

THE IMPACT OF GLOBALIZATION ON BANKING PERFORMANCE

57211502 JI, LIJIN

C.E. PROF. NEMOTO, NAOKO

D.E. LAU, DAVID D.E. HIBARA, NOBURIKO

Summary

This paper examines the intricate relationship between globalization and the performance of global banks by investigating the association between overseas loan ratio, representing the extent to which banks engage in international lending activities, and multiple performance indicators including profitability and market measures such as return on equity (ROE), Tobin's Q, Beta, and environmental, social, and governance (ESG) performance metrics. By researching into these aspects based on data from the leading global banks covering the period from 2015 to 2022, this study shows that globalization actually has negative association with profitability and market evaluation yet is positively related to ESG performance.

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Abstract

In the past decades the world has seen globalization taking place and reformed the financial services and banking industry, the improved cross-border business activities provide more opportunities for the banks to explore new business overseas and hence grow their business worldwide. Globalization has also boosted industrial advancements such as technological financial innovation. However, according to the past literature, the advantages and disadvantages that globalization have brought to banking industry are still unsettled. The controversial theories involved the speeding up of the impact while global financial crisis happened as well as the spread of COVID-19 shock in the world economy because of globalization in the business world. Global banks have to face more challenges related to risk management and economic stability.

This study targets to understand the association between globalization and banking performances in different aspects as profitability, market valuation and volatility, as well as the Environmental, Social, Governance (ESG) profile by employing quantitative regression models and qualitative analysis with data from leading global and regional banks. The findings are expected to enhance the understanding of the complex interplay between globalization and various dimensions of global banks' performance.

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1. Introduction

Globalization has significantly transformed the economic world and its landscape, leading to increasing cross-border connection and integration of financial markets. Banking industry is one of the sectors that has been profoundly affected by this phenomenon most since we have seen that globalization has facilitated the expansion of banks' international activities, including foreign direct investment, mergers and acquisitions, and establishment of subsidiaries and branches abroad (Claessens et al., 2014). Globalization also provides banks with opportunities to diversify their operations and access new markets, hence benefiting from economies of scale and synergies.

Moreover, advanced financial innovation driven by globalization has enabled banks to develop new products and services, such as securitization and derivatives. Furthermore, innovations in information technology have equipped the globalization of banking services with high capability of international communication, enabling banks to offer their products and services globally through electronic platforms, such as online banking and mobile applications (Allen et al., 2004).

However, globalization has also brought the interconnectedness of financial systems up to a historical level, which might create brand new challenges for banks that they have never encountered before.

As financial institutions increasingly engage in cross-border businesses, understanding the true impact of globalization has become a need. This study investigates the overseas loan ratio which serves as a representative measure of globalization efforts of banks. According to previous research, increased globalization in the banking industry has been associated with intensified competition, leading to lower profitability for banks as measured by return on equity (ROE).

The study also explores the influence of globalization on market valuation, as indicated by Tobin's Q (Berger et al., 2010). There is empirical evidence that increased globalization which represents by the presence of foreign banks has a negative relationship with Tobin's Q, can be interpreted that greater globalization reduces the market valuation of domestic banks (Houston et al., 2010).

Furthermore, increasing risk exposure is another salient aspect that brought about by globalization in banking industry. Engaging in global banking activities has been found to increase the risk exposure of domestic banks, thus resulting in higher betas (Claessens et al., 2014; Dasgupta et al., 2004). This study will also discuss the association of globalization and beta value as a measure of systematic risk for banks.

In terms of Environmental, Social, Governance (ESG) performance, previous research has enlightened that globalization in the banking industry positively influences banks' sustainability practices (Beck et al., 2008; Park et al., 2018), resulting from multiple jurisdictions' standard of environmental requirement, social responsibility, as well as employees' welfare system. The study targets to investigate and interpret the relationship between globalization and ESG scores, as well as environment, social, and governance respectively.

By adopting quantitative and qualitative techniques as empirical and theoretical interpretation, this study aims to shed light on the complex interplay between globalization and various dimensions of global banks' performance. The findings of this study are expected to contribute to the existing literature by enhancing the understanding of how globalization affects banks' profitability, market valuation, risk exposure, and ESG performance.

2. Literature Review

Globalization has been a prominent trend in the banking industry, driven by various factors. However, it is important to consider both the reasons for banks to pursue globalization and the potential drawbacks associated with it. The existing research on whether globalization would improve banks' performance in profitability and ESG scorings are unsettled.

2.1. THE ASSOCIATION BETWEEN GLOBALIZATION AND ESG PERFORMANCE IN BANKING INDUSTRY

There are researches of the mitigation effect of risk portfolio brought by globalization since globalization enables banks to diversify their risk exposure across different markets, reducing their dependence on a single market and potentially mitigating losses during economic downturns (Cetorelli et Goldberg 2012). Globalization provides banks with access to international capital markets, allowing them to raise funds from a broader investor base. This can enhance their liquidity and strengthen their financial position. (Buch, Koch, et Koetter 2012). Globalization has put forward the development of international regulatory frameworks and standards to ensure the stability and integrity of the banking system. For example, the Basel Accords which introduced and applied by banks gradually after the Lehman Crisis aimed to promote transparency in the capital structure of financial services industry and strengthen risk management practices. Research has indicated that adherence to global regulatory standards positively influences banking performance by reducing systemic risks, enhancing investor confidence, and improving corporate governance (Köhler et Schäfer, 2018).

Financial liberalization, cross-border activities, technological advancements, risk

management practices, and regulatory frameworks may have all contributed to the overall improvement in banking performance. However, it is rational to consider the potential risks associated with globalization, such as financial contagion and regulatory arbitrage. Therefore, banks must carefully manage the risks associated with globalization to make the most of the opportunities it provides.

2.2. THE ASSOCIATION BETWEEN GLOBALIZATION AND PROFITABILITY IN BANKING INDUSTRY

There are certain drawbacks of globalization in banking industry which may worsen the performance of global banks. Globalization exposes banks to various financial risks, including currency fluctuations, regulatory complexities, and geopolitical uncertainties. These risks can adversely impact their financial stability. (Shiller 2011).

Operating in multiple jurisdictions entails complying with diverse regulatory frameworks, which can be complex and costly for banks. Failure to comply with regulations can result in fines, reputational damage, and legal consequences. (De Haan, Frost, et Haan 2012). There are also cultural and operational Challenges: Globalization requires banks to navigate cultural differences, language barriers, and operational complexities across various markets. Adapting to local preferences and establishing effective cross-border operations can be demanding (Capron et Guillén 2009).

Moreover, systemic risk and contagion are also hard to ignore especially in gloomy economic conditions: Globalization can lead to interconnectedness among banks and countries, increasing the risk of contagion during financial crises. Distress in one country or region can quickly spread to other interconnected entities, amplifying systemic risk (Forbes et Warnock 2012).

2.3. HYPOTHESIS DEVELOPMENT

Based on the above reference, future research should continue to explore the complex relationship between globalization and banking performance, considering the dynamic nature of the global financial landscape. This paper tries to detect the link between globalization factors and banking performance consisting of profitability and ESG scoring based on the following hypotheses:

H1. Globalization in banking industry is negatively associated with banks' earnings, which shows lower ROE.

H2. Globalization in banking industry is negatively associated with Tobin's Q

H3. Globalization in banking industry is positively associated with beta

H4. Globalization in banking industry is positively associated with ESG scoring

3. Data and Methodology

3.1 DATA

3.1.1 Dependent variables

ROE

Return on equity (ROE) is the key financial performance indicators widely used to evaluate the profitability and efficiency of global banks operating in the banking industry. These measures provide valuable insights into a bank's ability to generate profits relative to its equity base (ROE). Investigating on whether globalization can enhance profitability and bring benefit to the shareholder is vital for our understanding of the impact on banks' efficiency in generating return in their business.

Tobin's Q

Tobin's Q measures the market value of a company relative to the replacement cost of its assets which usually use the book value of equity since the replacement cost is hard to measure. By evaluating the relationship between the market capitalization of the banks and the value of its underlying assets, Tobin's Q offers an indication of investor sentiment and the market perception of long-term value and performance of the bank accordingly, hence it is a valuable indicator for assessing global banks' performance. By capturing the assessment from the market of the corporate value relative to its book value, Tobin's Q ratio offers valuable information for investors, analysts, and stakeholders to make investment decisions as well as carrying out relevant analysis.

Beta

Beta is the measurement of a stock's volatility in comparison to the overall market and evaluation of comprehensive risk management. Beta helps in assessing the level of risk associated

with investing in a global bank's stock or portfolio. A beta value greater than 1 indicates that the bank's equity tends to be more volatile than the overall market and a beta value less than 1 suggests lower volatility compared to the market. In addition, beta measures the sensitivity of the specific equity price to fluctuations in the general market. A high beta implies that the stock price is likely to move more significantly in response to market movements while a low beta suggests that the stock price is less affected by overall market fluctuations. By understanding beta value, investors can foresee the level of risk they may encounter while holding the bank's share and hence reassess their risk tolerance and investment decisions. It also enables performance comparisons in the same industry and hence applies to assess global banks operations. By analyzing the betas of different banks, investors can assess how individual banks perform relative to the overall market and their industry peers. Banks with lower betas may exhibit more stable stock performance during market downturns, while those with higher betas may fluctuate more intensely but also enjoy potentially higher returns during market upswings. Investors can use beta as a factor in evaluating a bank's risk-adjusted returns and comparing it to competitors. Beta plays a key role in portfolio diversification strategies. By considering the beta of a global bank's stock, investors can determine its potential contribution to the overall risk and return characteristics of their investment portfolio. Including banks with different beta values can help in achieving diversification benefits, as stocks with low or negative correlations to each other can reduce overall portfolio risk.

S&P Global ESG Scores

S&P Global ESG Scores are well-established measurements of corporate performance in sustainability aspect which are specifically designed to provide ESG risk and opportunity references

for companies, investors, and other stakeholders. Standing apart from other ESG scores, S&P Global ESG scores are computed by an unparalleled assembly of verified disclosures from corresponding companies with the review of potential conflicts and deep engagements via the more than 20 years history S&P Global Corporate Sustainability Assessment (CSA). With this provided, the scores have pushed up the level of disclosure and sustainability performance among corporates globally, while consistently driving raising standards in sustainability reporting over time.

Exhibit 1
S&P Global Captures Material Risks and Opportunities within Criteria Weights by Industry

	Magnitude of Impact on Company	Magnitude of Impact on Stakeholders & Natural Environment	Probability of Impact on Company	Criteria Weight
Environmental Criteria				
Environmental Policy & Management Systems	3.6	1.7	0.8	5
Environmental Reporting	2.1	1.6	0.9	3
Operational Eco-Efficiency	3.8	3.7	0.5	7
Social Criteria				
Corporate Citizenship and Philanthropy	1.5	2.2	0.6	2
Human Rights	2.2	2.6	0.7	4
Occupational Health & Safety	3.4	2.2	0.8	6
Governance & Economic Criteria				
Corporate Governance	3.7	2.7	0.8	8
Information Security/Cybersecurity & System Availability	1.5	1.5	0.9	2
Supply Chain Management	2.8	3.1	0.7	6

Source: S&P Global Sustainable1. For illustrative purposes only. Values are illustrative and do not reflect actual weighting calculations.

For each industry, S&P prioritizes sustainability criteria based on their expected magnitude which represents the level and the likelihood of the impact to take place by the probability and time of the impact on the financial standings of the companies based on profitability, corporate growth, capital structure and risk measures. In addition, corresponding factors are examined according to the overall impact, the significance to stakeholders and environment to systematically work out weightings accordingly. Equipped with these and by more than 20 years history of statistical analysis,

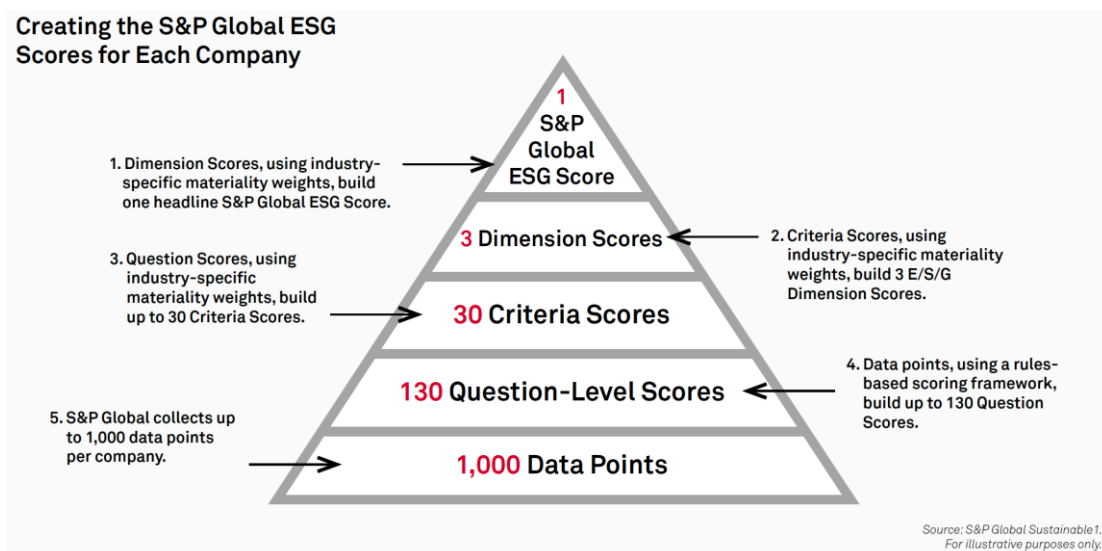
S&P builds materiality into the methodology of the scores.

S&P Global ESG Score

This score represents a sole measure of the sustainability performance of a specific company, computed by taking its dimension scores Environmental (E), Social (S) and Governance (G) into account. The weighting is determined according to the corresponding importance in a given sub-industry. The overall ESG score is often used in building up portfolio or constructing index due to its integrity and simplicity.

Dimension Scores

The standalone ESG scores offer a profound perspective to examine the overall sustainability performance of a company relative to its peers on specific dimensions respectively. They are especially insightful in investigating the impact of certain factors on specific issues independently, targeting to form angled strategies, and revising the relevant weightings in ESG score.



3.1.2 Main independent variable: Overseas loan ratio

Overseas loan ratio represents the proportion of cross-border loan in its total loan portfolio. It is computed by dividing the amount of loans released from the bank to borrowers outside its domestic market by the total amount of loans extended by the bank.

This ratio provides insights into the bank's cross-border lending activities and hence introduce the exposure to foreign markets. A higher overseas loan percentage in total loans implies that the bank is actively engaging in cross-border lending which suggests certain level of business expansion in overseas markets.

The cross-border loan ratio is chosen as a measurement of the globalization strategy and risk exposure to foreign market. Banks with a higher overseas loan ratio may have greater opportunities for diversification in businesses and potential for higher returns through overseas lending behavior. However, it also exposes the bank to additional risks associated with foreign markets, such as currency fluctuations, geopolitical risks, and regulatory challenges.

Monitoring the overseas loan ratio is the key for assessing a bank's risk profile and its ability to manage international risks effectively. A bank with a well-diversified loan portfolio across domestic and international markets may imply a more balanced risk profile compared to a bank heavily concentrated in either domestic or overseas loans. And diversified lending portfolio can inversely reduce risk of herding behavior when bad economic condition affects certain country which might cause massive default.

Overall, the overseas loan ratio provides insights into banks' globalization strategy, their exposure to foreign markets, and the associated risks. It can be seen as a valuable metric for understanding a bank's global presence and risk management practices which would help the investigation in this study.

3.1.3 Control variables

In order to investigate the relationship between globalization and performance of the global banks, the study includes market capitalization, non-performing loans ratio, operating expenses of total assets, net interest income ratio, noninterest income ratio, tier 1 capital ratio, as well as GDP

growth in home country of the banks as control variables to assist the research. These control variables can help ensure that the relationship between globalization and bank performance is not confounded or distorted by other relevant factors.

Market Capitalization

Market capitalization is the total value of a bank's outstanding shares of stock. Including market capitalization as a control variable helps account for the size of the bank since larger banks may have different performance characteristics compared to smaller banks, and controlling for market capitalization allows us to isolate the impact of globalization on bank performance, independent of bank size as well as observing how economies of scale would impact performance.

Non-performing Loans (NPL) Ratio

NPL ratio represents the proportion of default loans or loans at risk of default in total loans. High NPL ratios can hint credit quality issues and potential financial distress when the economic condition is going down or when counterparties encountered financial problem. Including the NPL ratio as a control variable helps capture the effect of asset quality on bank performance.

Operating Expenses of Total Assets

This ratio measures the efficiency of a bank by examining its operating expenses relative to its total assets. Including this control variable helps control for differences in expenditures across banks. Banks with higher operating expenses may face challenges in managing costs and utilize their cost in an efficient way, which can affect their overall performance. Controlling for this variable can assist in the isolation of the impact of globalization on bank performance, with the influence of bank efficiency being held constant.

Net Interest Income Ratio

The net interest income ratio represents the proportion of a bank's total interest income relative to its interest-bearing assets which allows us to capture the impact of net interest margin, which is an essential driver of bank profitability on the general banking performance. We can see how the difference of interest resulting from different bank standard and country standard has their specific effect on the performance of the bank in profitability and non-profitability way. Including

this variable helps control for differences in interest rate spreads across banks and provide a focus on the specific influence of globalization on bank performance.

Noninterest Income Ratio

The noninterest income ratio represents the proportion of a bank's total non-interest income or fee income relative to its total income. This ratio helps account for the revenue diversification strategies of banks since banks with higher fee income ratios may rely less on traditional interest-based income, and thus have less interest rate risk associated. Hence including this variable can also give an insight of how diversification of banking activities can have impact on the general performance.

Tier 1 Capital Ratio

The Tier 1 capital ratio compares the equity capital and disclosed reserves of a bank with its total risk-weighted assets (RWAs). According to Basel III Accord, the Tier 1 capital ratio must exceed 6%. The relevant high quality capital requirement is resulting from the financial crisis happened in 2007 through 2009 and aims to regulate banks in ways of improving transparency, lowering leverage and maintain the financial industry in a sustainable way since highly leveraged banks may face financial vulnerability during market downturn. Controlling for this variable allows us to examine the specific impact of globalization on bank performance especially in the corporate governance aspect while considering differences in leverage.

GDP Growth in Home Country:

Including GDP growth in the home country of the banks helps account for macroeconomic conditions that can influence bank performance. The overall economic environment, such as GDP growth rates, inflation, and unemployment, can affect banks' profitability and risk levels since most global banks have greater business volume in their domestic market than overseas markets. Hence it is vital to understand the influence of the home countries' economic condition and see how it would affect the general performance in the banks' performance.

By including the control variables mentioned above, we can better isolate the specific impact of globalization on bank performance, while accounting theoretically and empirically for the

influence of other relevant factors that may affect banks' performance.

The correlations between variables are shown in the table below. The correlations between all the control variables are below 0.5. Hence it can be concluded that the regression modeling would not be severely biased from the collinearity issue.

Table 1. Correlations of All the Variables

	Overseas loan	NPL%	Log(market cap)	Operating expense	Net income	Fee income	Leverage%	GDP growth
Overseas loan	1.000	0.076	0.062	0.413	-0.269	-0.073	-0.286	-0.132
Non-performing loan	0.076	1.000	-0.082	0.225	0.113	0.170	-0.069	-0.031
Log(market cap)	0.062	-0.082	1.000	-0.137	0.157	0.294	-0.034	0.237
Operating expense	0.413	0.225	-0.137	1.000	-0.103	0.192	-0.521	-0.191
Net income	-0.269	0.113	0.157	-0.103	1.000	0.413	0.078	0.238
Fee income	-0.073	0.170	0.294	0.192	0.413	1.000	-0.020	0.127
Leverage%	-0.286	-0.069	-0.034	-0.521	0.078	-0.020	1.000	-0.007
GDP growth	-0.132	-0.031	0.237	-0.191	0.238	0.127	-0.007	1.000

Source: Author's Calculation, Capital IQ

Table 2. Descriptive Statistics of All Variables

	Mean	Std. Dev.	Min	Max
ROE	0.0908	0.0498	-0.1513	0.2227
Tobin's Q	0.9008	0.4577	0.06755	2.6072
Beta	1.2680	1.20758	0.2700	17.5750
ESG	61.3900	21.7878	6.0000	95.0000
E	67.2200	25.8141	5.0000	99.0000
S	60.6700	23.9138	3.0000	96.0000
G	60.7000	21.0197	10.0000	97.0000
Overseas loans	0.3143	0.2396	0.0003	0.9056
NPL	0.0185	0.0185	0.0014	0.1660
Log(market cap)	7.6130	0.3929	5.1910	8.6690
Operating expenses	0.0263	0.0186	0.0004	0.0923
Net interest income	0.0149	0.0088	-0.0019	0.0740
Fee income	0.0083	0.0079	0.0001	0.0423
Tier 1 capital ratio%	15.0100	3.4251	9.0300	38.4200
GDP growth	0.0230	0.03205	-0.1130	0.0870

Source: Author's calculation, Capital IQ

Table 1 and 2 display the correlations of the variables and descriptive statistics respectively.

3.1.4 Dummy variables

Dummy variables are also used to control for time and cross-sectional variations that may affect the relationship being studied. Including year dummy variables allows the data modeling to account for time-specific effects and capture the potential impact of factors that change over time but are not directly related to globalization or bank performance. By controlling for year effects, we can isolate the specific impact of globalization on bank performance, holding constant other time-varying factors such as macroeconomic conditions, regulatory changes, or technological advancements. Including country dummy variables helps to control for differences across countries that may influence bank performance and globalization independently. Each country has its own unique institutional, legal, and economic characteristics that can affect the relationship under investigation. By introducing country dummies, the regression model can account for these heterogeneities and examine how globalization impacts bank performance while controlling for country-specific effects.

3.2 METHODOLOGY

Given globalization related data availability, I include 62 global banks of the top ranking banks by market capitalization that have relatively complete dataset of the variables mentioned earlier in this paper, over the 8-year period from 2015 to 2022.

My study analyzes the link between globalization and banks' performance including ROE/ROA, Tobin's Q, Beta, and ESG scores. I use regression model to construct the association between the dependent variables or performance and globalization factor.

$$ROE_{b,t} = \alpha_0 + \alpha_1 Overseas Loan_{b,t} + \alpha_2 X_{b,t} + \alpha_3 C_b + \gamma_t + \mu_c, \quad (1)$$

$$Tobin's Q_{b,t} = \alpha_0 + \alpha_1 Overseas Loan_{b,t} + \alpha_2 X_{b,t} + \alpha_3 C_b + \gamma_t + \mu_c, \quad (2)$$

$$Beta_{b,t} = \alpha_0 + \alpha_1 Overseas Loan_{b,t} + \alpha_2 X_{b,t} + \alpha_3 C_b + \gamma_t + \mu_c, \quad (3)$$

$$ESG_{b,t} = \alpha_0 + \alpha_1 Overseas Loan_{b,t} + \alpha_2 X_{b,t} + \alpha_3 C_b + \gamma_t + \mu_c, \quad (4)$$

where b, c, and t denote the specific banks, the home country of the global banks and time indices, respectively. The residuals are represented by $\epsilon_{it} = \gamma_t + \mu_{it}$, where γ_t stands for the unobserved specific year effect, while μ_c represents the country dummy that detects the possible economic effect.

To assess the relationship of each ESG component with globalization factor and other control variables, the equation (4) further replaces the overall ESG score ($ESG_{b,t}$) with environmental score ($E_{b,t}$), social score ($S_{b,t}$) and governance score ($G_{b,t}$). $X_{b,t}$ is a vector consisting of control variables (market capitalization, non-performing loans ratio, operating expenses of total assets, net interest income ratio, fee income ratio, leverage ratio, GDP growth rate in home country of the banks).

Using a regression model with the aforementioned variables is useful for determining the relationship between globalization and banks' performance for several reasons. Regression analysis

allows researchers to isolate and quantify the specific impact of globalization on banks' performance. By including globalization-related variables and controlling for other factors such as market capitalization, non-performing loans ratio, operating expenses, net interest income ratio, fee income ratio, leverage ratio, and GDP growth, we can assess the extent to which globalization influences bank performance, independent of other potential drivers.

Regression modeling allow us to test the statistical significance of the association obtained between globalization and banks' performance and provide estimated coefficients of the globalization-related variables and thus to test the hypothesis. This helps to establish the robustness and credibility of the relationship. Through this quantitative estimation, the coefficients obtained from the regression model are able to give certain level of insights to the magnitude and direction of the relationship we are searching for. For example, a positive coefficient suggests that increased globalization is associated with improved bank performance, while a negative coefficient implies the opposite. The magnitude of the coefficient provides insights into the strength of the relationship and the significance level provides us with the credibility of the association on determining whether it is strong enough to make an interpretation or not.

4. Empirical Results and Discussion

Table 3. ROE Regression

Variables	Estimate	Std. Error	t value	Pr(> t)
Overseas loans	-0.0379340	0.0126523	-3.00	0.00298 **
NPL%	-0.2355729	0.1644252	-1.43	0.15313
Log(market cap)	0.0347329	0.0085896	4.04	0.00007***
Operating expenses	-0.1088647	0.2633142	-0.41	0.67962
Net interest income	0.0411141	0.4226633	0.10	0.92258
Fee income	3.8496533	0.7560541	5.09	0.0000007 ***
Tier 1 capital%	0.0004036	0.0010408	0.39	0.69846
GDP growth	0.2701669	0.0784765	3.44	0.00067 ***
Observations	316			

Source: author's calculation based on Equation (1).

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

First, I investigate the association between ROE and the overseas loan ratio as well as other control variables and dummy variables. The regression model gives a negative and highly significant result which suggests that as the level of globalization increases, the ROE of banks tends to decrease. This negative association implies that higher exposure to overseas loans is related to lower profitability represented by ROE. Hence, we are able to make an interpretation that the benefits or returns generated from international operations may not be sufficient to outweigh the potential risks or costs associated with global expansion.

There are several possible explanations for this negative relationship. It is possible that banks conducting more overseas business generally face higher costs in daily operations, regulatory challenges in various jurisdictions, or greater exposure to foreign market risks when expanding their loan activities overseas. Additionally, differences in market conditions due to policy issues, economic cycles, tax rates, government regulations of foreign corporates' activities, and cross-cultural management may impact the profitability of overseas business. It is plausible that local governments may have extra tariffs exerting on foreign financial services to protect domestic banks

and hence increase the cost for global banks to enter. And foreign banks may not enjoy the well-established channel management that local banks have already obtained and in some countries there are large business communities that big corporates or well-known family group are involved which would make the entry barrier even higher. Overseas bank need to spend more time and money on building up relationships or attract clients by providing the same service with less premium. In addition to the cost and market entry aspect, the unfamiliarity of the local market regulation, language, culture, and talent acquisition might also be costly to overcome and thus affect the profitability of banks' operations overseas.

Table 4. Tobin's Q Regression

Variables	Estimate	Std. Error	t value	Pr(> t)
Overseas loans	-0.431192	0.100912	-4.273	2.70e-05 ***
NPL	0.893761	1.311416	0.682	0.496140
Log(market cap)	0.667202	0.068509	9.739	< 2e-16 ***
Operating expenses	-0.421250	2.100131	-0.201	0.841180
Net interest income	-5.743832	3.371061	-1.704	0.089588 .
Fee income	29.510927	6.030106	4.894	1.73e-06 ***
Tier 1 capital%	-0.004342	0.008301	-0.523	0.601380
GDP growth	0.377680	0.625910	0.603	0.546757
Observations	310			

Source: author's calculation based on Equation (2).

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

For the second hypothesis, I run the Tobin's Q regression test. The negative association suggests that as banks expand their overseas lending activities and become more globally integrated, their market value, relative to their assets, decreases. This finding indicates that the market may actually perceive the potential risks and costs associated with globalization to overtake the benefits that globalization brings.

There are several potential explanations to account for this negative relationship. First, as mentioned before, the increased global exposure may subject banks to higher levels of regulatory and compliance challenges, potentially eroding their market value. Second, stepping into foreign market is always associated with risks such as exchange rate fluctuations, regional political and economic instability, may negatively impact the market evaluation of the bank. Finally, higher operational costs and complexities associated with managing international operations may also contribute to the negative relationship between overseas loan ratio and Tobin's Q.

Table 5. Beta Regression

Variables	Estimate	Std. Error	t value	Pr(> t)
Overseas loans	0.18199	0.12504	1.46	0.14683
NPL%	-0.24910	1.62223	-0.15	0.87809
Log(market cap)	-0.40795	0.08457	-4.82	0.0000025 ***
Operating expenses	0.92846	2.59556	0.36	0.72087
Net interest income	-0.45824	4.19727	-0.11	0.91315
Fee income	12.99146	7.72645	1.68	0.09397 .
Leverage%	-0.00724	0.01096	-0.66	0.50938
GDP growth	-0.22320	0.79478	-0.28	0.77908
Observations	243			

Source: author's calculation based on Equation (3).

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The third regression model aims to indicate the association between globalization and the volatility of the banks. The result shows no significant relationship but a positive association between the beta value and the overseas loan ratio which implies that there exists some evidence of positive association between the two variables tested, but it is not statistically significant to come to a firm conclusion. The lack of statistical significance suggests that the observed positive association could be due to random variation or other unobserved factors rather than a true causal relationship and the association may not hold under different samples or specifications.

The positive association between the beta value and the overseas loan ratio implies that banks with a higher degree of globalization tend to have higher beta values, indicating that more globalized banks' stocks are expected to be more volatile compared to the market as a whole. There are several potential explanations that could be further explored for this positive association, even in the absence of statistical significance. As illustrated earlier in this paper, banks with higher overseas loan ratios may be more exposed to foreign market risks and fluctuations, leading to higher stock price volatility. Moreover, increasing overseas banking business could introduce additional uncertainties and complexities in the daily operations as well as requiring higher level of risk monitoring work in

business control, which might translate into higher beta values and also harder to monitor. However, these potential effects may not be strong enough or consistent across all banks to reach statistical significance.

Table 6. ESG Regression

Variables	ESG	E	S	G
Overseas loans	17.572***	13.562*	21.8738***	14.9624**
NPL%	-13.141	74.284	23.3230	-80.2092
Log(market cap)	5.648.	9.317**	4.9986	3.2360
Operating expenses	324.627**	273.389*	376.3274**	314.8378**
Net interest income	-524.783**	-260.180	-549.2762*	-573.4416**
Fee income	848.479**	301.308	615.7352	1181.2906***
Leverage%	116.940	-127.846	155.1335	167.4537
GDP growth	-19.212	-34.007	-9.9815	-17.0039
Observations	316	314	316	316

Source: author's calculation based on Equation (4).

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The significant positive association suggests that as the level of globalization, as measured by the overseas loan ratio, increases, banks tend to have higher ESG scores. This finding indicates that there is a positive connection between banks' global activities and their environmental, social, and governance performance.

The positive association could be attributed to several factors. First, globalization may provide banks with opportunities to adopt more sustainable practices and engage in socially responsible activities across borders. For example, banks may invest in environmentally friendly projects, implement social initiatives, and enhance their governance practices as they expand their operations globally. The interpretation from the results shown above could be more globalized banks usually have higher ESG standards. For example, the social scores are related to employees' safety and health issue, as well as human rights, large global corporates can provide better employee welfare. Furthermore, the legal systems in advanced countries are more complete and hence banks having global businesses have to apply to these guidelines which could have driven higher ESG scores.

Furthermore, the study also finds a positive association between the ESG score and operating

expenses/assets as well as fee income ratio, and a negative relationship with the net interest income ratio. This implies that banks with higher operating expenses relative to their assets tend to have better ESG scores and generate a greater proportion of their income from fees rather than net interest income. The possible explanation we could derive from the results would be that these global banks are making effort to be more environmentally-friendly, such as spending more money on reducing CO2 emissions in their daily operations, having advanced employee welfare system as well as providing equal opportunity to minority groups, which all contributed to the improvement of ESG scores.

The positive association between the ESG scores and the non-interest income ratio suggests that banks with higher ESG scores may be successful in attracting clients who value sustainability and are willing to pay fees for ESG-focused products and services other than contributions to normal banking business with interest payment. This can improve the competency of the global banks and positively impact on the overall revenue composition. Similarly, the negative relationship between the ESG score and the net interest income ratio indicates that banks with higher ESG scores could rely less on traditional interest-based income, potentially due to a shift towards more sustainable lending practices or diversification of income sources beyond interest income which may further contribute to the globalization and advancements in its financial services.

5. Conclusion

In conclusion, this paper explores the association between globalization level and banks' performance accordingly, as well as the association with various control variables which may also affect the performance. The regression analysis shown earlier in this paper has yielded several noteworthy findings.

Firstly, the regression model indicates a negative relationship between global banks' return on equity and the overseas loan ratio representing globalization factor. The possible interpretation would be that as banks expand their global reach by increasing their overseas loan activities, their profitability tends to go on the opposite way. Potential risks and costs associated with global expansion could be explained in the ways such as higher operational expenses for new market entry and high maintenance fees for business overseas. Jurisdictional regulatory challenges and tax barrier would also contribute to this negative association.

Furthermore, the results demonstrate a significant negative association between Tobin's Q ratio and the globalization factor which suggests that as banks expand their global reach and increase their overseas business activities, their market valuation tends to decrease. This finding illustrates that increased globalization may have adverse effects on market perception of banks. The negative association in terms of their overall performance and growth potential could be attributed to several factors. First of all, globalization may expose banks to additional risks and uncertainties, such as regulatory challenges, economic downturn in foreign markets, and exchange rate and interest rate fluctuations. The market may see these factors as negative impacts on the future earnings and profitability of the banks, leading to a decrease in market valuation. Especially under pandemic

situation, the global economy went gloomy in turn and each region would suffer from different level and period of economic downturn which further leads to the uncertainties in overseas businesses.

Meanwhile, there is no significance in the beta regression result and generally the lack of statistical significance could be attributed to various factors, such as data limitations, measurement issues, or model specification. While the lack of statistical significance restricts the conclusions that can be drawn from the study, the positive association suggests that there may be some level of association between the overseas loan ratio and beta values. Further research with a larger sample size, alternative methodologies, or different measures of globalization could provide more conclusive evidence.

Additionally, the analysis reveals a significant positive relationship between the ESG score, as well as its environmental, social, and governance components respectively, and the globalization factor represented by the overseas loan ratio. This finding indicates that banks with higher levels of globalization tend to exhibit better ESG performance and could be interpreted that globalization offers opportunities for banks to adopt sustainable practices, engage in socially responsible activities, and enhance their governance frameworks across borders.

Further qualitative conclusion drawing on this relationship could be as follows. First, engaging in cross-border lending activities requires banks to adhere to higher ESG standards and regulations, as they operate in diverse regulatory environments and face increased scrutiny from international stakeholders and regulators. Second, by extending loans in foreign markets, banks are more likely to consider ESG factors in their lending decisions in building up their reputation and credibility. They may prioritize lending to projects and businesses that align with sustainable and

responsible practices such as environmentally friendly project or regional development fund to found a good relationship with local government and make a reputable name for themselves. Moreover, the banks conducting more global businesses are able to improve their ESG practices as their experience increases across various jurisdictions. They would be able to work out what are the best approaches to carry out specific social responsibility while running their global business and learn from the industrial peers worldwide. The management level of the global banks would naturally take ESG factors into account during their decision-making processes as well as carry out ESG friendly daily operations. And those small changes will bring about significant outcome when agencies are evaluating the whole ESG profile. The positive association between the cross-border loan ratio and ESG performance has significant implications for the banking industry since it highlights the importance of global banks' role in driving sustainable development and responsible financing practices on a global scale, thus drive the economy into a more sustainable one.

Additionally, the study indicates that the ESG score is positively related to operating expenses/asset ratio and non-interest income ratio. There are interpretations that we can make from this result that the higher operating costs could be spending on improvements and actions related to sustainable business practices. Global banks which are able to generate a greater proportion of their income from fees other than traditional banking interest income tend to exhibit better ESG performance as well. Aligning with that, it is shown that the ESG scores are negatively related to the net interest income ratio, reaffirming that banks with higher ESG scores may rely less on traditional interest-based income, potentially due to a shift towards sustainable lending practices and diversified income sources which is also good for long term survival and development of the bank.

In general, analysis of relationships between globalization and ESG performance may cause endogeneity issues. Banks with global activities may have relatively sufficient resources to invest in ESG factors. Further research could investigate how to alleviate the issues of endogeneity.

The above findings could contribute to the understanding of the association between globalization and banking performance of global banks. The results emphasize the potential risks and costs associated with globalization, as well as the benefits in terms of improved ESG performance. With the conclusion we may draw from those evidence, global banks could consider more about the strategies in balancing their global expansion with sustainable practices, as well as potential risk management and its hedging method. As this study is using overseas loans as index of globalization, there might be certain limitation to fully illustrate the impact of globalization since there are many more dimensions involved in international activities. Other variables such as overseas revenue ratio, overseas headcount rate in all employment, overseas asset ratio have all been attempted in this study, yet the disclosure of those figures by the global banks are not sufficient. Further research could be extend to investigate these associations with banking performance depends on the data availability.

Overall, this study contributes to the literature on how globalization would impact on banking performance by providing empirical evidence and insights into the synergies of these variables. The findings state the need for banks to carefully manage the risks and costs associated with globalization while leveraging the potential benefits for sustainable and responsible practices. It illustrates the significance of international lending activities in driving sustainable and socially responsible practices within the banking sector. The quantitative findings from the regression

analysis can have important policy implications and by understanding the relationship between globalization and banking performance, not only it is beneficial to management people of banks to make decision, but also policymakers who will be able to make informed decisions about regulatory frameworks, enhance international collaborations, and form strategies to boost the competitiveness and improve stability of the banking industry. Regulators can also use these findings to assess the impact of globalization on the stability and resilience of the banking sector. Instead of believing in the myth of giant global banks would always be the good choice for investment, investors may consider the evident negative association with profitability and market evaluation as an important factor when making investment decisions in the banking industry.

APPENDIX: DEFINITION OF VARIABLES

Variable	Definition	Source
ROE	Return on money provided by the firm's owners	Capital IQ
Tobin's Q	Calculated as the market value of a company divided by the replacement value of the firm's assets	Capital IQ
Beta	A measure of a stock's volatility in relation to the overall market	Capital IQ
ESG	The combination of assessment of three profiles: Environmental, Social, and Governance	Capital IQ
E	The relative sustainability of an entity based on its environmental risks and opportunities compared to its sector or industry	Capital IQ
S	The relative sustainability of an entity and its key stakeholders based on risks and opportunities relating to its social license to operate, compared to its sector or industry. A social license to operate reflects the public's ongoing acceptance of an entity's practices.	Capital IQ
G	The extent to which observable governance standards and practices could indicate that the entity is likely to experience a significant governance failure relative to other entities on a global basis. It also reflects our view of the effectiveness of the entity's governance framework.	Capital IQ
Overseas loans/ loans	Foreign loans and leases held for investment, as a percent of loans and leases held for investment	Capital IQ
NPL	Nonperforming loans, net of guaranteed loans, as a percent of loans before reserves	Capital IQ
Market capitalization	Aggregate market capitalization of all issues of common equity whether traded or non-traded, including convertible common stock on a one-to-one basis until the conversion window opens, and then at the conversion rate.	Capital IQ
Operating expenses/ Avg assets	Operating expenses, net of noninterest income, as a percent of average assets	Capital IQ
Net interest income/ Avg assets	Net interest income, as a percent of average assets	Capital IQ
Noninterest income/ Avg assets	Noninterest income as a percent of average assets	Capital IQ
Leverage ratio	Measurement of a company's level of debt relative to disposable income	Capital IQ
Tier 1 capital ratio	Tier 1 capital ratio as defined by the latest regulatory and supervisory guidelines. For U.S. institutions, this will be transitional when applicable, and the lesser of the standardized and advanced approaches. For non-U.S. institutions, this may be transitional or fully loaded, depending on availability.	Capital IQ
GDP growth	GDP growth (annual %) Annual percentage growth rate of GDP at market prices based on constant local currency	World Bank

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