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Effects of Asset Diversification and Human Capital Efficiency on Bank Performance: Evidence from Asian Countries

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Abstract

This study seeks to determine if the efficiency of bank human resources, as played by human capital, impacts the performance and diversification of banks. This study uses secondary data from data obtained from 385 commercial banks in 33 countries in Asia during the 2010–2020 period with the diversification analysis method. We use the Z-score to measure the amount of standard deviation that must be from earnings (ROAA). We examined it using the Tobit regression technique. According to the regression estimation results, human capital has a significant role in the performance and effective diversification of Asian banks. The human capital efficiency coefficient (HCE) is significantly negative with the cost-to-income ratio (CTIR) and significantly positive with Profitability, Financial Stability, and cost efficiency score. The level of efficiency of human resources has an effective role in increasing human capital which has an impact on bank diversification and performance. The development of human resources in a human capital framework plays an important role in the diversification and improvement of bank performance. Human capital has a significant role in the performance and effective diversification of Asian banks. The level of efficiency of human resources has an effective role in increasing human capital which has an impact on bank diversification and performance.

Keywords: Human Capital, Human Resources, Banks, Asset Diversification, Asia

JEL Classification Code: C10, C33, G20, G22, J24

1. Introduction

The Asian banking sector is booming in the 21st century (Lu & Mieno, 2020; Phan et al., 2019; Reinhart & Rogoff, 2013; Danish et al., 2019). In the 21st century, banks throughout the continent of Asia have developed banking business services, and investment banking in various

non-lending activities, such as electricity payment services, mutual fund sales services, purchase of credit or internet packages, insurance sales, and many banks buy securities companies where the securities company is active in serving the sale and purchase of shares (Kashyap & Tomar, 2016; Santoso et al., 2020).

Diversification in the banking industry encourages the creativity of bank managers in increasing non-interest income so that it has a development in the banking business revenue stream (Li & Zhang, 2013; Han et al., 2016; Zhang et al., 2020). However, diversification requires additional expertise in accordance with the diversification being carried out. Diversification that is not balanced with sufficient human capital will backfire in businesses that endanger banks (Le et al., 2020; Fahimi et al., 2018; Kireyev, 2020). Some studies show that diversification improves bank performance, while other studies show the opposite results (Harimaya & Ozaki, 2021; Li et al., 2021; Khan et al., 2020). Variations in results from previous research on banking diversification in the Asian continent were possible due to non-financial factors, namely different human capital in each bank in each country (Richards, 2014; Kim & Kim, 2020).

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The difference in efficiency in each bank is possible because of differences in human capital. So it can be said that human capital influences the successful diversification of the banking industry in Asia (Städler et al., 2012; Che & Liebenberg, 2017). Renewable natural capital's share of global wealth is declining and under threat from climate change. Countries that spend their resources for short-term gain choose paths that are not sustainable for their economies (Johnsson et al., 2019). While measures of economic development like the gross domestic product are frequently utilized, it is important to consider factors such as natural, human, and manufacturing capital when assessing the sustainability of growth (Coscieme et al., 2020).

A deeper and more accurate understanding of the sustainability of wealth is essential for a green, sustainable, and inclusive future (Cardoso et al., 2021). Renewable natural and human capital are just as important as more traditional sources of economic growth, so policymakers are taking action to ensure long-term prosperity (Mahmood et al., 2019).

Increased prosperity goes hand in hand with the unsustainable use of some natural assets (Baloch et al., 2019). Development can be made more sustainable by looking at overall well-being and by taking policy actions, including carbon pricing, to increase value and build assets such as forests, mangroves, and human resources (Ahmed et al., 2020).

The success of economic diversification is highly dependent on the competitiveness of countries in a developing multipolar world, where the harmonious development of high-value-added sectors of the economy is a factor in ensuring global leadership (Dunford, 2021). High export earnings, with proper government regulation and distribution, can form the foundation for balanced development across all sectors of the economy, an incentive for innovation and investment (Shamsuzzaman et al., 2020).

Human resource development and increased efficiency in the use of available resources are important prerequisites for new diversification strategies. For this, the approach to the development of educational institutions, health care, and social security of the population was seriously modernized (Tien et al., 2021). Human capital development as the development of skills and motivation of the workforce is already directly related to economic diversification (Yong et al., 2020). Increasing the skill level of the workforce can seriously affect the country's position in the international labor distribution structure (Khanna, 2020). The synergistic effect of increasing the education level of the population and ensuring its health will ensure the development of a highly skilled workforce (Podra et al., 2020). Human Capital Development is fully in line with the current global trend in terms of maintaining the health of the population, providing the population with diverse opportunities in terms

of choosing potential professions and the current economic needs in terms of increasing the overall skill level of the workforce, motivating citizens to work, increase the time of economic activity (Widarni & Bawono, 2021).

This study seeks to determine if the efficiency of bank human resources, as played by human capital, has an impact on the performance and diversification of banks.

2. Literature Review

The efficient use of human resources and the daily work with them, according to experts, are constantly at the center of attention of the management of any organization (Sulisningrum et al., 2022). The use of human resources has undergone major changes in recent years. The lack of a qualified workforce capable of working in the new conditions led to a rejection of the understanding of working with personnel only as administrative work. There is a need for a broader consideration of the motivational process (Margherita & Bua, 2021). For effective work and successful application of technology for the efficient use of human resources, it is necessary to develop and improve personnel policies with the optimal combination of material and non-material forms to stimulate the work of specialists and create conditions for professional growth (Chams & Garcia-Blandón, 2019).

The creation of a technique that enables a thorough evaluation of the performance of people management in the construction sector, rather than relying just on individual indicators, is necessary to address the issue of measuring the effectiveness of the use of bank human resources (Solangi et al., 2021). The purpose of evaluating the effectiveness of bank personnel management is to identify compliance or non-compliance with the level of efficiency in the use of human resources with the strategic objectives of industrial development (Mousa & Othman, 2020). The efficient use of bank human resources is a synthesis of three effects: economic, social, and technological (Ruparel et al., 2020).

The social effect of efficient use of bank human resources is proposed to be calculated based on target indicators such as the number of conflict situations, indicators for leaving the industry, human resource development, social policy, and social security (Madani, 2019). An examination of current ways to gauge the efficacy of using bank human resources informed the development of the goal indicator system, taking into account the opinions of experts, who are heads of various regional banks (Tvaronavičienė et al., 2022).

Human resource development is the first pillar of the economy (Jašková, 2019). The educational process should be continuous and provide opportunities for vocational training and retraining throughout life, as well as diverse with the creation of a wide network of public and private educational programs focused on the professional orientation

and motivation for the work of children and youth as well as by developing innovative and creative activity stimulation programs (Melnik et al., 2021). The increase in the education level of the population is in line with modern trends in the world labor market (Sima et al., 2020).

The mechanism for transmitting the abundance of resources into a curse is divided into macroeconomics and political economy (Dell'Anno, 2020). When a large proportion of a country's GDP is generated through natural resource rents, rentier states can emerge, characterized by increased government spending during a price boom (Barma, 2021). Apart from economic distortions, rentier countries also have problems with the functioning of civil society (Hemchi, 2022). Thus, a good institution does not let the rentier state "hydra" raise its head, that is, spends natural rent inefficiently (Ologunde et al., 2020). Economic diversification and smoothing volatility are equally important (Ghorbel & Jeribi, 2021).

Strong property rights protections, an open economy, minimal levels of corruption, political institutions such as government accountability, contractual guarantees, and other factors are the institutions that are most successful at mitigating the resource curse (Entele, 2021). In addition to institutions, the size of companies in the export sector is getting smaller the better and the presence of a strong private sector is an important factor (Aiginger & Rodrik, 2020). In periods of high commodity prices, fiscal flexibility and moderately high taxes will encourage investment and eliminate the possibility of nationalizing the extractive industry (Vasiljeva et al., 2022).

In the banking sector, gaining a real competitive advantage can bring about the use of intellectual capital along with other assets, ensuring a dominant position in the market (Kryscynski et al., 2021). Focusing on intellectual capital as a value generator and including it as one of the factors influencing bank activities is a new task for modern commercial bank management (Mihardjo et al., 2020). The accumulation of experience and knowledge of intellectual capital at the beginning of the current decade dictates the general approach and integrated structuring of intellectual assets (Hao et al., 2021). The intellectual capital of a bank is a combination of human capital and structural capital, which has a positive multiplier effect on the bank's value creation (Setyawati et al., 2019).

The human capital of a bank is the sum of the knowledge of all bank employees, their combined professional competence, and the ability to form relationships and create value (Cooper et al., 2019). The bank's structural capital is the infrastructure for implementing human resources. It consists of knowledge-based solution recipes created by several employees that can be used by other bank employees. The bank's structural capital is divided into client and organizational capital (Alqershi et al., 2021).

The bank's human resources are expressed through professional competence and key employee qualifications as main competencies (Pritvorova et al., 2018). The key competencies are bank specialists who are the bearers of the main factors of competitiveness. The primary goal of management is to recognize, nurture, and realize the potential of the core competencies (Pokrovskaia et al., 2021).

Structural capital refers to a bank's competitive advantage in addition to the capabilities of its employees. Over time, banks accumulate and develop structural capital. As such, the experience of working together and providing services to a particular client is an asset where client capital is linked to the specific competence of a particular employee. Therefore, structural capital gives individual capital a distinct competitive edge (Anwar et al., 2018).

The management of the bank's intellectual capital forms the process that links the individual components to tangible assets and each other. Increased intellectual capital can translate into the more efficient and appropriate use of other assets. Intellectual capital, therefore, serves as a lever for other forms of capital. Due to this, other forms of capital may become more effective and productive (Xu & Wang, 2018).

The inclusion of intellectual capital in the composition of bank assets creates problems in valuation, accounting, and transfer of value to the value of banking products (Popescu, 2020). An evaluation of a bank's intellectual capital is necessary to determine its effectiveness and growth factors, as well as to make decisions about the feasibility of investing in these resources (Ali & Anwar, 2021). Intellectual capital occupies a special place among other assets and requires a special approach in terms of its management (Hamadamin & Atan, 2019). The combined knowledge and abilities of bank personnel make up human capital, their desire for innovation and ability to complete tasks, good management, contracts with outstanding specialists in the banking sector, and inextricable knowledge of a particular individual (Widarni & Wilantari, 2021).

Intellectual capital is part of human capital. Human resources are crucial to the success of banks since human capital affects banking performance. Human capital investment becomes an important factor in the banking industry (Chaminade & Catasús, 2007; Yuan et al., 2020). Based on this, we conclude a hypothesis as follows:

H1: *The efficiency of human resources, which is a reflection of human capital, has an impact on bank performance.*

Diversification leads to increased bank profitability (Kumar et al., 2021; Petras, 2020; Wu et al., 2020). Non-traditional banking activities increase bank profitability. Diversification can increase bank profitability as long as it

is supported by sufficient human capital (Agyemang et al., 2019; Paltrinieri et al., 2020). Based on this, we conclude a hypothesis as follows:

H2: *Bank diversification and performance have a positive relationship with the banking industry in Asia.*

Efficient business decisions in the field of diversification are urgently needed in the diversification of interest-based business activities to non-interest business activities (Weng & Chi, 2019; Xiao et al., 2020; Ramaswamy et al., 2017). These business decisions are the result of human capital. In this case, human capital plays an important role in supporting business success (Gill et al., 2014; Nguyen et al., 2021) So, it can be said that human capital plays a role in this. Based on this, we conclude a hypothesis as follows:

H3: *Human capital development has an impact on the success of banks in maintaining bank profitability and financial stability.*

The efficiency of human resources, which is the result of human capital development has an impact on the success of banks in maintaining bank profitability and financial stability (Meles et al., 2016; Mimouni et al., 2019).

3. Research Methods and Materials

To analyze the interaction impact of diversification and human capital efficiency on bank performance, we utilize the following fundamental model in accordance with the body of literature:

$$Q_{ijt} = \beta_0 + \beta_1 \text{Div}_{ijt} + \beta_2 \text{HCE}_{ijt} + \beta_3 \text{DIV} * \text{HCE}_{ijt} + \sum_{n=1}^n \varphi_n \text{BS}_{ijt-1}^n + \Phi_{ijt} + e_{ijt}$$

Where,

- i = bank i
- j = country j
- t = time of year
- Q = Profitability, cost-effectiveness, and financial stability are bank performance indicators.
- Div = diversification
- HCE = human resource efficiency
- Div * HCE = an analysis of the interaction impacts of efficiency and human resource diversity and efficiency.

BS = A bank's size, the ratio of deposits to total assets, the equity to total assets ratio, and liquidity make up a vector of four banking control variables.

φ_{jt} = country-year fixed effect

e_{ijt} = error term

We adopt one lagging value ($t-1$) for all bank-level control variables to minimize any endogeneity issues in our model.

We use the Z-score to measure the amount of standard deviation that must be from earnings (ROAA) with the following formulation:

$$\text{Z-score}_{ijt} = (\text{EQTA}_{ijt} + \text{ROAA}_{ijt}) / \sigma_{ijt}^{\text{ROAA}}$$

Where,

ROAA = average return on total assets.

EQTA = ratio of equity to total assets

HCE is calculated by the following equation:

$$\text{HCE}_{ijt} = \text{VA}_{ijt} / \text{HC}_{ijt}$$

Where,

VA = value-added

HC = human capital

4. Results and Discussion

For Results, provide sufficient detail to allow the use of secondary data in the period 2010–2020 by ensuring a relatively homogeneous sample. We examined 385 banks in 33 countries in the continent of Asia. The estimation results are as follows (Table 1).

In baseline estimation, we used the Tobit regression technique for all samples in 33 countries in the Asian continent. We found that the human capital efficiency coefficient (HCE) is significantly negative with the cost-to-income ratio (CTIR) and significantly positive with Profitability (ROAA, ROAE), Financial Stability (RAROAA, RAROE, Z-score), and cost efficiency score (CES). These results affirm that the bank's human resources are crucial for enhancing its knowledge base and enhancing financial stability, efficiency, and Profitability. Regarding Div, the variable coefficient is significantly negative with Profitability (ROAA, ROAE), Financial Stability (RAROAA, RAROE, Z-score), and cost efficiency score (CES), indicating positive and significant coefficients with cost-to-income ratio (CTIR). Diversification (Div) has a negative relationship with Profitability (ROAA, ROAE), Financial Stability (RAROAA, RAROE, Z-score). These findings are consistent with hypothesis 3, which suggests that Div's performance has a declining influence as bank human resources become more effective.

Table 1: Estimation Results

	Asset Diversification (AHHI)						
	Profitability		Financial Stability			Efficiency	
	ROAA	ROAE	RAROOA	RAROAE	Z-Score	CTIR	CES
Div	-2.668*** (0.681)	-7.667* (0.322)	-0.827** (1.321)	-0.727** (2.322)	-2.613 (3.317)	22.679*** (3.318)	-0.032*** (6.328)
HCE	0.736*** (0.036)	6.781*** (0.281)	0.618*** (0.017)	0.611*** (0.018)	0.161 (0.117)	-2.263*** (0.311)	0.002*** 0.001
Div * HCE	3.883*** (0.820)	16.182** (8.016)	2.210*** (0.310)	1.683*** (0.316)	1.283*** (0.230)	-20.861*** (0.826)	0.060*** (0.018)
DTA	0.021*** (0.003)	0.088** (0.027)	0.006** (0.002)	0.006** (0.002)	-0.08*** (0.013)	-0.160*** (0.038)	0.000* 0.000
Size	0.117 (0.113)	1.367* (0.808)	0.137 (0.138)	0.068 (0.110)	0.016 (0.730)	-16.337*** (2.833)	0.001 (0.001)
EQTA	0.016** (0.038)	-0.211*** (0.272)	0.013*** (0.022)	-0.016*** (0.021)	0.280*** (0.122)	-0.307*** (0.301)	0.000*** 0.000
LIQ	0.003 (0.003)	0.003 (0.021)	0.000 (0.001)	0.001 (0.001)	0.002 (0.008)	0.070*** (0.026)	0.000*** 0.000
Country * Year	Yes	Yes	yes	yes	yes	Yes	yes
Constant	-6.128*** (0.783)	-27.12*** (8.688)	-1.663 (1.082)	-0.163 (0.831)	21.60*** (3.832)	188.666*** (13.881)	0.736*** (0.013)
Observations	2,813	2,813	2,813	2,813	2,813	2,873	1,876
Banks	300	300	300	300	300	378	317
R ²	0.278	0.303	0.306	0.313	0.263	0.376	
Pseudo R ²							-0.167
Asset Diversification (OBSADiv)							
Div	-0.007** (6.318)	-0.031* (8.213)	-0.018*** (8.316)	-0.012*** (7.317)	-0.003 (10.312)	0.326*** (11.218)	-0.000 (12.218)
HCE	0.627*** (0.032)	3.388*** (0.288)	0.217*** (0.017)	0.220*** (0.017)	0.378*** (0.107)	-6.811*** (0.327)	0.003*** 0.000
Div*HCE	0.006*** (0.001)	0.027*** (0.008)	0.006*** (0.001)	0.006*** (0.001)	0.008*** (0.002)	-0.116*** (0.013)	0.000*** 0.000
DTA	0.016*** (0.003)	0.032 (0.027)	0.003* (0.002)	0.003 (0.002)	-0.016 (0.013)	-0.203*** (0.033)	0 0.000
Size	0.188 (0.116)	1.813** (0.810)	0.323** (0.137)	0.073 (0.116)	0.678 (0.883)	-20.08*** (3.083)	0.001 (0.001)
EQTA	0.01 (0.038)	-0.26*** (0.270)	0.012*** (0.021)	-0.017*** (0.021)	0.301*** (0.107)	-0.636*** (0.327)	0.000*** 0.000
LIQ	0.003 (0.003)	0.013 (0.022)	0.001 (0.001)	0.001 (0.001)	0.008 (0.008)	0.088*** (0.028)	0.000** 0.000
Country * Year	Yes	Yes	yes	yes	yes	Yes	yes
Constant	-3.67*** (0.730)	-26.67*** (8.216)	-1.818* (1.081)	0.323 (0.832)	10.622 (6.882)	172.83*** (13.370)	0.732*** (0.012)
Observations	2,827	2,827	2,827	2,827	2,827	2,810	1,876

Table 1: (Continued)

	Asset Diversification (AHHI)						
	Profitability		Financial Stability			Efficiency	
	ROAA	ROAE	RAROOA	RAROAE	Z-Score	CTIR	CES
Banks	300	300	300	300	300	377	317
R ²	0.206	0.208	0.302	0.306	0.231	0.313	
Pseudo R ²							–0.168
IncDiv							
Div	–0.016*** (13.318)	–0.217*** (13.318)	–0.008*** (16.317)	–0.008*** (16.218)	–0.013** (18.213)	0.261*** (18.211)	–0.000*** (17.211)
HCE	2.876*** (0.320)	0.181*** (0.022)	0.167*** (0.022)	0.381*** (0.117)	–6.331*** (0.336)	0.002* (0.001)	0.003*** 0.000
Div * HCE	0.003*** (0.001)	0.083*** (0.006)	0.006*** 0.000	0.006*** 0.000	0.008*** (0.002)	–0.137*** (0.006)	0 0.000
DTA	0.013*** (0.003)	0.062 (0.033)	0.003 (0.002)	0.003 (0.002)	–0.022* (0.013)	–0.181*** (0.036)	0.000** 0.000
Size	0.083 (0.107)	1.600* (0.807)	0.237* (0.137)	0.03 (0.113)	0.386 (0.883)	–3.367*** (1.027)	0.001* (0.001)
EQTA	0.008 (0.061)	–0.268*** (0.320)	0.016*** (0.022)	–0.017*** (0.022)	0.272*** (0.117)	–0.081 (0.336)	0.000*** (0.001)
LIQ	0.003 (0.003)	0.013 (0.022)	0.000 (0.001)	0.001 (0.001)	0.008 (0.008)	0.087*** (0.023)	0.000*** 0.000
Country * Year	Yes	Yes	yes	yes	yes	Yes	yes
Constant	–3.603*** (1.182)	–16.107* (7.383)	–0.633 (1.318)	0.873 (1.086)	3.881 (7.303)	118.8*** (10.627)	0.723*** (0.013)
Observations	2,877	2,877	2,877	2,877	2,877	2,876	1,876
Banks	376	376	376	376	376	376	317
R ²	0.33	0.282	0.273	0.362	0.238	0.311	
Pseudo R ²							–0.166

5. Conclusion

This study uses secondary data from 385 commercial banks in 33 countries in the Asian continent during the 2010–2020 period to examine whether the condition of human resource efficiency affects the effect of asset diversification and financial performance on the banking industry. We examined it using the Tobit regression technique. According to the regression estimation results, human capital has a significant role in the performance and effective diversification of Asian banks. The level of efficiency of human resources has an effective role in increasing human capital which has an impact on bank diversification and performance. The development of human resources in a human capital framework plays an important role in the diversification and improvement of bank performance.

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Appendix

List of countries investigated in this study:

1. Brunei Darussalam
2. Cambodia
3. China
4. Fiji
5. French Polynesia
6. Hong Kong,
7. China
8. Indonesia
9. Japan
10. Kiribati
11. Korea
12. Macau
13. China
14. Malaysia
15. Marshall Islands
16. Mongolia
17. Yanmar
18. New Caledonia
19. New Zealand
20. Palau
21. Papua New Guinea
22. Philippines
23. Samoa
24. Singapore
25. Solomon Islands
26. Tajikistan
27. Thailand
28. Timor-Leste
29. Turkey
30. Tonga
31. Tuvalu
32. Vanuatu
33. Vietnam