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The role of legal system in SME bank credit in ASEAN

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Abstract

This study aims to investigate the role of legal system in the access to bank credit of small and medium enterprises (SMEs) and explores the measures to improve legal system among the Association of South-East Asian Nations (ASEAN). By applying the ordinary least squares (OLS) method, the study examines the bank credit accessibility of over 12,000 firms across eight ASEAN countries, using the data collected from the World Bank's Business Environment and Enterprise Performance Survey (BEEPS), in relation to each country's contract enforcement indicators. The estimated results reveal a significant positive relationship between contract enforcement and SMEs' access to bank credit. Furthermore, the results show that long time consumption and large costs for contract enforcement reduces financing opportunities of SMEs. Additionally, the study finds that a country's legal tradition does not impact the effectiveness of its contract enforcement. Implementing electronic filing systems and limiting times and costs for legal processes can enhance contract enforcement. Consequently, strong contract enforcement appears to encourage banks to increase SME lending, leading to higher SME bank credit in countries with efficient contract enforcement mechanisms. Enhancing contract enforcement can increase SME financing and consequently, will improve a country's financial intermediation. These findings underscore the importance of contract enforcement including its duration and cost, in the context of SME financing and suggest ways to improve a country's legal system to foster SME access to bank credit.

1. Introduction

Small and medium-sized enterprise (SME) financing is a significant challenge for not only the growth and survival of SMEs but also the industrialization and economic development of the ASEAN nations. Despite increasing sources of SME financing, ASEAN's SMEs mainly depend on the banking sector in accessing finance

(OECD, 2020)[1]. Compared to non-bank financing, bank financing is a cheaper way of financing which can contribute to enhancing SMEs' performance. ASEAN countries make great efforts on promoting SMEs' financing. However, access to bank credit remains a crucial challenge for SMEs, especially in low-income ASEAN countries (Asian Development Bank, 2020). Promoting SMEs' access to bank credit is still a necessary factor for the overall development of ASEAN countries.

In enhancing SME financing, individual SMEs' characteristics and their performance are primary determinants. Similarly, the legal system also is an essential supporting factor for stimulating SME financing. Blad (2023) defines that the legal system is a vital framework that governs societies globally. It establishes a structure for resolving conflicts, enforcing laws, and upholding justice. Thus, an efficient legal system can shape the financial sector and SME financing. Most previous empirical studies concentrate on the broader legal environment using composite index in the context of SME financing. Focusing on the overall legal system fails to identify the most crucial factor of legal issues directly relevant to SME financing. Thus, to take the proper legal action for the improvement of SME financing, the analysis should focus on the individual component of the legal system which has an impact on financing activities. The World Bank (2014) states that a lack of contract enforcement, creditor protection, and property rights registration affects lending to all businesses. To support this issue, the Asian Development Bank (2022) mentions that banks in developing countries are hesitant to engage in SME lending due to inefficient legal and regulatory environments and enforcement issues. Additionally, Abraham and Schmukler (2017) stress that lenders are unwilling to provide collateralized loans without efficient contract enforcement. Thus, in focusing on the legal system, contract enforcement can be one of the important matters to SME financing. Prior literature pays attention to the existence of law and regulations, such as existence of property rights and creditor protection. Despite its significance, the laws and regulations cannot be active without efficient enforcement. Previous literature on SME financing that focuses specifically on contract enforcement is limited. The level of contract enforcement will somehow explain a country's enforcement of financial contracts and solving loan defaults. Thus, it will influence banks' loan decisions and consequently, has an impact on credit accessibility of SMEs. Therefore, the role of contract enforcement in SME financing needs to be examined in considering the promotion of SME financing. Contract enforcement is generally regarded as the process of ensuring that the terms agreed upon by the parties in a contract are met and executed as intended. This process helps maintain trust and fairness between parties and is essential for the smooth functioning of business and personal transactions (Dang, 2023). Thus, business transactions, including financing activities, cannot be smoothly performed without efficient contract enforcement. According to the World Bank's Doing Business Survey (DBS), the average contract enforcement score[2] of ASEAN is 54.5%, which is the third lowest globally and slightly lower than the world average contract enforcement score of 56.3%. Figure 1 presents the level of contract enforcement scores in comparison with the % of SMEs' bank credit in total GDP among seven ASEAN countries. Thailand, Malaysia, and Vietnam have strong enforcing contracts with scores above the world average, while Indonesia, the Philippines, Laos, Cambodia, and Myanmar hold weak enforcement scores. Notably, countries with strong enforcement scores have larger SMEs' bank credit compared to those with weak enforcement scores.

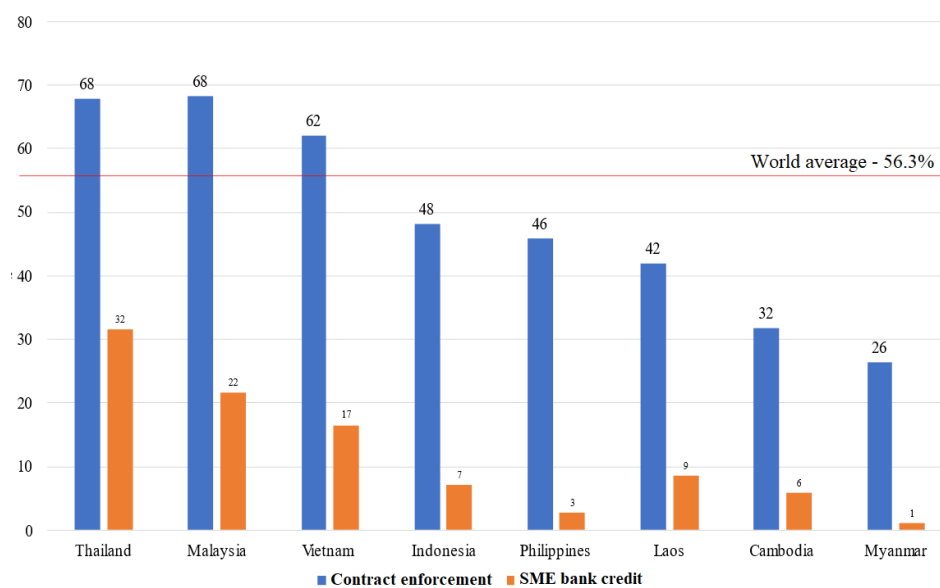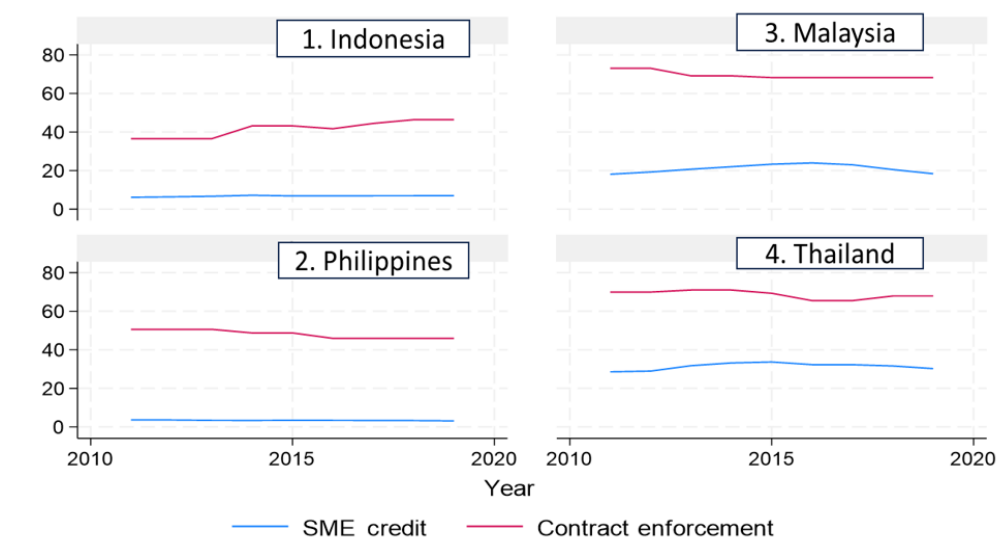**Figure 1.** Contract enforcement and SMEs' bank credit in ASEAN countries in 2020.
Source: Asia SME monitor dataset, Asian development bank, and doing business 2021, world bank.

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[1] OECD = Organization for Economic Cooperation and Development.
[2] Contract enforcement is measured by time, cost, and number of procedures for enforcing contract (scores within 0-100%) (World Bank, 2020).

Figure 2 displays the comparison of SME's bank credit (% of Gross Domestic Product: GDP) and contract enforcement scores of four ASEAN countries in the period 2012-2018. Malaysia and Thailand have larger contract enforcement scores than those of Indonesia and Philippines throughout the period. Similarly, % of SMEs' bank credit to GDP is relatively higher in Malaysia and Thailand than that in Indonesia and Philippines.

Both Figure 1 and Figure 2 show that the countries with stronger contract enforcement have higher level of SMEs' bank credit compared to those with weaker contract enforcement. This fact indicates the relationship between contract enforcement and the country-level of SMEs' bank credit. Consequently, contract enforcement may have an impact on individual SMEs' bank credit accessibility. Understanding the role of contract enforcement can thus contribute to enhancing supporting measures for SME financing. Thus, the relationship between contract enforcement and SME financing essentially needs to be investigated.

Figure 2. SMEs' bank credit and contract enforcement of four ASEAN countries in period 2012-2018.
Source: Author's drawing based on Asia SME monitor dataset, Asian development bank, and doing business 2021, world bank.

The subsequent chapter of this paper is organized as follows: Chapter 2 reviews the prior literature, providing an overview of the legal system and its impact on financing. Chapter 3 explains the analytical method used for the analysis, and Chapter 4 presents the outcomes of the analysis. Chapter 5 compares the legal systems among ASEAN countries and highlights possible measures to improve contract enforcement. Finally, Chapter 6 concludes on the results of the empirical and comparative studies and provides suggestions for enhancing the legal system in the context of SMEs' access to bank credit among ASEAN countries.

2. Literature Review

Prior literature concentrates on the broader legal environment or the entire legal system in the analysis of SME financing. By using the 10,000 firms of Eastern European and Central Asian countries, Ullah (2020) demonstrates a negative relationship between rule of law, property rights, and SMEs' financial constraints. Similarly, based on the data of 50 African countries in the period 2000-2019, Sanga and Aziakpono (2022) show a positive effect of regulatory quality and rule of law on financial deepening. Additionally, Chit (2019) shows the positive relationship between regulatory and legal environment and the diversification of SME financing. These studies highlight the significance of regulatory quality and the legal system in the context of SME financing. These studies can underscore the role of the entire legal system but do not provide concrete policy recommendations for enhancing SME bank financing.

Some studies focus on how the legal system affects financing and emphasize the differences between common law and civil law countries. Wang, Xiang, and Han (2023) analyse the financing behaviour of 154,154 SMEs in 154 countries from 2002 to 2022, finding that SMEs in common law countries have greater access to external credit than those in civil law countries. Troilo, Walkup, Abe, and Lee (2019) who examine 96,000 firms in 128 countries from 2006 to 2014, also demonstrate that firms in common law countries rely more on bank-sourced working capital compared to those in civil law countries. Therefore, common law appears to support SME financing. However, as common or civil law reflects a country's legal tradition, these findings do not pinpoint specific legal issues directly relevant to SME financing.

To promote SME financing through the legal system, the analysis should be focused on the legal activities which have a direct impact on SME financing. Beck, Demirgüç-Kunt, and Maksimovic (2008) conclude that financial institutions are reluctant to provide loans to small businesses in markets lacking creditor protection and adequate judicial procedures. Additionally, Lin (2012) states that the costs of breaking contracts are higher

under an inefficient judicial system. According to Ganbold (2008) legal provisions to ensure debtors' and creditors' rights and strong enforcement of laws are critical to credit market development. Fouejieu, Ndoye, and Sydorenko (2020) highlight that reducing the costs of enforcing contracts and ensuring property rights can decrease bank demands for the value of collateral. Thus, creditor protection, judicial quality and enforcement of contracts are much more relevant and important to SME financing compared to the entire legal system. In this regard, some study focuses on the role of existence of creditor right or investor right in examining SME financing.

Duarte, Gama, and Esperança (2017) who analyse 48,590 firms in eleven European countries in 2009, reveal that stronger creditor protection and better judicial enforcement contribute positively to reducing loan rejections. Kunieda and Shibata (2011) who examine 47 countries in the 1980s and 48 countries in the 1990s, find that stronger legal protection supports collateral-based lending systems. Both studies underscore the importance of legal protection in financing. According to the World Bank (2018) legal protection is measured by the existence of laws and regulations that protect creditors or investors, which are crucial for business finance. Gramckow (2017) concludes that efficient contract enforcement is essential for a business-friendly environment, reducing informal financing, improving access to credit, and increasing trade. Conversely, in countries with poor contract enforcement, creditors face uncertainty and higher costs for bad loans. Thus, strong enforcement is vital to improving access to credit through assuring the effectiveness of the laws and regulations. However, empirical evidence which proves the role of contract enforcement is scarce.

Safavian and Sharma (2007) examine the effect of contract enforcement on access to bank credit using data from 10,500 firms in 27 European countries in 2002 and 2005. They find that efficient court enforcement enhances the effectiveness of creditor rights on firms' access to bank credit, whereas the effect of creditor rights is weaker in countries with inefficient court systems. Consequently, firms in countries with efficient court enforcement have greater access to bank credit. Similarly, Jappelli, Pagano, and Bianco (2005) use credit market data from 27 districts in Italy between 1984 and 1988 and find a positive relationship between the length of judicial enforcement and the cost of credit, such as interest rates and non-performing loans for financial institutions. A long duration of contract enforcement will discourage banks from creating credit. Under the inefficient contract enforcement system, banks will charge more interest or demand more collateral values. As a result, SMEs face more financial challenges in countries with inefficient contract enforcement systems. Therefore, a country's contract enforcement will somehow explain the financing abilities of SMEs.

To contribute more effectively to the promotion of SME financing with specific recommendations, this study emphasizes contract enforcement in the context of SME financing. The study hypothesizes a positive relation between contract enforcement and SME financing from banks.

3. Method and Data

The analysis contains two parts: (i) investigation of the relation between contract enforcement and SMEs' access to bank credit by employing econometric techniques and (ii) exploration of the legal issues which relate SME financing in ASEAN countries based on comparing the measures on the improvement of legal system.

3.1. Statistical Model

At first stage, the study investigates the effect of contract enforcement on bank credit accessibility of SMEs by employing the ordinary least square (OLS) regression. Equation 1 presents the baseline model of the analysis.

$$\text{Bank Credit}_{ijt} = \alpha + \beta_1 \text{Contract enforcement}_{jt} + \beta_2 \text{Firm Characteristics}_{ijt} + \beta_3 \text{Market Characteristics}_{jt} + \varepsilon_i \quad (1)$$

Where, Bank Credit_{ijt} represents the number of bank credit accessed by firms i in country j in year t. ε_i represents an error term. Bank Credit_{ijt} is the outcome variable of this analysis and is measured by the number of loans: bank loans and overdrafts, which individual firms can access from banks.

3.1.1. Main Explanatory Variable

Contract enforcement is the main explanatory variable for SMEs' access to bank credit. According to the World Bank (2020) up to year 2012, contract enforcement was determined by the time and cost required to resolve a commercial dispute and the number of procedures involved in the enforcement process. The enforcement score ranged between 0% and 100%. After 2012, the measurement was slightly revised: the enforcement score is now determined by the time and cost to resolve a commercial dispute and the quality of judicial processes.

3.1.2. Covariates

The covariates, $\text{Firm Characteristics}_{ijt}$ and $\text{Market Characteristics}_{ijt}$, included in the regression model are selected based on the previous literature. A firm's characteristics consist of a firm's size, age, sale growth, the presence of financial statements and the use of information and communication technology (ICT). A firm's characteristics: firm's age and size, determine a firm's access to bank loan (Chowdhury & Alam, 2017). A firm's

size is measured by the number of full-time employees and a firm's age is decided by the years of business operation. Firm size and age are scaled in logarithmic form. Sale growth shows business performance (Ghozali & Handriani, 2018). Since financial institutions favour profitable firms in lending, sale growth is supposed to influence a firm's financing. Therefore, the study considers sale growth as an explanatory variable. Sale growth is measured by sale growth (%) of the three-year period prior to surveyed year.

Audited financial statements and ICT improve firm's information disclosure and consequently increase SMEs' access to bank credit. Thus, firms which have audited financial statements and ICT have more bank financing opportunities than those without such kinds of tools for information disclosure (Thein, Niigata, & Inaba, 2023). The presence of financial statements of a firm is surveyed by using a dummy variable, 1 if a firm has financial statements which are examined by external auditor, and 0, otherwise. ICT is measured by the sum of three dummy variables, value 1 for each for (i) the use of email, (ii) the use of website and (iii) the possessive of technology license. The value ranges between 0 and 3.

Market characteristics are country-level statistics which include bank concentration, bank stability, and economic development of respective years. Duarte et al. (2017) show that heightened bank market concentration increases business and personal collateral demand in SME lending. Thus, bank concentration may deter SME financing.

Bank concentration is measured by the share (%) of the top three largest banks in total assets of a country's banking sector. Fouejieu et al. (2020) state that a more stable banking sector influences the confidence level of banks and encourages banks to take more risk in lending. Thus, bank stability can be a determinant of SME lending. Bank stability is measured by bank Z score: the ratio of total capital to total assets of banking sector. Additionally, the study includes GDP per capita as an influential indicator in examining SME financing since a country's economic development can support SME financing.

As further evidence for the significance of contract enforcement to SME financing, the study uses each component of contract enforcement as main explanatory variable (contract enforcement score) in the regression model (1). The measurements on contract enforcement consists of three components, (i) time, (ii) cost and (iii) procedure for enforcement before 2012, but the third component was substituted by judicial quality after 2012. Thus, the third indicator does not fully cover the sample period (2009-2019) of this study. Hence, the study can apply only two indicators: time and cost of contract enforcement for the robust tests. Time for enforcement is calculated by the numbers of days for enforcing contracts, and costs is measured by % of total claim. Equation 2 presents the statistical model of the further test for the hypothesis.

$$\text{Bank Credit}_{ijt} = \alpha + \beta_1 \text{Time of contract enforcement}_{jt} + \beta_2 \text{ Cost of contract enforcement}_{jt} +$$
$$\beta_3 \text{ Firm Characteristics}_{jt} + \beta_4 \text{ Market Characteristics}_{jt} + \varepsilon_i \quad (2)$$

3.2. Tests for Endogeneity

To avoid the estimation errors in the OLS estimator, the study examines the endogeneity issues in the model (1). The study applies a two-stage-least-squares test with an instrumental variable: a country's democracy index.

According to Langlais and Obidzinski (2017); Wirawan, Manullang, and Sembiring (2021) and Arsad (2023) a country's legal system and law enforcement are strongly influenced by democracy. Democracy indices are taken from the Our World in Data, 2024. The measurement of the democracy indices is based on citizens' ability to choose leaders freely in fair elections, civil enjoyment, political participation, and effective government actions. Scores range from 0 to 10, with higher values indicating greater democracy (Economist Intelligence Unit (EIU), 2024).

Furthermore, the study uses the additional hypothesis test (T-test) to prove the robustness of the outcomes. T-test shows the significant differences in the mean values of two populations (Bhandari, 2023). In checking T-test, the study divides the ASEAN countries into two groups: countries with contract enforcement score above the world average score (56.3%) and those with less than the world average contract enforcement score.

3.3. Data

The study utilizes the firm-level survey dataset of the Business Environment and Enterprise Performance Survey (BEEPS). The dataset covers firm characteristics: a firm's accessibility of bank loans, size, age, sale growth, the presence of financial statements and the use of ICT. The study collects contract enforcement indicators from the Doing Business Survey (DBS) 2021, and market characteristics (bank concentration and bank Z score) from the Global Financial Development dataset (GFDD), and GDP per capita from the World Development Indicators (WDI).

All these datasets are provided by the World Bank. The sample used in this study contains around 12,000 firms of eight ASEAN countries (Cambodia, Laos, Indonesia, Malaysia, Myanmar, Philippines, Thailand, and Vietnam) in the years between 2009 and 2019.

Since the study mainly focuses on developing countries, Singapore and Brunei Darussalam are not included in the analysis. Firms are divided between SMEs and large enterprises (LEs) by using the World Bank's firm classification, SMEs: firms with less than 100 employees and LEs: firms with 100 or more employees.

4. Results

4.1. Baseline Results

Table 1 illustrates the results of model (1) which investigates the relationship between contract enforcement and SMEs' bank credit. The study examines the hypothesis based on two groups of samples: (i) SMEs' group and (ii) all firm's group and conducts the tests by using various combinations of explanatory variables. The results of SMEs are presented in columns (1) to (4) and those of all firms are shown in columns (5) and (6). All the results consistently show the positive significant relation between contract enforcement and SMEs' access to bank credit. In column (6), the study adds the interaction term: contract enforcement multiplied by SMEs dummy, to the baseline model and checks the differences in the relation of contract enforcement between SME financing and LE financing. The interaction term shows a significant coefficient, indicating that stronger contract enforcement supports SMEs more than LEs in accessing bank loans. The results conform with the hypothesis of this study that contract enforcement influences SME financing. Thus, contract enforcement can support SME financing by enhancing banks' confidence in taking legal actions on loan defaults.

Table 1. Baseline results (OLS regression).

Independent variables	SMEs				All sample	
	(1)	(2)	(3)	(4)	(5)	(6)
Contract enforcement		0.010***	0.011***	0.008***	0.008***	0.007***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
SME_contract enforcement						0.001**
						(0.001)
Log_firm_size	0.262***	0.235***	0.238***	0.247***	0.178***	0.207***
	(0.027)	(0.026)	(0.026)	(0.026)	(0.015)	(0.021)
Log_firm_age	0.125***	0.171***	0.187***	0.110***	0.115***	0.115***
	(0.032)	(0.031)	(0.032)	(0.031)	(0.027)	(0.027)
Financial statements	0.110***	0.087***	0.122***	0.082***	0.092***	0.091***
	(0.021)	(0.013)	(0.025)	(0.025)	(0.020)	(0.020)
ICT	0.145***	0.109***	0.089***	0.097***	0.100***	0.099***
	(0.012)	(0.021)	(0.013)	(0.013)	(0.011)	(0.011)
Sale growth	0.012	0.011	0.011	−0.001	0.001	0.001
	(0.008)	(0.007)	(0.007)	(0.001)	(0.000)	(0.000)
Bank concentration			−0.002	0.006***	0.005***	0.005***
			(0.002)	(0.001)	(0.104)	(0.001)
Bank Z-score				0.002	−0.001	−0.001
				(0.002)	(0.002)	(0.002)
GDP per capita				0.575***	0.589**	0.589***
				(0.064)	(0.050)	(0.050)
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Period fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.059	−1.217	−0.553	−2.473	−0.639	−2.393
	(0.049)	(0.596)	(0.084)	(0.237)	(0.630)	(0.188)
R-squared	0.111	0.145	0.145	0.174	0.188	0.188
Number of observations	4882	4882	4882	4882	6687	6687

Note: The dependent variable is a firm's access to bank credit. Robust standard errors are in parentheses. **and *** indicate the 5% and 1% level of significant level, respectively. In column (1), The independent variables include only firm characteristics (The use of audited financial statement, use of ICT, firm size, firm age, and firm performance measured by sale growth). The study adds contract enforcement variable in column (2), bank Z-score in column (3) Includes and Bank concentration level and GDP per capita in Column (4). Column (5) Shows the results of all firms and column (6) includes additional interaction term (SME_contract enforcement).

The coefficients of firm level covariates: firm's size, age, the use of financial statements and ICT have positive significant coefficients and are consistent with the results of prior literature. Thus, firms which have financial statements and use ICT are more likely to achieve bank loans than those without. Moreover, ASEAN banks seem to favour larger sized and older firms in providing loans. On the other hand, sale growth which shows a firm's performance is insignificant relationship with a firm's access to bank credit. This fact indicates that banks seem to pay more attention to stable business situations such as firm size and age rather than a firm's performance in loan evaluation. Thus, firms with small-sized and short operating years will face more financing difficulties compared to larger size and older firms. The results suggest that SME supporting measures should be focused more on smaller sized and younger firms as well as start-up businesses.

Among market covariates: bank concentration and GDP per capita show positive significant coefficients whereas bank Z score does not express a significant relation with SME finance. According to the research of Duarte et al. (2017) banks are more likely to increase the collateral demand for SME lending in the highly concentrated bank market. Thus, SMEs require adequate collateral to achieve bank credit in the monopolistic bank market. However, the result of this study shows bank market concentration improves SME financing.

Therefore, one possibility is that heightened bank concentration can create strong firm-bank relationship and lower information asymmetry problems between firms and banks. Consequently, this situation can stimulate

SME financing. On the other hand, bank concentration will raise bank market power and bank lazy behaviour. It encourages banks to prefer secured lending in the highly concentrated bank market. Therefore, if the countries with higher bank concentration, SMEs which do not have enough collateral will still face financial constraints.

A positive relationship between GDP per capita and SMEs' access to bank credit suggests that economic growth facilitates SME financing. SME financing is essential for both SME growth and overall economic development (Balcı, Batrancea, Chermezan, Akgüller, & Masca, 2022; OECD, 2023; Watambwa & Shilongo, 2021). Therefore, increased SME financing not only boosts the economy but is also crucial for sustaining economic growth. Promoting SME financing will be key to maintaining and enhancing economic growth.

4.2. Tests for the Hypothesis

Table 2 shows the results of model (2) which examines the significance of contract enforcement to SME financing by using the different measurements on contract enforcement. The test includes all firms and SMEs' only by using the interaction terms: SME_ED (SME dummy is multiplied by enforcement duration) and SME_EC (SME dummy is multiplied by enforcement cost). The study applies different combinations of variables in the tests. Column (1) consists of enforcement duration and other covariates, column (2) includes enforcement cost and other covariates, and column (3) combines both enforcement duration, enforcement cost and other covariates. In columns (4) and (5), the study adds the interaction terms; either SME_ED or SME_EC, in each regression.

The results in columns (1) to (3) show that both enforcement duration and cost have a significant negative relationship with SMEs' access to bank credit. These results indicate that longer time consumption and higher cost in enforcing contract can reduce SMEs' financing opportunities from banks. Both time and cost are important matters which determine the performance of financial institutions. Longer time and higher cost for enforcement causes to increase bad loans and impacts on bank credit circulation.

Table 2. Tests for the significance of contract enforcement by using different measurements.

Independent variables	Bank credit				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Enforcement duration (Log number of days)	−0.572*** (0.067)		−0.001*** (0.000)	−0.578*** (0.068)	
Enforcement cost (% of claims)		−0.004*** (0.001)	−0.003*** (0.001)		−0.002*** (0.001)
SME_ED				0.011 (0.011)	
SME_EC					−0.001*** (0.001)
LogFirm_size	0.169*** (0.015)	0.189*** (0.015)	0.171*** (0.015)	0.185*** (0.022)	0.151*** (0.018)
LogFirm_age	0.125*** (0.028)	0.071*** (0.027)	0.122*** (0.028)	0.124*** (0.028)	0.070*** (0.027)
Financial statements	0.104*** (0.020)	0.052*** (0.019)	0.097*** (0.020)	0.105*** (0.021)	0.047*** (0.019)
ICT	0.106*** (0.011)	0.105*** (0.011)	0.100*** (0.011)	0.106*** (0.011)	0.101*** (0.011)
Sale growth	−0.001 (0.001)	−0.001* (0.001)	−0.001 (0.001)	−0.001 (0.001)	−0.001** (0.001)
Bank concentration	0.007*** (0.001)	0.003*** (0.001)	0.006*** (0.001)	0.007*** (0.001)	0.003*** (0.001)
Bank Z-score	0.012*** (0.002)	−0.006** (0.002)	−0.001 (0.002)	0.012 (0.002)	−0.005** (0.002)
GDP per capita	0.650*** (0.049)	0.776*** (0.049)	0.707*** (0.049)	0.649*** (0.049)	0.780*** (0.049)
Period fixed effect	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes
Constant	−0.830*** (0.205)	−2.139*** (0.190)	−1.985*** (0.189)	−0.853*** (0.253)	−2.101*** (0.190)
R-squared	0.188	0.188	0.194	0.188	0.189
Number of observations	6687	6687	6687	6687	6687

Note: The dependent variable is SMEs' access to bank credit. Robust standard errors are in parentheses. **and *** indicate the 5% and 1% level of significant level, respectively. The study examines the relationship between SMEs' bank credit and contract enforcement by applying various combinations of regressions. Column (1) consists of enforcement duration and other covariates, column (2) includes enforcement cost and other covariates, and column (3) combines both enforcement duration, enforcement cost and other covariates. In columns (4) and (5), the study adds the interaction terms; SME_ED and SME_EC, respectively.

Hence, banks will be more careful in loan evaluation if contract enforcement takes a long time and high costs. To avoid default risks, banks are more likely to reject the loan applications of small businesses. As a result, SMEs have less possibility to achieve bank loans due to their risky nature. The interaction term: SME_ED, in column (4) shows insignificant coefficient whereas SME_EC in column (5) has a significant negative coefficient. Thus, SMEs seem to suffer more from the effect of law enforcement cost compared to LEs in accessing bank loans. These results show further evidence for the significance of contract enforcement to SMEs' access to bank credit. Reducing time and cost of contract enforcement can motivate banks to raise SME lending so that SMEs can get cheaper finance and consequently, they can improve their business performance.

Table 3. The results of two-stage-least-square test.

Independent variables	SMEs	All firms
Contract enforcement	0.009***	0.009***
	(0.001)	(0.001)
LogFirm_size	0.246***	0.177***
	(0.025)	(0.015)
LogFirm_age	0.113***	0.121***
	(0.033)	(0.028)
Financial statements	0.085***	0.096***
	(0.022)	(0.020)
ICT	0.096***	0.099***
	(0.012)	(0.011)
Sale growth	−0.001	−0.001
	(0.001)	(0.001)
Bank concentration	0.006***	0.006***
	(0.001)	(0.001)
Bank Z-score	0.001	−0.001
	(0.002)	(0.002)
GDP per capita	0.566***	0.577**
	(0.055)	(0.051)
Industry fixed effect	Yes	Yes
Period fixed effect	Yes	Yes
Constant	−2.470***	−2.356***
	(0.200)	(0.187)
R-squared	0.174	0.188
Number of observations	4882	6687
Test of endogeneity − Wu − Hausman	1.339***	4.300***
Test of endogeneity - Robust regression	1.425***	4.642***

Note: The dependent variable is a firm's access to bank credit. Robust standard errors are in parentheses. **and *** indicate the 5% and 1% level of significant level, respectively. This study applies the countries' democracy indices as instrumental variable for two stage least square test with the assumption; legal enforcement is influenced by the country's degree of democratization. Wu-Hausman and robust regression check the endogeneity in the regression model.

4.3. Endogeneity Tests

Despite the low likelihood of a reverse effect of SMEs' access to bank credit on contract enforcement, the study conducts endogeneity tests to avoid estimation errors that may arise from the OLS estimator. As explained in Section 3.2, the study applies a two-stage least squares (2SLS) test using a country's democracy index as an instrumental variable. Table 3 displays the results of the 2SLS tests. The coefficients for contract enforcement for both the SME group and the all-firm group are positive and significant, indicating the positive impact of law enforcement on SMEs' access to bank credit. The results for both firm-level and market-level covariates are consistent with the OLS results in Table 1 and Table 2. Moreover, the tests for endogeneity, including the Wu-Hausman tests and robust regression tests, show significant results, indicating the absence of endogeneity issues in the regression model. Hence, the OLS results are reliable. This outcome further underscores the importance of contract enforcement in the context of SME financing. The findings suggest that enhancing contract enforcement, such as by reducing the time and cost of enforcing contracts, can support improved SME bank financing. Additionally, the study conducts a T-test to assess the significance of the hypothesis. The T-test reveals significant differences in SMEs' access to bank credit between two groups: countries with strong contract enforcement and those with weak contract enforcement. Table 4 illustrates the T-test results for two sample groups: SMEs and all firms.

The results confirm significant differences in SME financing between countries with strong and weak contract enforcement. The probability of effect in the SME group is 46.5% (0.465), indicating a strong effect of contract enforcement on SMEs' access to bank credit, while the effect size in the all-firms group is 39.3% (0.393). These results clearly demonstrate that contract enforcement has a greater impact on SMEs than on larger enterprises in the context of acquiring bank loans.

Table 4. Results of pair sample T-test (Bank Credit differences by the degree of contract enforcement).

Descriptions	Mean values of access to bank credit	
	All firms	**SMEs**
Countries with strong contract enforcement	0.834***	0.774***
	(0.014)	(0.014)
Countries with weak contract enforcement	0.570***	0.476***
	(0.009)	(0.010)
Differences	0.264***	0.299***
Effect size – Cohen's d	0.393***	0.465***
Evaluation on effect size	Moderate effect	Strong effect
T-value	−17.889***	−17.917***
Number of observations	8623	6379

Note: Standard errors are in parentheses. *** indicates the 1% level of significant level. Pair sample t-test is the classical test for hypothesis and shows the differences in the mean values of two populations. For this test, the study divides the sample between strong contract enforcement (Enforcement score above world average level, 56.3%) and weak contract enforcement (Scores less than world average) and examines the significance differences of mean values between two groups.

To check the robustness of the results, the study categorizes firms into three groups: (i) manufacturing firms, (ii) service firms, and (iii) retail firms, and examines the effect of contract enforcement on the bank credit accessibility of each group. The results demonstrate a significant positive relationship between contract enforcement and bank credit accessibility across all groups. Therefore, the various tests conducted in this study robustly prove that strong contract enforcement positively contributes to enhancing the bank credit accessibility of SMEs.

5. Analysis on Contract Enforcement in ASEAN

Empirical analyses reveal the significance of contract enforcement in the context of SME financing. Thus, enhancing contract enforcement can support the improvement of SME bank financing. Accordingly, the study reviews the legal systems of ASEAN countries and explores ways to enhance contract enforcement, including reducing its duration and cost, based on comparative studies.

Table 5 presents the advancements in contract enforcement and government actions aimed at enhancing legal systems across nine ASEAN countries in 2020. These countries are categorized into two groups: those with stronger contract enforcement (scores above the world average 56.3%) and those with weaker contract enforcement (scores below the world average).

Singapore leads with the highest enforcement score at 84.0%, followed by Thailand (68.2%), Malaysia (67.9%), and Vietnam (62.1%). These countries also exhibit lower enforcement durations and costs compared to other ASEAN nations. Conversely, Myanmar has the lowest enforcement score at 26.4%, followed by Cambodia (31.7%) and Laos (42%). Myanmar not only has the longest enforcement duration, at 1,160 days, but also incurs the third highest enforcement cost (51.5%) in ASEAN. These disparities in contract enforcement scores, along with variations in enforcement times and costs, impact the proportion of SME bank credit across ASEAN countries. Group 1 countries, with stronger contract enforcement, see SME bank credit levels exceeding 15% of GDP, while in Group 2 countries, SME bank credit falls below 9% of GDP.

In analysing the contract enforcement process, this study compares three areas: (i) a country's law tradition, (ii) the quality of legal professions (including the availability of lawyers, their independence, and levels of corruption), and (iii) government actions aimed at improving the legal system.

5.1. Law Tradition in ASEAN

Generally, the strength of a legal system is evaluated by using a country's law tradition, distinguishing between common law and civil law systems[3]. Common-law countries have stronger law enforcement compared to civil law countries (Troilo et al., 2019; Wang et al., 2023). The law traditions of ASEAN countries are detailed in column (5) of Table 1. ASEAN countries are applying diverse law traditions: common law (Brunei Darussalam, Malaysia, Myanmar, and Singapore), civil law (Cambodia, Indonesia, Laos, Thailand, and Vietnam), and hybrid law (the Philippines) (Shen, 2022).

When comparing contract enforcement indicators, common-law countries like Singapore and Malaysia, as well as civil law countries such as Thailand and Vietnam, demonstrate stronger contract enforcement scores. However, Myanmar, a common-law country, has a very weak contract enforcement score of 26.4%, which is lower than those of civil law countries like Indonesia, Laos, and Cambodia. Moreover, South Korea, a civil law country, has a strong contract enforcement score of 84.2%, higher than all ASEAN countries. This discrepancy suggests that law tradition alone does not fully explain the strength of law enforcement among ASEAN countries. Other factors, such as the quality of lawyers and judges and the effectiveness of court systems, must be considered to strengthen contract enforcement.

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[3] Common law is generally uncodified, with legislative decisions largely based on judicial rulings from similar precedent cases. In contrast, civil law is codified, and decisions are derived from established legal codes (Robbins Collection, 2010).

Table 5. Contract enforcement improvement and government actions in nine ASEAN countries (2020).

Group	Countries name	Contract enforcement			Traditions of law	Quality of legal professions			Controls for litigation		
		Score	Duration (Days)	Cost (% of claims)		Lawyers per 100,000 people	Democracy index	Corruption index	Fixed time	Fixed cost	Electronic filing system
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	Singapore	84.0	182	25.8	Common law	105	6.0	99.1	Yes	No	Yes
	Thailand	68.2	420	16.9	Civil law	121	6.0	35.2	Yes	Yes	No
	Malaysia	67.9	425	37.9	Common law	56	7.2	60.5	Yes	No	Yes
	Vietnam	62.1	400	29.0	Civil law	16	2.9	41.4	Yes	No	No
2	Indonesia	48.2	403	70.3	Civil law	17	6.3	36.7	No	No	No
	Philippines	46.0	962	31.0	Hybrid law	73	6.6	33.3	No	No	No
	Laos	42.0	828	31.6	Civil law	5	2.1	14.8	N/A	Yes	No
	Cambodia	31.7	483	103.4	Civil law	11	3.1	10.5	N/A	N/A	N/A
	Myanmar	26.4	1160	51.5	Common law	90	3.0	27.1	No	No	No

Source: Contract enforcement scores from the World Bank's Doing business survey 2021 dataset,, Democracy indices from Economist intelligence unit 2023 dataset, Corruption index from World governance indicators 2022 dataset, number of lawyers and controls for litigation from the Websites of individual countries' bar associations and prior literature cited in the text.

5.2. Qualities of Lawyers and Judges

Despite the importance of lawyers and judges in enhancing contract enforcement, evaluating their quality can be challenging. To address this issue, this study compares the number of lawyers, their independence, and corruption levels among ASEAN countries as proxies for the quality of legal professionals. Quach and McGinty (2019) suggest that increasing the number of judges, lawyers, and law firms reduces both litigation time and costs, thereby enhancing contract enforcement. The International Commission of Jurists (2013) emphasizes that all legal professionals must be independent and free from any interference to maintain their integrity and uphold their profession. Corruption is identified as a major challenge to the independence of individual lawyers and overall legal profession. It is a key indicator of institutional quality and can also reflect the quality of legal professionals. Furthermore, studies by Langlais and Obidzinski (2017); Wang et al. (2023) and Arsad (2023) conclude that a country's level of democracy influences legal enforcement. The independence of legal professions can be impacted by a country's democracy, which encompasses the freedom and rights of citizens. Therefore, the democracy index can be useful in assessing the independence of lawyers and judges as their quality control.

The number of lawyers, democracy index, and corruption control index are shown in columns (6) to (8) in Table 5. Except for Vietnam, all countries in the group (1) have many lawyers and higher democracy and corruption control indices. In contrast, two or all these indicators are weak in the group (2) countries. Among the group (1) countries, Vietnam has a low number of lawyers and democracy score, but it maintains a higher level of corruption control. In the group (2) countries, Myanmar and the Philippines have large lawyer populations, 90 and 73 lawyers per 100,000 people, respectively, but both countries exhibit low levels of corruption control. These facts indicate that while lawyers are crucial for strengthening contract enforcement, their effectiveness is diminished in environments with high corruption and low professional independence. Therefore, corruption issues need to be addressed to improve the quality of legal professions and consequently, to enhance contract enforcement.

5.3. Government Measures for Improving the Legal System

Government efforts are crucial for enhancing the legal system. This study compares measures to reduce the time and cost of contract enforcement among ASEAN countries, as shown in columns (9) to (11) in Table 5. To control high contract enforcement costs, both ASEAN and non-ASEAN countries have set restrictions on litigation and lawyer fees. Additionally, some countries have implemented fixed schedules for each litigation process to speed up proceedings. To improve legal efficiency and prevent corruption, some countries use electronic filing or e-court systems. For example, Korea's electronic case filing system, launched in 2010, allows for electronic document submission, registration, service notification, and access to court documents. This system has resulted in a short resolution time of 290 days and a cost of 12.7% of the claim value, the lowest globally (World Bank, 2020). Korea also applies a fixed legal fee policy to control the legal cost (Davies & Andrew, 2022).

In the ASEAN region, Singapore introduced an electronic filing system in 2014 (World Bank, 2020) and sets maximum processing times in courts (DLA Piper, 2024). Malaysia began legal system reforms in 2009, implementing a case management system (CMS) and a court recording system within the E-court system. This system reduces overall processing time for activities such as case preparation and trials (Mohamed, 2015). The electronic filing system allows plaintiffs to complete filings online. Additionally, Malaysia has set restricted court working days and maximum time allowances for defendants to respond to lawsuits, further reducing litigation duration (Koo, Lim, & Partners, 2020).

Despite lacking an electronic system, Thailand has effectively restricted both the cost and duration of litigation. According to Ayudhaya (2023) Thailand controls litigation costs by capping legal fees as a percentage of the claim amount at each stage of the legal process. For example, court filing fees must be 2% of claims or not more than Thai Baht 200,000. To address lengthy litigation processes, regulations outline specific timeframes for each stage of proceedings in the Court of Justice, depending on the case type and court level. These policies enable Thailand to maintain strong law enforcement, with enforcement costs at 16.9% of claims, the lowest among ASEAN countries.

In Vietnam, efforts to improve the legal system have been ongoing since 1979, focusing on increasing both the quantity and quality of lawyers (Institute of Developing Economies (IDE), 2002). According to Choung, Truong, and Vu (2023) ethical and professional standards in the legal profession promote transparency in client communication, including discussions about potential legal service costs. Although the number of lawyers in Vietnam is not notable compared to Thailand, and Malaysia, Quach and McGinty (2019) conclude that increasing the number of judges, lawyers, and law firms reduces both litigation time and costs, thereby improving contract enforcement in Vietnam. Additionally, Vietnam sets fixed timeframes for the litigation process to control enforcement duration. Despite lacking an electronic filing system, these measures have contributed to Vietnam maintaining a strong contract enforcement score.

While countries with stronger contract enforcement scores employ either electronic filing systems, control policies, or both to promote legal efficiency, almost all countries with weaker law enforcement lack such infrastructure or measures. For instance, despite Laos having a fixed legal fee policy, other supporting factors like democracy scores and corruption control remain very low, similar to Myanmar and Cambodia. According to the Asian Development Bank's report (Asian Development Bank, 2015) with the technical assistance of the

Asian Development Bank, Myanmar began legal reform in 2015 and improved aspects of the legal infrastructure, including the existence of laws and the skills and knowledge of legal professionals. However, there is no information on further improvements to this project. Despite Myanmar's adoption of the English common law system, the current legal system rarely utilizes standard components such as written judgments and reliance on precedent. Additionally, corruption within the legal system remains a significant issue in Myanmar. The Philippines has implemented an e-court system since 2008, which has reduced case durations, but it primarily targets crime cases (Aniceto, Orbeta, Vicente, Paqueo, & Siddiqi, 2021). Expanding this service to cover commercial cases could be beneficial.

Although the effectiveness of electronic filing or e-court systems in reducing time and cost of contract enforcement, implementing such systems is costly. Thus, the countries with weak contract enforcement should consider following the examples of Thailand and Vietnam by controlling legal costs or processing times for commercial litigations. Additionally, controlling corruption is crucial for enhancing the quality of legal professions and the effectiveness of the legal system. In summary, electronic filing systems, control policies for legal costs and processing times for business disputes, and addressing corruption are more important than a country's legal tradition or the quantity of legal professionals in enhancing contract enforcement for business activities.

6. Conclusion

This study examines the role of contract enforcement in SMEs' access to bank credit using regression analyses and explores ways to enhance the contract enforcement mechanism through a comparative study among ASEAN countries. By employing OLS regression, 2SLS regression, and paired-sample T-tests, the study firstly investigates the bank financing capabilities of approximately 12,000 firms across eight ASEAN countries from 2009 to 2019 in relation to the countries' contract enforcement practices. This study differentiates itself from other research by specifically examining the effect of each component of contract enforcement (duration and cost of enforcing contracts) on SME financing. Additionally, the study analyses the contract enforcement process and identifies potential measures to improve contract enforcement.

The results reveal a significant positive relationship between contract enforcement and SMEs' access to bank credit. Moreover, the findings show that the time and cost involved in enforcing contracts have a significant negative impact on SMEs' access to bank credit. Therefore, SMEs in countries with stronger contract enforcement have more opportunities to acquire bank loans compared to those in countries with weaker contract enforcement. Efficient contract enforcement, characterized by shorter time frames and lower costs, enhances SMEs' access to bank credit. Additionally, the results indicate that banks in ASEAN are more inclined to provide loans to older and larger firms.

The results clearly demonstrate the importance of contract enforcement, including its time and cost components, in facilitating SMEs' bank credit. Shorter enforcement durations and lower costs help banks reduce the incidence of bad loans and recover debts more quickly. Consequently, banks can reinvest the recovered funds into new credit creation, thereby improving their overall performance. Under the inefficient contract enforcement mechanism, banks are more likely to charge higher interest rates and demand large amounts of collateral to mitigate default risks. As a result, banks' risk prevention causes to increase SMEs' financing cost or reduce their financial viability and consequently, has a negative impact on a firm's performance. Hence, inefficient contract enforcement has adverse effects on both SMEs and banks. Conversely, improving contract enforcement will help SMEs secure more affordable financing and contribute to the better performance of banks. Since banks tend to prefer older and larger firms for credit creation, smaller and younger firms suffer more from the impacts of inefficient contract enforcement. Therefore, SME support policies should focus more on smaller and younger firms, such as micro and start-up businesses, to promote their access to bank credit.

In the ASEAN region, half of the countries exhibit weak contract enforcement characterized by long processing time and high costs. Notably, Myanmar and Cambodia have very low enforcement scores, at 26.4% and 31.7%, respectively. Myanmar faces the longest enforcement duration at 1160 days, while Cambodia bears the highest enforcement cost at 103.4% of the total claim among ASEAN countries. Consequently, SMEs' access to bank credit is significantly lower in these countries compared to those with stronger contract enforcement scores. To support SME financing and bank credit creation, these countries must improve their legal systems to reduce time consumption and cost for contract enforcement. On the other hand, Thailand, Malaysia, and Vietnam have strong contract enforcement and a significant portion of SMEs' bank loans to GDP. These countries have focused on improving contract enforcement and the legal system. However, the contract enforcement mechanisms of these countries still need to be promoted to catch up with those of other Asian countries, like Korea and Singapore.

In comparing the measures on the improvement of contract enforcement, the analysis finds that a country's legal tradition does not impact the effectiveness of its contract enforcement. Implementing electronic filing systems in the legal process can reduce the time and costs associated with contract enforcement. Similarly, setting fixed or maximum litigation fees and designing specific timeframes for each legal process can also decrease the time and cost of contract enforcement. Consequently, these policies improve a country's contract enforcement. Vietnam and Thailand have adopted these policies in their legal processes. While the use of

electronic filing systems also promotes contract enforcement efficiency, it is costly and requires time to adapt to the system. Therefore, low-income countries like Myanmar and Cambodia should consider implementing policies to limit the time and cost of enforcing contracts. An efficient contract enforcement system will bring benefits not only to SMEs and banks but also other business activities.

In summary, this study highlights the significant role of contract enforcement in SME financing among ASEAN countries. Additionally, the study provides suggestions for improving contract enforcement mechanisms. Due to limited data, the study applies the number of bank loans instead of loan to asset ratio of individual firms in measuring access to bank credit. To provide more insightful information, further research is required to examine the timely variation of the capital structure of SMEs by the changes in the degree of a country's contract enforcement.

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