectual capital is associated with bank performance, suggesting that banks with stronger intangible resources are better positioned to generate sustainable financial outcomes [19]. Research on Islamic and Sharia banking has similarly emphasized

that intellectual capital dimensions can affect profitability and financial performance, although their effects may differ across institutional contexts and banking models [20, 21]. Studies on deposit money banks also suggest that human resource accounting and human capital development are relevant to financial performance because they reflect investment in employee capability, institutional competence, and performance-generating knowledge [4, 7]. These findings provide a strong basis for investigating how human and organizational capital relate to profitability in Agricultural Bank branches in Greater Tehran.

The role of human capital in profitability can be explained through several mechanisms. First, skilled employees are better able to attract and retain clients, evaluate credit risks, identify profitable opportunities, and reduce operational errors. Second, employees with greater professional knowledge can improve the quality of banking services and enhance branch-level productivity. Third, human capital strengthens innovation, especially when employees are encouraged to learn, solve problems, and adapt to changing financial conditions. Recent studies have linked human capital culture, human resource practices, and employee capability with firm value, sustainability, and organizational performance [22-24]. Research on workforce diversity and human capital efficiency also suggests that the quality of the workforce environment can influence the extent to which human capital contributes to institutional outcomes [25]. In this sense, human capital is not merely an internal administrative variable but a strategic resource with direct implications for profitability.

Organizational capital affects profitability by creating the conditions through which human capabilities can be converted into stable organizational outcomes. Even highly skilled employees may fail to generate strong financial results if they operate within weak systems, unclear procedures, inefficient workflows, poor information structures, or rigid organizational routines. Conversely, strong organizational capital enables banks to codify knowledge, standardize effective practices, support decision-making, accelerate service processes, and reduce unnecessary costs. Studies on intangible assets, innovation speed, technological project management, and organizational learning indicate that organizational systems can mediate or strengthen the conversion of knowledge into economic performance [9, 10, 12]. Evidence from structural capital research also highlights that organizational capital can shape the relationship between human capital and financial performance, particularly in deposit money banks [8]. Therefore, organizational capital may be regarded as the institutional mechanism that stabilizes, stores, and activates the productive potential of human capital.

The literature also indicates that the effects of intellectual capital are often contingent upon governance, sustainability orientation, and organizational context. Good corporate governance has been shown to mediate the relationship between intellectual capital and financial performance, indicating that intangible assets may produce stronger outcomes when supported by transparent and accountable governance systems [26]. In banks, governance-related mechanisms also interact with intellectual capital and sustainability-oriented practices, especially in the implementation of sustainable finance [27]. Similarly, studies on green intellectual capital and competitive advantage suggest that intangible resources can support both economic and sustainability objectives when they are embedded in organizational strategy and operational practice [28]. Although the present study does not examine governance or green intellectual capital directly, this body of evidence shows that human and organizational capital should be viewed as strategic resources whose financial effects depend on the institutional setting in which they operate.

Sectoral studies further show that the relationship between intellectual capital and profitability is not uniform. For example, in telecommunication infrastructure firms, intellectual capital has been found to influence profitability, suggesting

that knowledge-based assets are especially important in technology-intensive industries [29]. In agriculture and food industries, intellectual capital has been associated with profitability and efficiency, indicating that even sectors traditionally viewed as asset-based increasingly depend on knowledge, innovation, and intangible capabilities [30]. In tourism and MSMEs, intellectual and spiritual capital have been discussed as resources that support business development and competitiveness [31]. These findings are relevant to Agricultural Bank because the bank operates at the intersection of finance, agriculture, development policy, and service delivery. Its branches must combine financial expertise with sector-specific understanding of agricultural clients, credit needs, and regional economic conditions.

Another important issue in the intellectual capital literature concerns how intangible resources are transformed into measurable financial outcomes. Some studies argue that intellectual capital improves firm value and financial performance directly, while others suggest that its effects emerge through mediating variables such as innovation, governance, employer branding, sustainability practices, or organizational capabilities [26, 27, 32]. Employer brand attributes, for example, may influence financial performance from an intellectual capital perspective because they shape the organization's ability to attract, retain, and motivate valuable human resources [32]. Similarly, innovation-oriented and knowledge-driven strategies can help transform intangible assets into improved performance [9]. These arguments suggest that profitability should not be interpreted merely as the outcome of financial transactions; it may also reflect the effectiveness with which branches mobilize knowledge, employee capability, systems, and internal structures.

Despite the growing body of international evidence, there remains a need for more context-specific research on the profitability effects of human and organizational capital in banking branches. Many prior studies focus on firm-level financial indicators, listed companies, manufacturing firms, SMEs, or cross-national banking samples [14, 17, 19]. However, branch-level banking performance may involve different dynamics because branches vary in size, grade, location, staffing composition, operational responsibilities, and profitability conditions. In a branch-based banking system, profitability may be influenced by both employee-level capabilities and the organizational systems that support daily banking operations. Therefore, analyzing human capital and organizational capital at the branch level can provide a more precise understanding of how intangible resources function within operational units rather than only at the corporate level.

The Iranian banking environment also provides an important setting for examining this relationship. Banks in Iran operate under specific regulatory, economic, and institutional conditions, and specialized banks such as Agricultural Bank have a distinctive role in supporting agricultural finance, rural development, and sectoral credit allocation. In such institutions, profitability is shaped not only by general banking operations but also by the bank's capacity to manage specialized knowledge, allocate credit effectively, control costs, and maintain efficient branch operations. The ability of employees to apply professional expertise and the ability of branches to rely on effective organizational systems may therefore be decisive in determining profitability. International findings from banking and financial institutions support the relevance of studying these variables, but local empirical evidence remains necessary because intellectual capital effects are often context-dependent [8, 20, 33].

The current study focuses specifically on human capital and organizational capital and does not examine customer capital as a study variable. This focus is theoretically and analytically justified because the aim is to investigate the internal intangible resources of Agricultural Bank branches. Human capital captures the employee-based dimension of knowledge and capability, whereas organizational capital captures the structural and institutional dimension of knowledge embedded in systems and

processes. Together, these two dimensions represent the internal knowledge capacity of the branch. Prior research supports the importance of isolating specific intellectual capital components because different dimensions may have different effects on profitability and financial performance [28, 34, 35]. In particular, studies have shown that human resource practices and intellectual capital components can jointly affect organizational performance, while structural or organizational capital may either strengthen or weaken the conversion of human capital into financial results [8, 34].

Accordingly, this study is positioned within the broader intellectual capital literature but narrows its empirical focus to the role of human capital and organizational capital in profitability. It responds to the need for branch-level evidence in banking and contributes to understanding how internal intangible resources may explain profitability differences among Agricultural Bank branches in Greater Tehran. By examining both human and organizational dimensions, the study can clarify whether profitability is more strongly associated with employee competence, organizational systems, or the combination of both. This has practical importance for bank managers because investments in training, knowledge management, internal procedures, information systems, and organizational learning may produce different financial returns depending on the branch context. The aim of this study was to determine the role of human capital and organizational capital in the profitability of Agricultural Bank branches in Greater Tehran.

Methodology

This study employed a quantitative, non-experimental research design based on a descriptive-correlational survey approach. Given that the independent variables under investigation—human capital and organizational capital—could not be manipulated by the researcher, the study was conducted within the framework of descriptive research. More specifically, a survey method was adopted to examine the existing conditions of Agricultural Bank branches in Greater Tehran and to investigate the relationships between intellectual capital components and branch profitability. The primary objective was to determine the extent to which human capital and organizational capital contribute to variations in branch profitability.

The statistical population consisted of employees and profitability records of Agricultural Bank branches located in Greater Tehran. The branches included premium branches as well as Grade 1, Grade 2, and Grade 3 branches operating within the region. The population encompassed all available employees working in the selected branches together with the official financial records related to branch profitability. Because the population was finite and accessible, it was considered a limited population for sampling purposes.

A stratified random sampling method was utilized to ensure proportional representation of different branch categories. Since the study focused on profitable branches, a total of 39 branches were selected from among the available branches. Simultaneously, 141 employees were chosen as research participants through proportional allocation across branch categories. The sample included employees from premium, Grade 1, Grade 2, and Grade 3 branches, thereby ensuring adequate representation of organizational characteristics across different operational levels. The selected employees provided information regarding the intellectual capital dimensions examined in the study, while branch profitability data were obtained from official banking records.

Data were collected using two primary sources: a researcher-developed questionnaire measuring intellectual capital components and official financial documents used to assess branch profitability. Since customer capital was outside the scope of the present study, only the dimensions of human capital and organizational capital were retained for analysis.

The development of the questionnaire began with a structured consultation process involving ten experts specializing in intellectual capital and organizational performance. Through in-depth interviews and expert discussions, the key indicators associated with human capital and organizational capital were identified. These indicators were subsequently compared with the theoretical literature and prior empirical studies addressing intellectual capital. Drawing upon established intellectual capital frameworks proposed by leading scholars in the field, an initial pool of items was generated and refined.

Following the preliminary development stage, the questionnaire was pilot tested with a group of thirty bank employees. Based on the results of the pilot study and expert evaluations, the final instrument was prepared. Human capital items assessed dimensions such as employee knowledge, professional competence, skills, experience, creativity, innovation capability, learning capacity, and problem-solving abilities. Organizational capital items measured organizational systems, procedures, databases, operational structures, managerial processes, institutional knowledge, organizational culture, and mechanisms supporting knowledge management.

To establish content validity, the questionnaire was reviewed by ten university faculty members with expertise in intellectual capital research. These experts evaluated the instrument in terms of accuracy, clarity, representativeness, relevance, comprehensibility, meaningfulness, and usefulness. Revisions were made based on their recommendations, resulting in satisfactory face and content validity. Construct validity was subsequently assessed through exploratory factor analysis. Prior to factor extraction, assumptions related to missing data, sampling adequacy, multivariate normality, and communalities were examined. The Kaiser–Meyer–Olkin (KMO) index exceeded the recommended threshold and indicated an adequate sample size for factor analysis. Bartlett’s test of sphericity was statistically significant, confirming the suitability of the correlation matrix for factor extraction. The exploratory factor analysis supported the underlying structure of the questionnaire and confirmed the conceptual distinction between human capital and organizational capital dimensions.

The reliability of the instrument was assessed using Cronbach’s alpha coefficients. Pilot testing demonstrated satisfactory internal consistency, with reliability coefficients exceeding acceptable standards. Following the final administration of the questionnaire to the full sample of 141 employees, Cronbach’s alpha values remained high for both human capital and organizational capital dimensions, indicating strong internal consistency and measurement reliability. All questionnaire items were rated on a five-point Likert scale ranging from “strongly disagree” to “strongly agree.”

Profitability data were obtained directly from official financial records maintained by the bank. Profitability was calculated based on annual financial performance indicators, including revenues generated from lending activities, banking services, and other operational activities, as well as expenditures associated with personnel, administrative operations, capital expenditures, funding costs, and payments to depositors. Net profit was determined after accounting for all relevant expenses and applicable taxation in accordance with established banking and financial regulations.

Data analysis was conducted using both descriptive and inferential statistical techniques. Initially, descriptive statistics were calculated to summarize the characteristics of the study variables. Measures of central tendency, including mean, median, and mode, were computed, together with measures of dispersion such as range, variance, and standard deviation. Distributional characteristics were also examined through skewness and kurtosis indices to evaluate data normality.

Following the confirmation of statistical assumptions, parametric analytical procedures were employed. To investigate the relationships between human capital, organizational capital, and branch profitability, simple and multiple regression analyses

were conducted. These analyses enabled the assessment of the predictive power of each intellectual capital component and the determination of their relative contributions to profitability outcomes.

In addition, independent-samples t-tests were used to examine potential differences in intellectual capital scores across employee gender groups. One-way analysis of variance (ANOVA) was applied to compare intellectual capital dimensions across demographic and organizational categories, including age, educational level, organizational position, and years of service. Statistical significance was evaluated using conventional significance levels, and all analyses were performed with the objective of identifying the extent to which human capital and organizational capital explain variations in the profitability of Agricultural Bank branches in Greater Tehran.

Findings and Results

The demographic profile of the respondents showed that, among the 141 employees participating in the study, 90 valid respondents were men, representing 69.8% of valid gender responses, and 39 were women, representing 30.2%; 12 participants did not report gender. In terms of age, the largest group of respondents was between 31 and 40 years old, including 93 employees and accounting for 69.9% of valid age responses, followed by 27 employees aged 41 to 50 years, 10 employees aged 20 to 30 years, and 3 employees aged 51 to 60 years; 8 participants did not report age. Regarding educational level, most respondents held a bachelor’s degree, including 83 employees and representing 60.6% of valid educational responses, followed by 24 employees with an associate degree, 17 with a master’s degree or higher, and 13 with a diploma; 4 participants did not report their educational level. With respect to organizational position, the largest group consisted of senior financial users, including 50 employees and accounting for 38.2% of valid responses, followed by 33 branch managers, 32 counter supervisors, 11 banking affairs officers, and 5 deputy branch managers; 10 participants did not report their position. In terms of work experience, most respondents had between 11 and 20 years of service, including 81 employees and representing 59.1% of valid responses, followed by 22 employees with 21 years or more of service, 18 employees with 6 to 10 years of service, and 16 employees with 1 to 5 years of service; 4 participants did not report their work experience.

Table 1

Descriptive Statistics of Human Capital and Organizational Capital

| Variable | Mode | Median | Mean | Range | Variance | Standard Deviation | Standard Error | Skewness | Kurtosis |
|------------------------|------|--------|-------|-------|----------|--------------------|----------------|----------|----------|
| Human Capital | 70 | 70 | 69.42 | 54 | 96.35 | 9.81 | 0.42 | -0.23 | 0.32 |
| Organizational Capital | 54 | 54 | 53.41 | 49 | 91.38 | 9.55 | 0.42 | -0.01 | 0.02 |

As shown in Table 1, the mean, median, and mode of both variables were close to one another, indicating that the distributions were approximately balanced around their central values. Moreover, the skewness and kurtosis coefficients for human capital and organizational capital were lower than the absolute value of 1. Therefore, the normality assumption was considered acceptable, and parametric statistical tests were used for the inferential analyses.

Table 2

Comparison of Human Capital and Organizational Capital Based on Demographic and Organizational Characteristics

| Grouping Variable | Capital Variable | Test Statistic | df | p-value | Result |
|-------------------|------------------------|----------------|-----|---------|-----------------|
| Gender | Human Capital | t = 0.92 | 117 | 0.359 | Not significant |
| Gender | Organizational Capital | t = -0.10 | 114 | 0.915 | Not significant |
| Age | Human Capital | F = 0.64 | — | 0.528 | Not significant |
| Age | Organizational Capital | F = 0.19 | — | 0.826 | Not significant |
| Educational Level | Human Capital | F = 3.33 | — | 0.022 | Significant |

| | | | | | |
|-------------------------|------------------------|----------|---|-------|-----------------|
| Educational Level | Organizational Capital | F = 2.94 | — | 0.036 | Significant |
| Organizational Position | Human Capital | F = 0.99 | — | 0.398 | Not significant |
| Organizational Position | Organizational Capital | F = 1.21 | — | 0.308 | Not significant |
| Work Experience | Human Capital | F = 0.82 | — | 0.484 | Not significant |
| Work Experience | Organizational Capital | F = 1.60 | — | 0.192 | Not significant |

The independent-samples t-test showed that there was no statistically significant difference between male and female employees in human capital or organizational capital. The mean human capital score was 69.80 for men and 67.97 for women, while the mean organizational capital score was 53.04 for men and 53.25 for women. Therefore, gender did not meaningfully differentiate the capital scores of employees.

The one-way analysis of variance showed that age did not produce a statistically significant difference in either human capital or organizational capital. Similarly, organizational position and work experience did not significantly differentiate employees' scores in these two variables. In other words, employees across different age groups, organizational posts, and service-history groups had relatively similar levels of human capital and organizational capital.

Educational level was the only demographic variable that produced statistically significant differences. For human capital, employees with an associate degree reported the highest mean score, followed closely by employees with a diploma; employees with a bachelor's degree had the lowest mean score among the educational groups. The LSD post-hoc test showed that the difference between diploma and bachelor's degree employees was significant at the 0.05 level, and the difference between associate degree and bachelor's degree employees was significant at the 0.01 level. For organizational capital, the overall difference by educational level was also significant, and the LSD post-hoc test indicated a significant difference between associate degree and bachelor's degree employees at the 0.01 level.

Table 3

Branch-Level Regression Results for Predicting Profitability through Human Capital and Organizational Capital

| Branch Grade | Model F | Model p-value | Human Capital β | Human Capital t | Human Capital p-value | Organizational Capital β | Organizational Capital t | Organizational Capital p-value | Interpretation |
|------------------|---------|---------------|-----------------|-----------------|-----------------------|--------------------------|--------------------------|--------------------------------|---|
| Premium Branches | 5.73 | 0.008 | 0.85 | 8.04 | 0.001 | 0.11 | 2.67 | 0.055 | Model significant; human capital was the main significant predictor |
| Grade 1 Branches | 17.72 | 0.001 | 0.83 | 12.04 | 0.001 | 0.09 | 3.05 | 0.023 | Model significant; both retained variables contributed positively |
| Grade 2 Branches | 1.77 | 0.186 | 0.67 | 2.76 | 0.023 | 0.24 | 0.60 | 0.553 | Overall model not significant; coefficient-level results should be interpreted cautiously |
| Grade 3 Branches | 0.076 | 0.962 | — | — | — | — | — | — | Model not significant |

The branch-level regression analyses indicated that profitability could be predicted more strongly in higher-grade branches than in lower-grade branches. In premium branches, the regression model was statistically significant, and human capital had a strong positive coefficient. This means that higher levels of employee knowledge, competence, expertise, and work-related capability were associated with higher profitability in premium branches. Organizational capital showed a positive coefficient in premium branches, but its p-value was slightly above the conventional 0.05 threshold, indicating that its predictive role was not statistically confirmed at that level.

In Grade 1 branches, the regression model was also statistically significant. Human capital had a strong positive effect on profitability, and organizational capital also showed a statistically significant positive coefficient. Therefore, in Grade 1

branches, both employee-related capabilities and organizational systems, procedures, and structural resources contributed to profitability. In Grade 2 branches, the overall model was not statistically significant, although the human capital coefficient was significant at the coefficient level. Because the model as a whole was not significant, this result should be interpreted conservatively. In Grade 3 branches, the model did not significantly predict profitability, suggesting that the retained capital variables did not explain profitability variation in this group of branches.

Table 4

Single-Predictor Regression Results for Predicting Profitability in the Overall Sample

| Predictor Variable | F | p-value | β | t | Coefficient p-value | Result |
|------------------------|------|---------|---------|------|---------------------|--------------------------------|
| Human Capital | 3.98 | 0.048 | 0.17 | 1.99 | 0.048 | Significant positive predictor |
| Organizational Capital | 1.30 | 0.255 | 0.10 | 1.14 | 0.255 | Not significant |

The single-predictor regression analysis showed that human capital significantly predicted profitability in the overall sample. The positive beta coefficient indicated that profitability increased as human capital increased. Therefore, branches with employees who had stronger knowledge, skills, professional competence, and work-related capability tended to show higher profitability. In contrast, organizational capital did not significantly predict profitability in the overall sample. Although the direction of the coefficient was positive, the relationship was not strong enough to reach statistical significance.

Table 5

Pearson Correlation Matrix for Human Capital, Organizational Capital, and Profitability

| Variable | Human Capital | Organizational Capital | Profitability |
|------------------------|---------------|------------------------|---------------|
| Human Capital | — | 0.71** | 0.17* |
| Organizational Capital | 0.001 | — | 0.10 |
| Profitability | 0.048 | 0.255 | — |

*Note. Correlation coefficients are presented above the diagonal, and p-values are presented below the diagonal. * $p < 0.05$; ** $p < 0.01$.

The Pearson correlation results showed a strong positive and statistically significant relationship between human capital and organizational capital, indicating that branches with higher employee-related capabilities also tended to have stronger organizational structures and processes. The correlation between human capital and profitability was positive and statistically significant, confirming that human capital was associated with profitability. However, the correlation between organizational capital and profitability was positive but not statistically significant. Therefore, among the two retained capital variables, human capital had the clearer and more statistically supported relationship with profitability in Agricultural Bank branches in Greater Tehran.

Discussion and Conclusion

The purpose of the present study was to determine the role of human capital and organizational capital in the profitability of Agricultural Bank branches in Greater Tehran. The findings demonstrated that human capital and organizational capital exhibited acceptable descriptive characteristics and normal distributions, permitting the use of parametric statistical procedures. More importantly, the results revealed that human capital was positively and significantly associated with branch profitability, whereas organizational capital did not show a statistically significant relationship with profitability in the overall sample. In addition, profitability prediction differed across branch grades, with stronger relationships observed in premium and Grade 1 branches and weaker or non-significant relationships in Grade 2 and Grade 3 branches. These findings suggest

that intellectual resources do not influence all organizational units equally and that the effectiveness of human and organizational capital may depend on branch conditions, operational complexity, and managerial capacity.

One of the most important findings of the study was the significant positive relationship between human capital and profitability. The regression and correlation analyses showed that branches with higher levels of employee knowledge, skills, experience, competence, and professional capability tended to report higher profitability. This finding is consistent with intellectual capital theory, which argues that employee knowledge constitutes one of the most valuable strategic resources available to organizations. Human capital enables employees to make better decisions, improve service quality, identify profitable opportunities, manage risks more effectively, and contribute to organizational innovation. In banking institutions, where services are knowledge-intensive and highly dependent on employee expertise, the contribution of human capital to financial outcomes is expected to be particularly strong.

The positive effect of human capital on profitability is consistent with the findings reported by [4], who found that human capital development contributes significantly to the financial performance of deposit money banks. Similarly, [5] demonstrated that investments in human resources positively affect organizational profitability because employees represent productive assets rather than operational costs. The present findings also support the conclusions of [7], who reported that human resource accounting contributes to banking performance through the enhancement of employee effectiveness and organizational productivity. Furthermore, the results align with the findings of [6], who found that human capital efficiency strengthens the relationship between intellectual capital and profitability. Collectively, these studies reinforce the notion that employees are central generators of organizational value and that investments in employee development can translate into improved financial performance.

The findings can also be interpreted from a resource-based view perspective. According to this theoretical framework, sustainable competitive advantage originates from resources that are valuable, rare, difficult to imitate, and effectively organized. Human capital satisfies these conditions because employee expertise develops over time through education, training, organizational experience, and tacit knowledge acquisition. Consequently, branches with stronger human capital are better positioned to manage operational challenges and respond to customer and market demands. This interpretation is supported by the findings of [1], [2], and [14], all of whom reported positive associations between intellectual resources and financial outcomes across different organizational contexts.

Another important finding was the absence of a significant overall relationship between organizational capital and profitability. Although the relationship was positive, it did not reach statistical significance in the overall sample. This result suggests that the existence of organizational systems, procedures, databases, structures, and routines alone may not be sufficient to improve profitability unless they are effectively utilized by employees. In other words, organizational capital may function more as an enabling mechanism rather than a direct driver of profitability. This interpretation is consistent with the argument that organizational structures create the conditions under which human knowledge can be transformed into productive outcomes but do not necessarily generate financial value independently.

This finding differs somewhat from studies that have reported significant effects of structural or organizational capital on financial performance. For example, [8] found that structural capital significantly influences the relationship between human capital and corporate financial performance in Nigerian banks. Likewise, [11] concluded that organizational knowledge systems contribute to sustainability performance by facilitating knowledge retention and reducing organizational forgetting.

Similarly, [9] reported that organizational mechanisms supporting innovation enhance business performance in knowledge-driven organizations. The discrepancy between these studies and the present findings may be attributable to contextual differences, measurement approaches, banking structures, or organizational maturity levels. It is possible that organizational capital within Agricultural Bank branches serves primarily as a supportive infrastructure whose financial benefits emerge indirectly through human capital rather than directly through profitability indicators.

The branch-level analyses provided further insight into the relationship between intellectual resources and profitability. In premium branches, intellectual capital significantly predicted profitability, and human capital emerged as the strongest predictor. Similar results were observed in Grade 1 branches, where both human capital and organizational capital contributed positively to profitability. These findings suggest that the strategic value of intellectual resources becomes more visible in branches operating under more complex, competitive, and financially significant conditions. Premium and Grade 1 branches often manage larger transaction volumes, more sophisticated banking activities, and greater operational responsibilities. Consequently, employee expertise and effective organizational systems become increasingly important for achieving profitability.

These findings are consistent with the banking literature emphasizing the role of intellectual capital in enhancing financial performance. [19] reported that intellectual capital significantly influences banking performance across different national contexts. Likewise, [20] found that intellectual capital dimensions contribute to profitability in Islamic banking institutions. The current findings extend this body of evidence by demonstrating that the impact of intellectual resources may vary according to branch classification within the same banking organization. This variation suggests that intellectual capital should not be viewed as a uniform organizational resource but rather as a context-dependent asset whose effectiveness depends on operational demands and managerial complexity.

In contrast, intellectual capital did not significantly predict profitability in Grade 3 branches. Several explanations may account for this finding. Lower-grade branches may operate with reduced transaction volumes, lower profitability margins, more standardized procedures, and fewer opportunities for employees to influence financial outcomes. Under such conditions, profitability may depend more heavily on external factors such as local market conditions, customer demographics, regional economic activity, or institutional regulations rather than internal intellectual resources. Therefore, while human and organizational capital remain important operational assets, their measurable influence on profitability may become less pronounced in smaller or less strategically significant branches.

The demographic findings of the study also warrant discussion. No significant differences were observed in human capital or organizational capital based on gender, age, organizational position, or work experience. These findings suggest that intellectual resources are relatively distributed across demographic categories within Agricultural Bank branches. Such results may reflect standardized recruitment practices, similar training opportunities, and organizational policies that promote relatively uniform professional development among employees. The absence of gender differences is particularly noteworthy because it suggests that male and female employees possess comparable levels of intellectual capital within the banking environment.

These findings are generally consistent with research suggesting that organizational systems and professional environments can reduce demographic disparities in knowledge-related capabilities. For example, [25] argued that workforce quality and organizational conditions influence the development of human capital more strongly than demographic

characteristics alone. Similarly, studies by [34] and [23] emphasize the role of organizational practices in shaping employee capabilities and performance outcomes. The current results suggest that Agricultural Bank may have established relatively equitable mechanisms for knowledge acquisition, professional development, and organizational learning across employee groups.

Educational level was the only demographic characteristic associated with significant differences in intellectual capital. Employees with diploma and associate-level qualifications reported higher scores on some intellectual capital dimensions than employees holding bachelor's degrees. Although this finding may initially appear counterintuitive, it can be explained by differences in practical experience, job responsibilities, and organizational tenure. Employees with lower formal educational qualifications may have accumulated substantial experiential knowledge over longer periods of service, thereby enhancing their perceived human and organizational capital. This interpretation is consistent with intellectual capital theories emphasizing that knowledge is acquired not only through formal education but also through workplace learning, tacit experience, and organizational participation.

The significant correlation observed between human capital and organizational capital is another important finding. The strong positive relationship indicates that branches characterized by knowledgeable and capable employees also tend to possess stronger organizational systems and structures. This result supports the argument that intellectual capital components are interdependent rather than isolated constructs. Effective organizational systems facilitate knowledge sharing and retention, while knowledgeable employees contribute to the development and improvement of organizational processes. Similar conclusions have been reported by [24], [32], and [26], who highlighted the interconnected nature of intellectual capital dimensions and their collective contribution to organizational outcomes.

The findings of the present study also have implications for sustainable performance and long-term organizational competitiveness. Contemporary organizations increasingly rely on intangible resources as sources of value creation. Studies conducted by [18], [28], [33], and [21] demonstrate that intellectual capital contributes not only to financial outcomes but also to sustainable growth, organizational resilience, and long-term performance. The current findings support this perspective by showing that human capital, in particular, represents a critical driver of profitability within the banking sector. Consequently, managers should view investments in employee development as strategic investments rather than operational expenditures.

Overall, the findings indicate that human capital is the most influential intellectual resource affecting branch profitability in Agricultural Bank. Organizational capital contributes positively to branch operations but does not independently predict profitability in the overall sample. The results further suggest that the effects of intellectual resources vary across branch categories, with stronger impacts observed in higher-performing branches. These findings reinforce the importance of knowledge-based resources in banking and support the growing body of literature emphasizing the strategic value of intellectual capital in contemporary organizations.

Several limitations should be considered when interpreting the findings of this study. First, the research was conducted within a single banking institution and was limited to Agricultural Bank branches in Greater Tehran, which may restrict the generalizability of the findings to other banking systems or geographical regions. Second, the study relied on self-reported questionnaire data for measuring human and organizational capital, which may have been influenced by response bias or subjective perceptions. Third, the cross-sectional design prevented the examination of causal relationships and changes in

intellectual capital over time. Finally, profitability is influenced by numerous internal and external factors, and the present study focused only on selected dimensions of intellectual capital, potentially omitting other relevant determinants.

Future studies should investigate the relationship between intellectual capital and profitability across different banking institutions, regions, and financial sectors to improve the generalizability of findings. Longitudinal research designs could provide a deeper understanding of how investments in human and organizational capital influence profitability over time. Researchers may also examine potential mediating and moderating variables, such as organizational culture, leadership style, innovation capability, digital transformation, and knowledge management practices. Comparative studies between public and private banks or between high-performing and low-performing branches may further clarify the conditions under which intellectual resources contribute most effectively to financial performance.

Bank managers should prioritize investments in employee training, professional development, knowledge sharing, and competency enhancement because human capital demonstrated the strongest relationship with profitability. Recruitment and promotion systems should emphasize expertise, learning capability, and professional skills alongside traditional performance indicators. Managers should also continue improving organizational processes, information systems, and knowledge-management mechanisms to support the effective utilization of employee capabilities. Furthermore, branch-level strategies should be tailored according to branch classification, recognizing that intellectual capital may contribute differently to profitability across various operational contexts. Finally, establishing a culture of continuous learning and organizational improvement can help strengthen the long-term profitability and competitiveness of banking institutions.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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