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The impact of investment in human capital on bank performance: evidence from Bangladesh

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Abstract

The objective of this study is to examine the aspects of investment in human capital like training of employees, education level of employees, knowledge level of employees, and skills of employees that influence the performance of a bank and to provide some comments to improve the banking sectors. This research included a conceptual model along with hypotheses. This empirical study is based on primary data. The data were obtained by the convenient sampling procedure with a questionnaire using the seven-point Likert scale. The hypothesized model has been validated using data from 261 participants, and an analysis was conducted using the system of structural equation modelling. The results revealed that investment in training, knowledge level and skills of the employee were positively connected to bank performance at less than 1% and a 5% level of significance. But the employee's educational level does not substantially affect bank output in this analysis. The focus field is the study of the human capital investments of the Human Resources Division at Janata Bank Limited. It investigates different aspects of the Janata Bank's facilities as well as the problems and prospects. Thus, this study can be a policy dialogue for the managers, owners, decision-makers, and academicians.

Keywords: Human capital, Human capital investment, Bank performance, Janata Bank Limited, SEM

JEL Classification: J24, L25, M5, D25, C38, E5

Introduction

One of the most important factors contributing to the economic growth of a nation is human capital [1]. Various factors, including product and process growth, healthy enterprise niches, financial capital exposure, and economies of scale, have traditionally been the basis of companies' strategic tactics. But financial assets in an entrepreneurial environment such as today no longer offer lasting competitive advantages marked by market fragmentation, increased demand and the rapid speed of technological change [2]. An organization's contribution to human resources will significantly benefit the

business and the people employed inside the group. This tends to make workforce development more efficient and keeps the company healthy [3]. In today's business world, human capital is the competitive tool that has been considering by each and every organization [4–6]. The efficiency in production has been controlled by adopting skilled workforces in the companies [7]. Thus, the banking industries are taking advantage of human capital involvement and investing in them [8].

Every organization's human capital offers an overview of personal history incorporated into the collective capacity of the company to reveal the optimal approach from its distinct workers [9]. Competence and skills are essential to an organization's future success and security. It is widely recognized that a person's schooling and preparation throughout their working life improves their willingness and capacity to work, solve challenges, and

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conduct creativity [8, 10, 11]. Shifts in technology, systems, and goods are rapidly facing the global economy. In general, most firms strengthen their workforce training because they feel it will lead to greater productivity and performance [12, 13]. For the research, the hypothetical model links resource-based view theory (RBV) in human capital that broadens the human capital concepts to encompass direct and indirect influences on bank performance [4, 6]. The philosophy of human capital proposes that individuals with more or more human capital perform as they perform tasks [14]. "Human capital" (HC) is a stock of people's skills and capabilities. In particular, human capital comprises the specific insights, talents, cognitive characteristics and capabilities of entrepreneurs [15]. It also includes the accumulated attributes and habits that can influence productivity positively or negatively [14].

HC is a dynamic resource, crucial for understanding the differences in recognizing and utilizing opportunities [16]. Tan et al. [17] explored the correlation between Singapore Stock Exchange firms' intellectual resources and financial performance. In this context, as measures of financial success, they used equity, earnings per share, annual return, and value-added intellectual coefficients (VAIC) to calculate intellectual capital. The results of their study indicate that intellectual capital has a positive correlation with the business's future success [10]. They also concluded that the growth rate of intellectual capital has a positive relation to business success. Since HC is an element of intellectual capital, we believe that human capital influences corporate efficiency [18]. Thus, it can also be said that investment in human capital can influence banking efficiency. Also, Ozkan et al. [19] examined the connection between VAIC and the market value-to-book relationship in the Turkish banking sector. The fallouts of their investigation show that the dependent variable (price-to-book ratio) has significant correlations with the independent variable (VAIC) with its three components (one was HC) [11, 20].

Few primary data-based studies about human capital and company performance exist in developing countries like Bangladesh [21–25]. Many secondary data-based studies have been found in the literature covering intellectual capital but did not mention HC investment [4, 6, 10, 11, 17, 19, 22, 26–28]. Therefore, no direct relationship between investment in human capital and performance has not been found in the existing literature of the Bangladeshi banking industry. Thus, to fill this gap, we researched on developing a structural relationship covering the investment in HC with the performance, considering the primary data-based study. Another unique concept in that study is to choose different branches of a single bank as the sample for this study. There is a lack of research in the banking industry in Bangladesh considering the single bank with multiple branches covering the structured relationships [21, 22, 25]. That is why this study has considered several branches of Janata Bank Limited in Bangladesh. We, therefore, carry out this analysis through a logical inquiry with a formal questionnaire and investigate whether there is a positive relationship between human capital investment and bank performance. Thus, we consider four constructs to proxy human capital investment. They are the investment in training of employee (TR), education level of the employee (ED), knowledge level of employee (KN), and skills of employees (SK) (following the previous research [1, 20, 29, 30]). Further, to measure the bank performance, we consider the effectiveness and efficiency of banks so as to previous research [28, 29, 31–33].

This research adds to established literature in at least three respects: firstly, the structural review of this study shows that a positive effect of investing in human capital on bank performance exists within a single organizational body. Secondly, Bangladesh is suitable for preparing employees as human capital for any organization due to the geographical pattern. Furthermore, this study proves that human capital investment improves banks' profitability within the same banking partition. Thirdly, the structural equation modelling, which offers an evaluation of the model fit as to the reliability and validity of each tested construct and the overall model, was employed for the methodological concern. Thus, the findings of this study are derived from the best fitted model and make a methodological contribution to previous researches [18, 34–37].

Literature review and hypothesis development
Theoretical background
The resource-based view (RBV) is one of the most popular theories for understanding a firm's ability to maintain a prolonged competitive advantage over its competitors [38]. Its most basic form asserts that businesses can gain a competitive advantage when they hold and control precious, uncommon, and unique assets such as human capital and when they put in place an organization capable of managing these assets [39, 40]. HC may be distinguished from other resource categories, as the RBV treats all resources conceptually the same. Human resources may lay the groundwork for developing the company's capabilities, resulting in long-term improved performance [41, 42]. The company is composed of two components: resources and goods or services generated only from resources. According to the resource-based approach, a firm's resources might be regarded as a factor in determining its competitive advantage and performance [42]. The resource-based theory or view assists in assessing the

firm's available resources and silently connects them to the firm's capabilities. This takes into account the firm's profitability and value proposition. According to this idea, an organization has a competitive advantage when it can employ its resources in a more distinctive and valuable manner than its competitors [31, 43]. This increases the firm's success in the world's rising economies.

The RBV theory argues that if a resource is valued, it may provide an organization with a competitive advantage [42, 44]. Simultaneously, the firm can evaluate prospective human resources that will benefit the firm and enable success in new markets. Additionally, the resource-based approach pushes the company to consider if its resources are useful at the projected level. Additionally, this theory checks the availability of human capital inside the company [31]. The competitive advantages associated with the resources are assessed to determine which resource is truly unique and not available to the firm's rivals. As a result, human capital might benefit the business since rivals will be unable to meet the same level of expectation that the firm adopts in the market. Wright et al. [41] believe that human resources inside an organization enable the company to create goods in response to consumer demand and also enable the organization to grow sustainably.

A resource having the potential to produce competitive advantage, according to Barney [42], must fulfil some characteristics, including value, uniqueness, imitability, and organization. Resources and capabilities are deemed important if they enable an organization to capitalize on opportunities while counteracting dangers [41]. As a result, these resources should enable the organization to satisfy the essential success elements in its business environment. The rarity criteria are proportional to the number of rivals who own a valued resource. A valuable resource, like HC, distinct among both present and future rivals, is likely to provide a competitive advantage [41, 43, 44]. Valuable and scarce resources can provide a competitive edge and should be performed and developed domestically. The imitability criteria concern the ease with which rivals can replicate a valuable and scarce resource that an organization possesses. In essence, this study is focussed on assessing the benefits of human capital investment on bank performance via the resource's competitive advantage [31, 38]. Finally, Barney [42] contends that a business must be organized to maximize its resources and skills. The reporting structure, management control systems, and remuneration policies are all part of the organization criteria. It is critical to emphasize that even if a business possesses a variety of precious, scarce, and expensive to replicate resources, the organization will hinder these resources from being fully utilized [38].

For many supporters of the resource-based approach, competitive advantage is derived from resources and capabilities possessed and managed within a single organization. Thus, competitive advantage is derived through utilizing a company's resources. But other researchers [45, 46] have broadened the scope of the resource-based perspective to include resources outside the organization's walls, and a concept is known as the "extended resource-based view". This literature argues that it can help us better understand how businesses might use human resources to acquire and maintain a competitive edge in the banking industry. For example, Dyer and Singh [47] assert that organizations might combine resources in innovative ways across organizational borders to gain an edge over their competitors. In addition, training, education, and upgrading skills and knowledge may help businesses generate excellent human resources [48]. Consequently, accessing essential resources in a way that goes beyond a company's borders might help an organization achieve and maintain a competitive edge. According to Nyberg et al. [38], organizations ready to make relation-specific investments and integrate resources in novel ways can enhance efficiency across the value chain.

Investment in HC and bank performance

The concept of human resources has been acknowledged tremendous coverage in today's business environment. Bontis et al. [9] described human capital as the human characters within the organization, the accumulated intelligence, expertise and knowledge that characterizes the business. Human capital represents intelligence, practise, skills, and associated soft assets instead of financial and physical hard capital [49]. "It involves three components: customer capital, structural capital (SC), and human capital (HC)" [28, 49]. Human capital is a blend of knowledge, abilities, expertise and learning [27]. Human beings are a high-value commodity, and HC is known as a primary component in the sense of intellectual capital. The idea of HC was fully established in the 1960s with the introduction of human capital theory [50, 51]. The word "human capital" is a crucial element in increasing the competitiveness of company assets and staff and sustaining a competitive advantage that increases financial efficiency [52]. This explanation illustrates the need for human capital to aid in the financial performance of a business.

Mamun [23] investigated the critical relationship between human resources reporting and company size, form and profitability based upon secondary data from 55 Bangladeshi companies. His study found only 25%, on average, of all human resources things reported by the businesses and found significant positive ties to the

company's size, categories and profitability. In a three-year longitudinal analysis of 32 leading Bangladeshi manufacturing and service companies, Khan [24] noted that the coverage of HC reports increased due to government regulations in Bangladesh. Their secondary data-based analysis found that banking firms say more HC than other firms. Absar et al. [25] conducted secondary evidence-based research and found that Bangladeshi banks revealed more HC data than Kazakhstan. Armstrong [53] defines HC as any human ability whose worth, be it innate or acquired characteristic, may be improved by sufficient output expenditure. Davenport [54] notes that the inviolable commodity provided by workers to their employers is human resources. He commented that individuals have innate abilities, actions and personal vitality, and human capital comprises these essential elements.

The definition of bank performance varies in academia [8, 10]. However, clear explanations of bank performance could be proposed in the context of improving human capital. There are two facets of business performance: financial and non-financial [4, 6, 19, 29, 43, 55]. Financial metrics include the percentage of revenue, income and resources used and return on assets (ROA) [56, 57]. The modern paradigm of performance management stresses the integration of financial and non-financial behaviour. Some of the flaws in the traditional intervention are resolved by tangling financial metrics such as customer satisfaction, organizational performance, income, innovation, etc. However, non-financial practices by themselves are problematic. "The HC of a business is an essential source of sustainable competitive advantage" [30, 58, 59], and therefore, investment in workforce resources will improve efficiency and financial performance for employees [7, 60–62]. The organization's human capital is increased by helping individuals develop knowledge, skills, and competency. As a result, employees are well equipped to work and the business in general gains [63]. The resource-based theory predicts a firm's long-term success, which holds that precious, scarce, difficult to reproduce, and nonsubstitutable resources are the most advantageous [4, 6, 29]. These strategic resources can serve as the foundation for the development of firm skills that, over time, can result in improved performance for the company [64]. Human resources follow these requirements, and the corporation can then look after and preserve resources with such assets to enhance organizational efficiency [4, 31, 65, 66]. Previous researchers found mixed relationships between human capital and firm performance [1, 20, 24, 52, 57, 59, 61, 66, 67]. Yarovaya et al. [1], Schultz [52], Hsu et al. [57], Andersén [59], Jamal and Saif [66], Mincer [67], and Nguyen [20] argued that intellectual capital improves the firm efficiency, but Khan [24], Ukenna et al. [61],

and Alnoor [30] found negative relationship because of inadequate management of HC. Further, Awan and Sarfraz [3], Marimuthu et al. [32], Calabrò et al. [48], and Nyberg et al. [38] argued that human capital could not be linked to the financial performance of firms. The existing research did not mention the investment in human capital in their studies. Covering the investment in human capital, we postulate our main hypothesis as follows:

H1 There is a positive relationship between investment in human capital and bank performance.

Training of human resources and bank performance

Investments in human capital are cost-effective so that overall projected returns (cash flow) are more significant than the costs of acquisition [21, 59]. Therefore, it is not accurate to determine the effectiveness of the training operation solely based on its costs [38]. This decision will usually be more costly than reducing the cost of inadequate learning. Therefore, the opposite approach to assessing the efficacy of training's monitoring gain (contribution) could be preferred, representing positive measures of improvement [32].

Any action like training that increases the worker's efficiency (productivity) is an investment in resources [14, 25, 29, 68]. And preparation is an essential part of the investment in human resources. This relates to the skills and experience that someone requires and provides to strengthen their ability to carry out tasks of economic importance [39, 69]. "The word training refers to the acquisition of know-how, knowledge and skills derived from technological or practical skills and information related to specific functional competencies" [70]. Labour market observers now understand, in addition to the requisite training needed for a profession, career or occupation, the need to pursue experience beyond initial qualifications: to retain, develop and enhance expertise during their working lives. This form of training can be called career progression for people in other branches and occupations. Fraser et al. [33] introduce and applies a panel-data approach focussed on secondary data to estimate the effect of the employee training framework on business development and find a positive relationship covering some small firms. Garcia [71] links training policies and business performance, whereas Aragón et al. [72] connect training tools and business results. Glaveli and Karassavidou [73] mention the relationship between training and organization needs to be unlocked (studied), and they constructed the relationship with job satisfaction based on primary data analysis.

Employers may target the information and skills they want their employees to acquire by providing training

and development opportunities for their staff [21, 73]. Training and development programs can help employees learn new talents or update their existing abilities to enhance overall productivity and efficiency. Training of employees improves employees' efficiency and production. Employees that have received proper training establish both quantity and quality performance [71, 74]. If personnel are effectively trained, there will be less wasting of time, money, and other resources. Companies are looking for methods to retain staff on board in light of the potentially costly consequences of employee turnover [72]. Employee turnover may be reduced by investing in their training and development. According to Garcia [71], work features such as training accounted for the fastest-growing category of reasons for voluntary turnover, with an increase of 117% in the past three years. The findings of a study conducted by Glaveli and Karassavidou [73] revealed that 70% of employees in the USA believe they are at least somewhat likely to quit their present job and seek a new position with an employer that invests in training and development. As training to employees is identical to investment on HC, we hypothesize as follows:

H1a There is a positive relationship between the training of employees and bank performance.

The education level of human resource and bank performance

It is necessary to invest in corporate education to ensure that professional workers who build a competitive advantage are hired and retained in businesses [1, 10]. Furthermore, investment in an effective system for distributing corporate benefits is essential for recruiting and retaining employees and developing high-quality human resources for firms [75]. Drábek et al. [76] suggest a diagram about the benefits of increasing employee morale and interest. Therefore, the efficacy, fairness and suitability of market advantages need to be routinely measured and checked to assist in determining employee improvements and hence the rewarding scheme [11, 20, 36].

A study by Bontis and Fitz-enz [27] noticed the impact of the management of human capital, in which the link was formed between managing human capital and the economic outcomes. In their study, a total of 25 firms were selected in the case of financial services companies. The report evaluated the productivity of human resources using four metrics: revenue factor, cost factor, revenue factor, and HC ROI (Human Capital Return on Investment). Nguyen et al. [77] conducted a secondary-data-based study and found that executive characteristics generate wealth for shareholders in the US banking

sector. Still, the study can be considered as evidence for the developed country. Grima et al. [78] ran a primary data-based study and connected education with derivative mishandling. Through the primary data analysis, Baldacchino et al. [79] find that education level can lead to an excellent working relationship. Mahboud [80] states a secondary-data based study for the quality of financial reporting. The proper educational qualification of employees of any business is to generate more productivity per worker [8, 26, 59]. Education levels have a direct impact on intellectual property, which will yield better per employee financial performance. Education level improved the human performance that produced human capital to the organization. Thus, the following hypothesis has been developed:

H1b There is a positive relationship between the education level of employees and bank performance.

Knowledge of human resource and bank performance

Knowledge and training are required to progress the firm's operations, particularly in sales [30]. All the training in the world will be useless if employees do not understand the sales process, different personality types, or the firm's goods. Employees memorize what to do and cannot adjust since they have not completely digested that information to make it work for the businesses; thus, training without knowledge is worthless [2, 8, 56]. Employees will need to learn information to become the most outstanding salesperson or client-facing person they can be [81]. Still, training on using that knowledge in the proper scenario will help them become a more valuable resource to company clients and prospects [48].

In any case, the absence of workforce training has correlations with a low degree of productivity [35, 36, 62, 82]. On the other hand, a more significant share of human resources is related to higher productivity and higher wages [22, 56, 67, 77]. Training is also related to business longevity [83] and increased corporate and economic development propensity [84]. Furthermore, Doucouliagos [85] has accepted HC as an instrument for developing staff, maximizing their participation and generating expenditure in R&D and eventually opening the door to modern sensibilities for the economy and community. The Oxford English Dictionary describes the ability and skills of an individual employing a person's experiences and schooling, theoretical and functional understanding; what is understood in a specific area or as a whole; facts and information; or the experience or familiarity of a term or circumstance experienced. When the knowledge level of the employees improved, the firm

will achieve efficient employees that enhances the firm performance [65, 78, 83].

Different cognitive mechanisms are used to process information: interpretation, comprehension, expression, connection and perception [60]. The word knowledge also implies an assured comprehension of a subject, with the opportunity to use it for a particular reason, where appropriate. The knowledge and performance of the workers are related to many studies (see, for example, Marimuthu et al. [32]). The bank industries need to invest in the knowledge improvement process of employees that enhances the firms' efficiencies and effectiveness in return [7, 27, 29, 72]. Knowledge is one of the most critical assets that businesses may leverage in order to earn higher rents and maintain a sustained competitive advantage. Thus, the following hypothesis can be postulated:

H1c There is a positive relationship between the knowledge of employees and bank performance.

Skills of human resource and bank performance
An industry is recognized for its skills restructuring and diversification due to skilled technological and coordinated changes [62]. The intention is to see to what degree the banks support elastic wage agreements and then corrode administrative and uniform wage laws. Indeed, workers with a specific set of skills must meet the demands of modern employment [86]; when businesses are encouraged to invest money in their management, the singularity of human capital increases [87]. It reduces the risks and builds on the production potential. Therefore, individuals need to develop their abilities and skills to be successful within their organizations. Knowledge is an ability that is often mastered to produce predetermined outcomes with a minimal amount of time, resources or both. Usually, assessing the magnitude of the potential displayed and used requires certain outside factors and circumstances. The first move in understanding the economic value of skills should be based on the theory of HC of Becker [14]. Becker urges the return of general abilities beneficial in every organization and special abilities respected by a particular corporation. Employees need much expertise in specific domain skills to lead to the company's performance and effectiveness to compete [62].

A recent study by Siepel et al. [87] argued that four major types of skills (science, technology, engineering and mathematics) of employees are positively associated with firm performance and regional growth (see also, [88]). An employee skillset develops an awareness of work obligations and how to conduct everyday job activities successfully [62]. When an employee has a diverse skill set, she is better able to arrange her day's activities and meet her production targets [5, 32, 80]. The investment made by a company in a mix of skills will be made strategically to accelerate subsequent growth [86, 87]. But as businesses develop and mature, the explanatory power of elements such as resources will increase, since in the words of Penrose, "It is the heterogeneity of the productive services available or potentially accessible from a firm's resources that gives each firm its distinctive character" [89]. This serves as the foundation for our investigation of the relationship between worker skills and bank performance, as follows:

H1d There is a positive relationship between the skills of employees and bank performance.

Method
Research model
This research analyses the primary data for human capital effects using SEM. The statistical analysis has been equipped using R software due to the applicability of an integral model for research. SEM offers an evaluation of the models fit for the reliability and validity of each evaluated construct and the overall model.

This research considers the convenience sampling method. The data were composed through a questionnaire survey that is designed on the 7-point Likert scale. We collect data from 283 respondents. But all the respondents did not respond completely. Some questions remained blank and incomplete. Finally, we find a 261 questionnaire filled up. That is why we used the 261 observations in this study. The study uses the "R programming software", particularly the "lavaan package" for SEM, and the EndNote X9 for managing the references. The lavaan package is designed to deliver a commercial package for latent variable modelling to applied researchers, teachers, statisticians, and students. Lavaan can be used to measure a large variety of multivariate mathematical models, including path analysis, confirmatory factor analysis, structural equation modelling, and growth curve models. SEM by R programming is an extensive field used in many applied researchers' social and behavioural sciences [90].

The calculation model is required for the SEM, which applies the measurements to their corresponding latent variables. We provide the theoretical background and mathematical study to affirm the measuring pattern's relevance and efficiency (see Analysis section). Figure 1 shows the conceptual model.
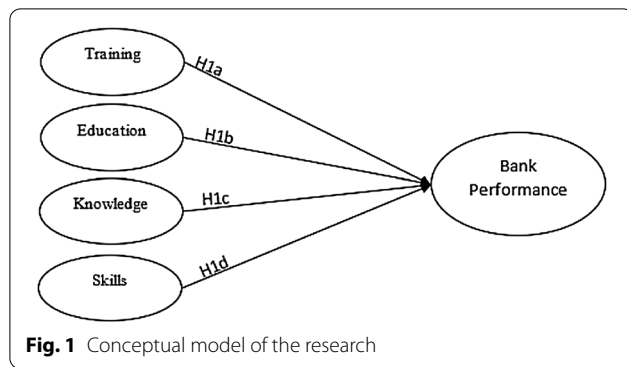
Fig. 1 Conceptual model of the research

Table 1 Demographic profile of the respondents

	Classification	No. of respondents	Percentage
Education	Masters	114	44%
	Honours	104	40%
	HSC	22	8%
	SSC	15	6%
	JSC	6	2%
	Total	261	100%
Age Group	17–22 years	53	20.31%
	22–27 years	68	26%
	27–32 years	96	36.78%
	32-above	44	16.86%
	Total	261	100%
Gender	Male	132	51%
	Female	127	49%
	Total	261	100%

Source: Developed from the surveyed data

Operationalization of latent variables

According to Fig. 1, five multifaceted latent variables form the conceptual pattern, which cannot determine a single observed variable. Thus, multifaceted objects evaluate each of the latent variables in the mathematical model.

The four exogenous variables are training (TR), education (ED), knowledge (KN), and skills (SK). The only endogenous variable is bank performance (BP). We take both exogenous and endogenous variables to inspect the effect behind them [61].

For the first exogenous variable training, we use seven items that mention "Individual and team training and development, nursing training and development, career development, work design, performance appraisal, effectiveness, efficiency" [55, 61]. These items are measured on a scale ranging from 1 = strongly disagree to 7 = strongly agree. The exact wording of the training and development object is, for example, "In your opinion, the individual employee training and development programs are effective."

Consistent with Katou [55] and [61], we use four items referring to educational qualification for the second exogenous variable that is the education construct. These items are measured on a scale ranging "from 1 = strongly disagree to 7 = strongly agree", enquiring respondents to make up the academic level of the employee. For instance, the particular expression for educational qualification is "You think that the employee's education level is good."

We adopt the construction creation model of training above to develop the information framework, which is the third exogenous variable since cognitive knowledge is a feature of practice and training [55]. Thus, these items are measured on a scale ranging "from 1 = strongly disagree to 7 = strongly agree". Therefore, for example, the exact wording for the knowledge item is "In your opinion, the employee training and development programs on employee knowledge are effective."

To develop the skills construct, the fourth exogenous variable, we use five items relating to competency, management-employee cooperation, and employee cooperation. However, competencies are assumed to be fundamental for any improvement in performance [91]. If workers are cooperative and inspired, they are not necessary to enhance organizational efficiency [92]. These items are measured on a scale ranging "from 1 = very bad to 7 = very good", questioning respondents to report human capital performance (skills) over the previous three years to minimize random variations and anomalies in the data. For example, for the competence item, the exact expression is "How would you rate employee competences over the past 3 years?".

The endogenous variable (dependent) is the bank's output that measures the baseline results for HRM [81]. Usually, the company's performance (both financial and non-financial) is demonstrated by the items named effectiveness and efficiency. Effectiveness indicates how the business achieves its goals. Efficiency indicates how the bank needs as least capital as possible to achieve its goals. Development means how the bank grows in its dimensions to face potential opportunities and challenges and the satisfaction of all applicants. These items were listed on a scale of "1 = very bad to 7 very good". To remove random variations and deviations in the outcomes, we asked the respondents to report the success of banks over the last three years. For example, the exact formulation of the effective item is "How will you rate the productivity and effectiveness of the overall bank to accomplish the targets over the previous three years?".

Results and discussions

Demographic profile of the respondents

Kline [37] recommends at least 100 SEM observations and 200 detailed prediction observations that are sure to be met by our survey of 261. Table 1 briefly shows the ethnic profile of the respondents. The study is approximately proportional because having 51% of men and 49% of women indicates that the sample is impartial. In terms of qualifications, 40 per cent of the respondents have a bachelor's degree, and 44 per cent have a master's degree, which means that more than 80 per cent have more technical skills. Concerning the age group, 26% and 36.78% are older than 22 years, so they operate at their fluent age, and we have excellent and dependable answers.

Check for normality

We evaluate the normality of the measuring elements using both multi-variant and univariate normality tests before moving to the measuring model, namely the CFA model. Data normality is important since the CFA (and SEM) calculation method depends on the normality of the data. The Mardia test (p value < 0.05) rejects the hypothesis of zero multivariate normality, and the Shapiro–Wilk test (all p values < 0.05) rejects the hypothesis of null univariate normality. Therefore, the measuring model is calculated instead of the maximum likelihood robust estimator, also known as the Satorra–Bentler rescaling process [90].

Reliability and validity

Measurement data were obtained employing an independently recorded questionnaire. Each object is calculated on a "7-point Likert scale", with "7" strongly in agreement and "1" strong disagreement. The exploratory factor analysis (EFA) of the 23 items was confirmed using CFA after the third item of the training build was

Table 2 Measurement items and their reliability

Constructs and their respective items	Factor loadings
Bank Performance (BP, Alpha: 0.93, CR: 0.93)	–
1. "How would you rate the overall bank's effectiveness and efficiency to meet the objectives over the past three years?"	0.897
2. "How would you rate the total satisfaction of all participants over the past three years?"	0.953
3. "How would you rate the overall development, innovation, and quality of products, processes, and services of the bank over the past three years?"	0.873
Training (TR, Alpha: 0.84, CR: 0.84)	–
1. "In your opinion, individual employee training and development programs are effective."	0.699
2. "In your opinion, the team of employee training and development programs are effective."	0.691
3. "In your opinion, the monitoring of employee training and development programs are effective."	Dropped
4. "In your opinion, the career development programs by training are effective."	0.654
5. "In your opinion, employee training and development programs are sufficient."	0.692
6. "In your opinion, your work design programs are effective."	0.683
7. "You think that the training of employees can lead to increase bank performance."	0.659
Education (ED, Alpha: 0.84, CR: 0.84)	
1. "You think that the education level of the employee is good."	0.756
2. "You think that the effectiveness of a bank can partly be linked to the educational qualification of the employee."	0.741
3. "You think that the financial performance of a bank can be connected to the educational level of the employee."	0.794
4. "You think that the educational level of the employee is important."	0.748
Knowledge (KN, Alpha: 0.92, CR: 0.92)	–
1. "In your opinion, the employee training and development programs on employee knowledge are effective?"	0.905
2. "In your opinion, the work design programs on employee knowledge is effective."	0.98
3. "You think that the financial performance of a bank can be promoted by the knowledge level of the employee."	0.781
4. "You think that the effectiveness of a bank can be linked by the knowledge level of the employee."	0.787
Skills (SK, Alpha: 0.82, CR: 0.82)	–
1. "How would you rate employee competencies over the past three years?"	0.712
2. "How would you rate cooperation among employees in general over the past three years?"	0.743
3. "How would you rate cooperation between management and employees in general over the past three years?"	0.625
4. "How would you connect the skills of the employees and the bank's effectiveness over the past three years?"	0.715
5. "How would you join the skills of the employees and bank performance over the past three years?"	0.653

CFA model fit: χ2 (220) = 464.843, CFI = 0.94, TLI = 0.93, RMSEA = 0.05, SRMR = 0.06. Alpha represents value of Cronbach's alpha, and CR represents composite reliability

Table 3 Divergent validity analysis

Variables	TR	ED	KN	SK	CP
TR	1				
ED	0.421	1			
KN	0.241	0.166	1		
SK	0.209	0.363	0.157	1	
BP	0.308	0.299	0.197	0.315	1
AVE	0.456	0.578	0.752	0.478	0.824

Values in the matrix represent squared correlations among latent variables. A higher AVE value than the column-wise squared correlations indicates divergent validity

Table 4 Correlations among the latent variables

Variables	TR	ED	KN	SK	CP
TR	1				
ED	0.649	1			
KN	0.49	0.407	1		
SK	0.457	0.603	0.396	1	
BP	0.555	0.547	0.444	0.562	1

The correlation matrix represents correlation among the latent variables based on extracted factor values through confirmatory factor analysis (CFA)

dropped (see Table 2). The CFA model's uniform factor loadings are seen in the right column of Table 2, each statistically significant (p value < 0.001). These are representative of the underlying latent construct of the items. This shows that the model meets the convergent validity [93]. Table 2 also presents Cronbach's alpha [94] composite reliability (CR) of each construct. Cronbach's alpha and CR values of all constructs are greater than 0.70 (threshold value) recommended by Hair et al. [95]. The measurement model's reliability is therefore specified.

Divergent or discriminant validity (DV) establishes whether constructs that should not be linked are, in fact, unrelated. One approach to confirm this is to arrange all latent variables in a matrix and compare their squared correlations to their average variance extracted (AVE), as shown in Table 3. According to Hair et al. [95], to establish DV, the squared correlations below the diagonal should be less than the AVE of each latent variable. The DV of the latent variables is presented in Table 3, where the bus tangible AVE and squared-correlation are under the borderline levels. As a result, we can validate that the latent variables have a DV.

Correlations among the latent variables

The measurement model suits well, as the CFI and the TLI are 0.90 above the usual limit (see exactly Table 2), and the RMSEA and SRMR are 0.080 below the cut-off value [95]. The correlation matrix is presented in Table 4 as the measurement model is now well defined.

Common method bias

The term "common method bias" is frequently used to refer to measurement mistakes caused by methodological problems. For example, using the same measuring scale (e.g. a seven-point Likert scale) for all survey items may result in common technique bias. Podsakoff et al. [96] discussed many statistical treatments for common method bias, each with its own set of advantages and disadvantages. We utilize Harman's single factor test in this study since it is the most commonly used. In addition, we do unrotated exploratory factor analysis on the 23 items that have a latent factor loading. The average proportion of variation explained by a single component is just 35%. (well below the recommended cut-off of 50%). As a result, common method bias does not exist in our study.

Structural equation model

Since the measurement model is set out in the previous section, we continue to look at relations between latent variables in the structural model. Again, we are using the SEM MLR calculation, as suggested by Rosseel [90], for non-normal data. Figure 2 indicates the path analysis of SEM. It is very difficult to achieve the equivalent theoretical and observed structural model of 5% statistics in complex SEM studies with more than 12 measurement objects, such as this study [95]. In these cases, the ratio of Chi-square and DF should be lower than three c, which is evident in the estimated SEM model (417.482/199 = 2.0), indicating a good model fit. Additional criteria for model fit indices are satisfied. The CFI and TLI are higher than 0.90, the RMSEA and SRMR lower than 0.08. The SEM estimates are therefore valid.

After establishing the measurement model in the preceding section, we proceed to analyse connections between latent variables using the structural model. Again, we estimate SEM using the MLR method, as Rosseel [90] suggests for non-normal data. In Fig. 2, we illustrate the path analysis of the SEM. It is difficult to create an identical theoretical and observed structural model at a 5% statistical significance level in complicated SEM investigations with more than 12 measurement items, such as this study [95]. However, the ratio of the Chi-square statistic to the degrees of freedom (DF) should be less than three in such instances [95], as seen by the estimated SEM model (417.482/199 = 2.0), suggesting a
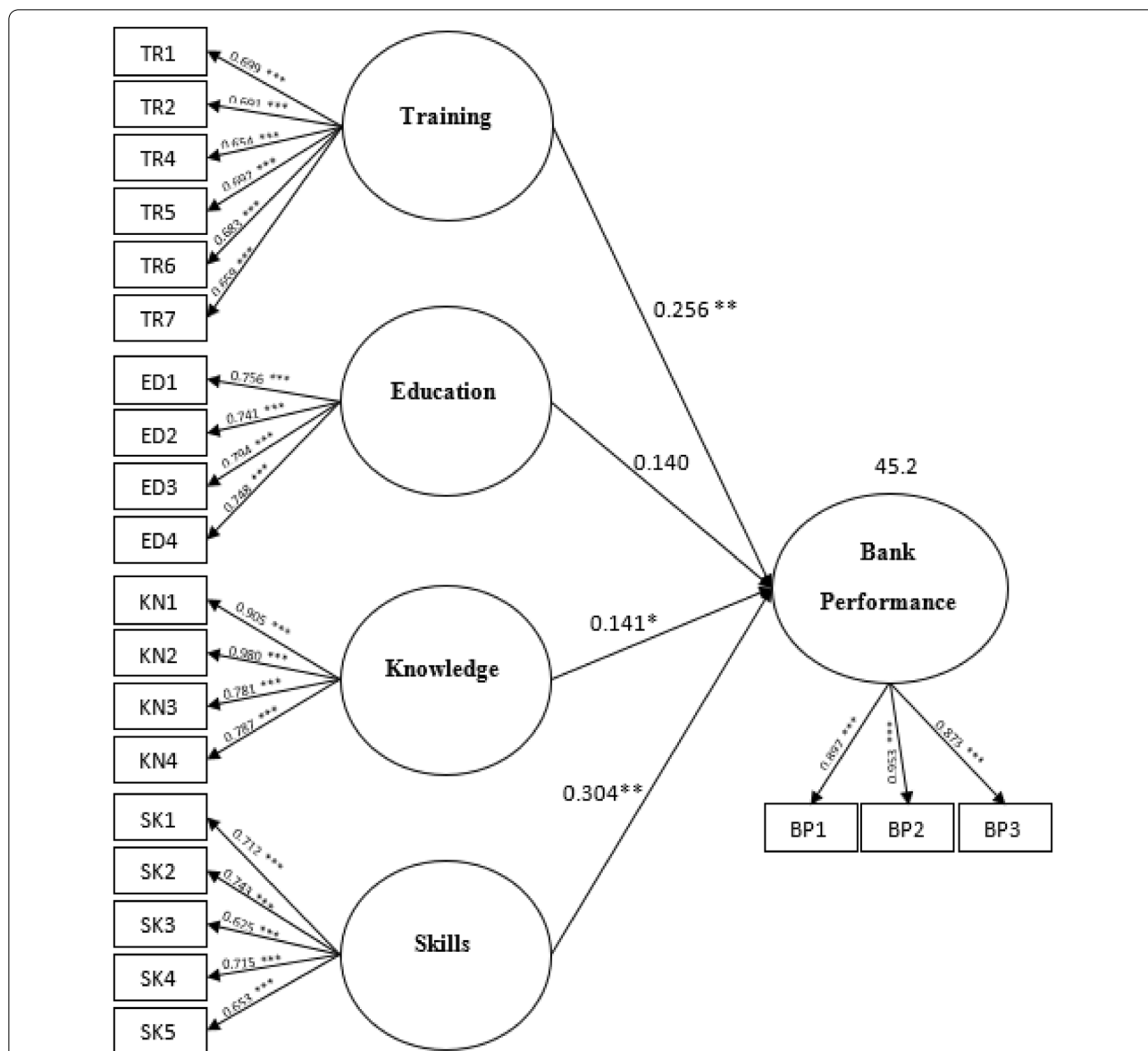
Fig. 2 The structural equation model. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, SEM model fit: χ^2 (199) = 417.482, CFI = 0.94, TLI = 0.93, RMSEA = 0.05, SRMR = 0.06. R-square = 45.2%

satisfactory model fit. Additionally, the criteria for other model-fit indices are satisfied because the CFI and TLI

Table 5 Summary of hypothesis testing

Hypothesis	Standardized coefficient	Remark
H1a: Training → Bank performance	0.26 (0.13)**	Supported
H1b: Education → Bank performance	0.14 (0.11)	Not supported
H1c: Knowledge → Bank performance	0.14 (0.06)*	Supported
H1d: Skills → Bank performance	0.30 (0.10)**	Supported

Standard error in the parenthesis. **$p < 0.01$, *$p < 0.05$

are more than 0.90, while the RMSEA and SRMR are less than 0.08. As a result, SEM estimates are appropriate.

Table 5 summarizes hypothesis testing based on the SEM model shown In Fig. 2. The four sub-hypotheses examine the relationship between bank performance and training, education, knowledge, and skills. Among those four, H1b is unsupported, implying that the education construct is unrelated to bank performance in the case of Bangladesh's Janata Bank Limited. On the other hand, H1a, H1c, and H1d have been supported, indicating a favourable relationship between training and bank performance, employee knowledge and bank performance,

and employee skills and bank performance. Thus, these findings imply that the more the importance placed on human resource development, the higher the bank's performance; the greater the human resource's knowledge, the higher the bank's performance; and the greater the human resource's abilities, the higher the bank's performance. Overall, because three of our four hypotheses have been validated, it can be inferred that human capital investment has a considerable positive effect on bank performance, implying that our primary hypothesis (H1) is supported.

Conclusion

The impact of the human capital investments (IHC) on Janata Bank Limited's (JBL) performance in Bangladesh has been examined throughout this study. More explicitly, we respond to a substantial question: Does investment in human capital affect bank performance? The research aims to contribute to understanding the relationship between performance and investment in human capital from Bangladesh's perspective, particularly in the banking sector. We target one (single) bank but multiple branches and found a positive connection between bank performance and human capital investment. A single bank operates its banking activities through various branches employing unique rules and regulations for all branches. So, it is important to test why performance differs among the branches. We employ the "structural equation modelling" (SEM) technique to test the hypotheses through path analysis. The findings exposed that factors of human capital investment; first, training; second, knowledge level, and third, skills, have a significant positive impact on bank performance. The findings generated from this study are complementary to the findings of Absar et al. [25], Fraser et al. [33], and Garcia [71] in the case of training of employees. We find that the education level of the employees is not significant to affect the bank performance in developing countries and is not consistent with the finding of Nguyen et al. [77], who found a significant relationship in the developed country's example.

Further, the finding regarding knowledge level of the employees can be complementary to the findings of Marimuthu et al. [32]. Finally, we find that more skilled employees generate higher bank performance, which is consistent with the results of Siepel et al. [87] and Caputo et al. [88]. Across our study, the education level factor is not significant. Higher investment in training factors augments bank performance. Therefore, more skilled employees contribute to higher performance for banks. It implies that investment in the skilled aspect should be increased. In the case of the education level of the employees, this study implies that the level of education does not influence the performance of banks. The findings also exposed that the better the knowledge level, the higher the bank performance.

The relevance of this study is that if policymakers want meaningful financial and non-financial outcomes from their banking sector, it illustrates the value to bank shareholders of preparation, expertise, and skills. They must continually train and retrain their staff to develop cognitive and state-of-the-art knowledge to deliver facilities to reach high productivity, resulting in high banking results and competitive advantage. Unfortunately, many small-scale firms do not offer importance to workforce preparation in which the plan for group performance and effectiveness rests. But, the education level of the employees can be ignored if others remain the cream of the crop. Therefore, this study can be a policy dialogue for the bank regulators, policymakers, academicians and practitioners.

Although this study has a contribution towards understanding the factors of human capital investment for determining performance, there are some limitations. First, it is specific to one context (e.g., Janata Bank Limited). Second, the data were collected using a convenient sampling method; the findings of this study will face the limitations of generalization. Third, the number of respondents is small. Future research is needed for a large sample of the study. Fourth, the notion of human capital investment can be different for different demographic groups such as male, female, masters, honours, ages, etc. Human capital is a lively issue; it should be measured repeatedly. Finally, this study uses primary data; it is recommended that future research uses a mixed study to get the relative influence of human capital investment and bank performance.

Authors' contributions
As the corresponding author, MMR shall bear full responsibility for the submission, and MMR confirm that all authors listed on the title page have contributed significantly to work. Specifically, MMR conducted the research, wrote

a share of the introduction and literature review, collected data, performed analysis, wrote the methodology and interpreted the results, developed the conceptual model and theoretical background, wrote the conclusion, and did the referencing and drafting the paper. MMR performed the revisions as well. BA wrote a share of the introduction and literature review, set the questionnaires, wrote the study's limitations, and conceptualized the abstract. Finally, all authors read and approved the final manuscript.

Declarations

Competing interests
The authors declare there is no competing interests.

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