JOURNAL OF SECURITY AND SUSTAINABILITY ISSUES
ISSN 2029-7017 print/ISSN 2029-7025 online
2019 September Volume 9 Number 1
http://doi.org/10.9770/jssi.2019.9.1(23)

Scopus®

TOWARDS CRISES PREVENTION: FACTORS AFFECTING LENDING BEHAVIOUR

Gholamreza Zandi[1], Muhammad Haseeb[2], Joko Rizie Widokarti[3], Umair Ahmed[4], Thitinan Chankoson[4] *

[1]Universiti Kuala Lumpur Business School, Malaysia
[2]Taylors Business School (TBS), Taylors University Lakeside Campus, 1 Jalan Taylors Subnag Jaya, Malaysia
[3]Faculty of Economics, Universitas Terbuka, Indonesia
[4]Arab Open University Bahrain, Kingdom of Bahrain
[4]Faculty of Business Administration for Society, Srinakharinwirot University, Bangkok, Thailand

E-mails: [1]Zandi@unikl.edu.my, [2]muhammad.haseeb@taylors.edu.my, [3]jokorw@ecampus.ut.ac.id, [4]umairahm@gmail.com, [5]tchankoson@gmail.com (corresponding author)*

Received 11 January 2019; accepted 24 June 2019; published 30 September 2019

Abstract. The purpose of this study is to examine the behavior of bank lending in ASEAN economies. For this purpose, macroeconomic and bank related factors are identified from existing literature, defining the lending behavior. Data is collected from official sources like web pages, company's annual report and online databases. A sample of five banking firm from four ASEAN economies is collected over 2011-2017 with annual observations. Regression analysis indicates the fact that both macroeconomic factors (GDP growth, inflation) are playing their significant role in defining the lending behavior of bank as measured through net loans and unused commitments. From bank related variables, liquidity ratio, risk, return on assets and equity are found to be significant determinant for bank lending. it is highly suggested that credit managers in banking firms, and related departments should use these findings as documentary evidence for the future decision making. Additionally, these findings are also useful facts for country administration, dealing with the macroeconomic factors and their direct influence on bank lending. However, various limitations are also observed which can be addressed in upcoming research studies. Sample size is limited to five banking firms from each state with seven years of time period. At second, specific macroeconomic and bank related measures are used which can be expanded in coming studies.

Keywords: lending behaviour; GDP growth; inflation; return on assets; return on equity; risk

Reference to this paper should be made as follows: Zandi, G.; Haseeb, M.; Widokarti, J.Z; Ahmed, U.; Thitinan Chankoson, T. 2019. Towards crises prevention: factors affecting lending behaviour, *Journal of Security and Sustainability Issues* 9(1): 309-320. http://doi.org/10.9770/jssi.2019.9.1(23)

JEL Classifications: F30, F43, P24

1. Introduction and Background

For the economic growth and financial well-being, role of banking sector is very much significant. Transmission of monetary polices are directed linked to the banks because of their crucial role. Overall effect of various policies defined by the government are directly or indirectly defined by the lending behavior (Barajas, Chami, Ebeke, & Oeking, 2018; Ciccarelli, Maddaloni, & Peydró, 2015; Eze, 2018; Fengyang, 2018). Recent economic and financial crisis in the world economy defines the situation that banking sector can lead the major financial markets into financial uneven situations (Sornette, 2017; Tvaronavičienė et al., 2018; Hussain, Grabara, Razimi, & Sharif, 2019). For promoting the economic growth, it is observed that major banking firms in the world economy has injected significant amount of loans and commercial funds (Webb & Martin, 2017; Zhang, Cai, Dickinson, & Kutan, 2016; Hsiao et al, 2017; Iyede et al, 2018). In this regard, role of bank lending behavior plays a major role. For banking sector regulators, sustaining financial stability in banking sector is very much imperative. Basel committee on banking supervision or BCBS has defined various policies and technical proce-

dures to cover the banking firms from financial uneven shocks. Banking regulations like Basel accord I, II, and III indicates the fact that there should be sufficient amount of capital which can secure the banks from future abnormal situation. Meanwhile, lending behavior of the banks indicates the way banking firms are reacting in the economy through set of variables.

Bank lending indicates the ability of the banks to provide credit facility to various creditors in the market. In this regard, credit growth provides a comprehensive view for the firm's capacity to provide loan in the market place. This study has empirically examined the lending behavior of banking firms in ASEAN economies through both bank specific variables and regional economic indicators. Overall format this research is as follows: section two describe literature context. Section three covers description of the variables. Section four explains sample and methods. Section five discusses results and key findings. Last section indicates conclusion and future recommendations.

2. Literature Review

Numerous studies have explored the lending behavior of banking firms, both in emerged and developing economies. For instance, (Kim & Sohn, 2017) have used the data for the commercial banks working in the region of United States to examine whether the capital of the bank affect the lending behavior with the level of liquidity. They have found the fact that increase in credit growth is observed through banking capital amount. Meanwhile, there exists a positive association between the liquidity position of the banks and lending attitude. Their findings suggested the fact that capital of the bank put a significant and positive impact on lending when large banking firms keep higher liquid assets. Vo (2018) sheds the light on the lending behavior of banking firms, working in Vietnam which is known an emerging market. It is observed that most of the emerging economies are getting more economic growth through lending facilities from the banks. Considering a sample of banking firms in Vietnam, he has found that bank related factors are significantly associated to the lending behavior. Meanwhile it is expressed that market structure has also a significant impact on bank lending. Author also explains that targeted economy in his study is facing higher amount of nonperforming loans.

Alper, Binici, Demiralp, Kara, and ÖZLÜ (2018) indicates that reserve requirements in emerging economies provide them smooth credit facilities, however, concept of transmission is yet to be examined. For this purpose, they have used the bank level data to study the behavior of bank lending with the interaction of reserves. They have identified a new insight for the decline in liquidity and more loan facility due to excessive reserves in banks. Besides, authors have indicated the idea of "quantitative tightening" with the help of reserve requirements which can affect the liquidity position of banks. Therefore, liquidity position of the banks have their direct influence on lending behavior. Xie, Zhang, and Song (2019) used the branch level data for the national bank of China to explore the relationship between bank lending and competition among the banking firms. It is observed that inter banking competition is directly associated with the amount of large loans and their maturity. Their findings suggest that to get the competitive advantage in the banking industry, employees increase the volume of loan through creating longer behavior with the borrowers.

Louhichi and Boujelbene (2017) compare the financing/lending behavior in both Islamic and conventional banking firms. They have found that during the time of financial crisis, capital reserve through Tier 1 plays its role as buffer against loss of bank. While both conventional and Islamic banking firms explains different financing behavior. It is suggested that Islamic banking firms needs regulatory framework due to some special structure of funding. Hyun and Uddin (2016) explains that due to significant growth of loans, the idea of loan growth is bigger in size, comparatively to loan contraction as substantial loan redistribution present in financial market of Bangladesh. Additionally, heterogeneity in lending of the bank exists, based on the type of ownership. Fatouh, Markose, and Giansante (2019) consider the idea of quantitative easing as core measure of bank lending in UK banking industry. They have applied agent based computational economics model indicating that there exists significant association between quantitative easing and level of lending in UK. In addition authors like (Behr, Norden, & Noth, 2013; Ge, et al, 2018; George & Georgios, 2017; Guirguis, 2018; Włodarczyk et al., 2019) explore the financial constraints for private business firms and behavior of bank lending. Some other

authors also show their significant interest towards the bank lending & country factors (Barrell & Nahhas, 2019), local and global bank lending (Vause & von Peter, 2011), learning through lending by banks (Botsch & Vanasco, 2019; Cohen, 1983; Darmouni & Sutherland, 2018; Jones, 2007; Koford & Tschoegl, 1999; Malekipirbazari & Aksakalli, 2015; Modarres, Ibrahim, Louie, & Paisley, 2018), quality of capital, bank lending and financial crisis (Cowling, Marlow, & Liu, 2019; Illes, Lombardi, & Mizen, 2015; Košak, Li, Lončarski, & Marinč, 2015; Puddu & Waelchli, 2015), crowding out, political interference and bank lending (Kumar, 2019; Gyebi et al, 2013; Handa, 2018; Chang'ach, 2018).

In the literature context, the relationship between bank lending behavior and financial crisis is also explored in range of studies. For instance, (Košak et al., 2015; Abdullah et al., 2019) have indicates that bank lending activity during the time of global financial crisis is highly related to the quality of the bank capital. Whereas, bank capital under the title of Tier 1 was very crucial towards the bank lending during the time of financial crisis. However, in case of developing countries there is a positive influence of bank capital under Tier 1 has a positive link with bank lending during crisis period. Meanwhile some other studies have also explored this relationship (Bernanke, 1983; Charumilind, Kali, & Wiwattanakantang, 2006; Ivashina & Scharfstein, 2010; Kapan & Minoiu, 2013). To the best of author's study, this research is providing its contribution among initial works to study the lending behavior under bank specific and regional economic indicators (Table 1). The above-mentioned studies have targeted developed and emerging economies, but little attention towards ASEAN members

Table 1. Description of Variables

Variable Name	Definition	Official measurement	Reference
Net Loans and Unused commitments (Growth)	Indicates the growth of overall loans in the banking sector, along with those loan commitments which are not used by banks	Annual growth rate of net loans+ unused commitments	(Kim & Sohn, 2017)
Growth of Net Loans	Indicates the growth of overall loans in the banking sector,	Annual growth rate of net loans	(Cucinelli, 2015)
GDPG	Indicates growth rate of annual gross domestic product	Annual GDP (% of growth)	(Chudik, Mohaddes, Pesaran, & Raissi, 2018)
INF.	Indicates gradual increase in prices of goods and services	Annual consumer price index	(Nyoni, 2019)
BANKSIZE	Shows overall assets of the bank in a time	Measured through log of total assets	(Laeven, Ratnovski, & Tong, 2016)
LIQUDITRATIO	Defines the firm's ability to meet its short-term liabilities through current assets	Measured through current assets/current liabilities	(Alper et al., 2018)
RISK	Level of uncertainty in the business	Measured through level of provision for credit risk	(Vo, 2018)
ROA	Indicates the firm's ability to generate revenue through its assets	Net income after tax/total assets	(Gitman, Juchau, & Flanagan, 2015; Kamran et al., 2016)
ROE	Shows the firm's capacity to generate revenue through its common stock equity	Net income after tax/total common stock equity	(Abraham, Harris, & Auerbach, 2017)

3. Sample and Research Methodology

Present study is based on quantitative research. For this purpose, sample of selected banking firms is collected from four ASEAN economies; Brunei Malaysia, Indonesia and Thailand. Five banking firms from each region are selected over a period of 2011 to 2017 with annual observation of maximum 35. After finalizing the sample firms, data is collected from official sources of the banks, web portals, and annual reports for bank specific indicators. Data for regional economic factors like GDP and Inflation is collected from World Bank database known as world development indicator. To analyze the lending behavior of banks, robust regression method is applied, considering net loans and unused commitments and net loans as lending dimensions.

4. Results and Discussion

Table 2 reflects the effect of both economic indicators and bank-based factors, affecting the lending behavior in Brunei. Model 1 considers both bank-based and macroeconomic indicator under the title of gross domestic product as percentage of growth, and inflation in the economy through consumer price index to check the lending behavior. It is observed that gross domestic product has its significantly positive impact on banking lending in Brunei, explaining the fact that more growth of domestic product is leading towards more bank lending through growth of net loans plus unused commitments is observed. This effect is significant at 1 percent. While effect of inflation as measured through CPI indicates a negatively significant influence on growth of net loans & unused commitments in Brunei. It means that higher inflation is leading towards lowering the bank lending because of discoursing the through more cost of interest for borrowings. The factor of bank size as measured through total assets shows a positive influence on lending through coefficient of 6.64 and standard error of .914. It explains that increasing in the size for the banking sector in Brunei has its significant and positive influence. Through liquid ratio, effect of bank lending is negative but insignificant, showing the fact that liquidity position for the banks in Brunei has no influence on growth of net loans with unused commitments. The factor of risk indicates a negative and significant influence on bank lending with the coefficient of -.224, significant at 1 percent chance of error. It means that more risk in banking industry is negatively affecting the lending for the banks.

Model two considers the growth of net loans & unused commitments only for the macroeconomic indicators; GDP and inflation. It is observed that both factors have their significant influence on loan increasing GDP has its significant and positive influence with the coefficient of 8.626 while inflation has a significant but negative influence on growth of loans. From bank related factors, only the effect of risk and ROE is found to be significant for the firms working in Brunei. The effect of higher risk indicates lower growth of the loans and unused commitments, but ROE indicates increasing trend and direct influence on loans growth. Model four considers the effect of growth of net loans and their growth. It is found that inflation has a significant and negative impact of -.130 on loan amount. The rest of the indicators are found to be insignificant for the growth of net loans. Under model five, both macroeconomic indicators are observed for the examining the behavior of bank lending. Effect of inflation is -.152 with the standard error of .0515, significant at 5 percent. Through bank size under model six of growth of net loans, significant and positive impact of 9.15 is observed. It means that more growth of the bank in size leading to an increasing trend in bank lending. Factor of risk also indicates its significant and negative influence on net growth of loans for the banking firms of Brunei.

Table 3 shows the behavior of bank lending for Malaysian firms. Effect of macro factor like GDP growth has shown coefficient of .402, significant at 5 percent. It means that more growth to GDP in Malaysian economy pushing a direct impact on bank lending with the increase in economic and financial activities. Through Inflation, effect for the growth of loans with unused commitment is significantly negative. It means that more inflation in Malaysian economy can adversely affect the bank lending facility due to more cost of borrowing. Besides, effect of return on equity is 7.781, indicating more profitable business operations by the banks and return on common stock is leading towards more growth of loans and unused commitments. Model two under table 2 considers only macroeconomic determinant of credit facility. Both factors have shown their significantly positive (negative) impact on bank loan. The factor of risk under model 3 indicates highly significant and negative influence on bank lending. Growth of only net loans as outcome factor is observed under model 4-6. Model four reflects that only the effect of liquid ratio and risk is significant for the growth of net loans for the banking firms of Malaysia. Under model five, effect of GDPG is significantly positive for bank lending. Under model six, effect of risk is significantly positive, means that more risk in bank is leading towards more growth of net loans in Malaysia. Lending behavior of banking firms in Malaysia is presented in Table 3.

Table 2. Lending behavior of banking firms in Brunei

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1: Growth of Net loans & UU Commit.	Model 2: Growth of Net loans & UU Commit	Model 3: Growth of Net loans & UU Commit	Model 4: Growth of Net loans	Model 5: Growth of Net loans	Model 6: Growth of Net loans
GDPG	8.037***	-8.626**		-0.0426	-0.0343	
	(.611)	(3.861)		(0.0246)	(0.0217)	
INF	-1.122**	4.419***		-0.130*	-0.152**	
	(.514)	(1.158)		(0.0626)	(0.0515)	
BANKSIZE	4.64***		0.000136	-1.26e-07		9.15**
	(0.914)		(0.000122)	(7.03e-07)		(4.507)
LIQUIDRATIO	-0.454		-0.406	-0.00644		0.00153
	(1.499)		(1.402)	(0.00798)		(0.00860)
RISK	-0.224***		-1.024**	-2.113		-2.480***
	(.0442)		(.6624)	(1.472)		(.581)
ROA	-2.312		-1.005	-0.0244		-0.0333
	(3.408)		(3.207)	(0.0182)		(0.0197)
ROE	-9.163		8.985**	-0.0520		-0.0707
	(8.058)		(4.250)	(0.0429)		(0.0506)
Constant	66.56	28.24**	30.44	0.817**	0.406***	0.761**
	(49.52)	(9.827)	(46.05)	(0.264)	(0.0553)	(0.283)
Observations	35	35	32	35	32	35
R-squared	0.484	0.270	0.308	0.645	0.439	0.368

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 3. Lending behavior of banking firms in Malaysia

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1: Growth of Net loans & UU Commit.	Model 2: Growth of Net loans & UU Commit	Model 3: Growth of Net loans & UU Commit	Model 4: Growth of Net loans	Model 5: Growth of Net loans	Model 6: Growth of Net loans
GDPG	0.402***	0.847***		-0.0687	0.0587*	
	(0.114)	(.0832)		(0.0492)	(0.0317)	
INF	-3.075**	-0.990***		0.0706	0.0460	
	(1.960)	(.120)		(0.0922)	(0.0657)	
BANKSIZE	-1.43e-05		-7.37e-06	4.72e-07		1.42e-08
	(3.37e-05)		(2.66e-05)	(7.84e-07)		(6.73e-07)
LIQUIDRATIO	-1.105		-1.170	-0.194***		-0.0426
	(2.130)		(1.861)	(0.0496)		(0.0472)
RISK	-52.25		-43.60**	0.345***		0.533***
	(31.87)		(15.01)	(0.0422)		(0.059)
ROA	-0.0772		-0.380	-0.00840		-0.0188
	(1.365)		(1.144)	(0.0318)		(0.0290)
ROE	7.781**		-7.321**	-0.0672		-0.0193
	(3.387)		(2.765)	(0.0788)		(0.0701)
Constant	57.36**	8.012	47.92***	0.859*	0.734***	0.701**
	(19.84)	(11.90)	(11.03)	(0.462)	(0.206)	(0.280)
Observations	30	32	35	32	33	32
R-squared	0.538	0.434	0.518	0.316	0.202	0.154

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

For banking firms of Indonesia, findings are presented under table 4. Both GDP growth and inflation are found to significant determinant of bank lending in Indonesia with coefficient of 17.03 and -16.78 respectively. While bank size is found to be positive determinant of credit growth and unused commitments. Meanwhile liquidity ratio has also presented its significant and negative influence of 8.57 on growth of net loans and unused commitment. Meanwhile effect of risk is -5.24, indicating the fact that more lending is adversely affected by the factor of risk in banking firms of Indonesia. Model two presents significantly positive (negative). Under model 3, effect of bank size is significantly positive with the coefficient of .00078. It means that more increase in bank size leading to more growth of bank loans along unused commitments. Effect on growth of net loans through selected explanatory variable is presented under model 4-6. It is found that effect of inflation and ROA is significantly positive with the coefficients of .0469 and .00472 respectively. Model five indicates that both macroeconomic factors have their significant impact of bank lending. Model six indicates only bank related factors of credit growth. Effect of bank size and liquid ratio is significantly positive and negative.

Table 4. Lending behavior of banking firms in Indonesia

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1: Growth of Net loans & UU Commit.	Model 2: Growth of Net loans & UU Commit	Model 3: Growth of Net loans & UU Commit	Model 4: Growth of Net loans	Model 5: Growth of Net loans	Model 6: Growth of Net loans
GDPG	17.03**	7.468**		-0.118	0.137*	
	(8.85)	(3.02)		(0.0974)	(0.0728)	
INF	-16.78***	-4.140***		-0.0469**	-0.0326*	
	(2.670)	(0.472)		(0.0188)	(0.0177)	
BANKSIZE	0.00124***		0.000788**	1.17e-06		2.59e-06**
	(0.000157)		(0.000286)	(1.10e-06)		(1.14e-06)
LIQUIDRATIO	-8.57***		-13.38	-0.0679		-0.138*
	(2.018)		(15.70)	(0.0634)		(0.0628)
RISK	-5.24**		-43.73	0.390		0.285
	(2.28)		(65.96)	(0.234)		(0.264)
ROA	-0.0106		0.393	0.00472*		0.00305
	(0.361)		(0.712)	(0.00254)		(0.00285)
ROE	7.155*		-2.311	-0.000256		0.0276
	(3.326)		(6.199)	(0.0234)		(0.0248)
Constant	39.24	111.4	23.70	0.604	0.950**	0.298**
	(68.26)	(140.6)	(30.26)	(0.480)	(0.411)	(0.121)
Observations	31	32	35	32	35	32
R-squared	0.931	0.382	0.628	0.724	0.336	0.518

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Effect of bank related and macroeconomic factors on bank lending for banking firms of Thailand is presented under table 5. Model 1 shows that effect of economic growth on bank lending through growth of net loans and unused commitment is found to be positively significant with the coefficient of .959 and standard error of .026. While model two shows that both GDP and inflation in Thailand has their significant influence in defining bank lending. GDPG has positive impact while inflation has negative impact. Model observes that from the bank-specific factors, effect of liquid ratio and risk is significantly positive and negative. For the bank lending measure through growth of net loans, model four indicates that GPDG has a direct impact on bank lending in Thailand. While coefficient of risk is 1.364, explaining the fact that more loan growth is observed with increasing amount of risk in Thai banking industry. Model five under table 4 shows the effect of GPD and inflation for the net loan's growth, which is significant at 1 percent. Model six demonstrates that from both bank related fac-

tors and macroeconomic indicators, bank size has its significant and positive influence on loan growth. While return on equity is also found to be significant determinant with the coefficient of .114 and standard error of .0251 respectively.

Table 5. Lending behavior of banking firms in Thailand

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1: Growth of Net loans & UU Commit.	Model 2: Growth of Net loans & UU Commit	Model 3: Growth of Net loans & UU Commit	Model 4: Growth of Net loans	Model 5: Growth of Net loans	Model 6: Growth of Net loans
GDPG	0.959***	0.819*		0.0632*	0.3481***	
	(.026)	(.430)		(0.0281)	(0.0244)	
INF	1.178	-1.447***		0.0773	-0.529***	
	(4.770)	(0.353)		(0.0442)	(0.0328)	
BANKSIZE	1.26e-05		1.42e-05	-3.65e-08		2.61e-08**
	(1.04e-05)		(8.94e-06)	(9.65e-08)		(1.18e-07)
LIQUIDRATIO	4.857		2.266**	0.147		-0.0232
	(11.47)		(.954)	(0.106)		(0.119)
RISK	12.92		-3.88**	1.364***		-0.397
	(120.4)		(1.69)	(.116)		(1.215)
ROA	0.503		0.645	-0.00981		-0.000453
	(1.405)		(1.242)	(0.0130)		(0.0165)
ROE	-1.019		-0.438	-0.0371		0.114***
	(2.458)		(1.896)	(0.0228)		(0.0251)
Constant	-18.60	7.171	-4.302	-0.395	0.161	0.545
	(44.01)	(12.78)	(25.50)	(0.408)	(0.125)	(0.338)
Observations	32	35	32	35	32	31
R-squared	0.346	0.138	0.332	0.574	0.289	0.113

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

To examine the lending behavior in overall ASEAN regions, pooled regression findings are presented under table 6.

Table 6. Lending behavior of banking firms overall

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1: Growth of Net loans & UU Commit.	Model 2: Growth of Net loans & UU Commit	Model 3: Growth of Net loans & UU Commit	Model 4: Growth of Net loans	Model 5: Growth of Net loans	Model 6: Growth of Net loans
GDPG	0.644**	1.668***		0.843***	0.00184	
	(.321)	(.130)		(0.145)	(0.0133)	
INF	-2.885***	-2.228**		-0.161***	-0.277**	
	(.986)	(.854)		(0.0122)	(0.102)	
BANKSIZE	1.18e-05		8.46e-06	1.59e-08		-3.19e-09
	(1.10e-05)		(1.08e-05)	(6.76e-08)		(6.61e-08)
LIQUIDRATIO	0.956		0.512	0.00144		-0.00187
	(1.163)		(1.061)	(0.00714)		(0.00651)
RISK	-8.868*		-3.925**	0.343		0.375*

	(4.91)		(1.760)	(0.214)		(0.213)
ROA	-0.0710		-0.0789	-0.00284		0.277***
	(0.393)		(0.389)	(0.00241)		(0.0239)
ROE	-0.731		-0.705	-0.00437		-0.00383
	(0.636)		(0.604)	(0.00390)		(0.00370)
Constant	13.16	20.67**	21.20**	0.350***	0.389***	0.413***
	(13.83)	(9.299)	(9.992)	(0.0849)	(0.0579)	(0.0612)
Observations	136	137	132	130	136	132
R-squared	0.201	0.239	0.355	0.111	0.398	0.541

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Model 1 to model 3 indicates growth of net loans and unused commitments, while model 4-6 indicates growth of net loans as main dependent variables of the study. Through GDP coefficient is .644 indicates that increasing growth of GDP in overall ASEAN region is positively affecting the bank lending. While impact of inflation is -2.885, significant at 1 percent, meaning the fact that higher inflationary environment has its significant and adverse impact on lending behavior of banks. From bank specific factors, risk is found to be significant determinant of bank lending. Model two shows that both macroeconomic factors are significantly affecting the net loans and unused commitments. Model three indicates that in ASEAN region, risk is found to be significant determinant when the effect of bank related factors (only) will be examined for the growth of net loans and unused commitments. In addition, for the net loan's growth, inflation and GDP are significant determinants with coefficients of -.161 and .843 respectively. While model five shows that only inflation has its significant influence on growth of net loans. Model six reflect positive influence of return on assts on bank lending, significant at 1 percent.

5. Conclusions and Recommendations

This study has examined the behavior of bank lending in the region of ASEAN. For this purpose, banking firms from four states (Brunei, Malaysia, Indonesia, and Thailand) have been selected for the secondary data analysis. From macroeconomic factors like GDPG and inflation are selected to determine the growth of credit in banking industry. From bank-specific factors, effect of bank size, liquidity ratio, risk, return on assets and return on equity are observed. Findings through regression analysis indicates that when the effect of all variables are observed for the growth of net loans and unused commitments, GDP, inflation, bank size and risk are significant determinants in Brunei. This assumption is true when only the effect of macro factors is observed for bank loans and unused commitments. When individual effect of bank related factors are observed, significant determinants are risk and ROE. While growth of net loans are found to be significantly affected by inflation only. From bank specific factors, effect of bank size, and risk is significant for the banking firms in Thailand. For banking firms in Malaysia, GDP and inflation are found to be significant indicator of bank lending measured as net loans and unused commitments. From bank related factors alone, effect of risk and ROE is significantly negative. For combine effect of bank related and macroeconomic factors on net loans growth, liquidity ratio and risk are significant determinant. While GDP is found to be positive indicator of bank lending. However, again the individual effect of bank related factors, risk has its significant influence on net loans in Thailand. From the context of Indonesia, GDP, inflation, bank size, liquidity ratio, risk and return on equity are significant determinant of bank lending (net loans and unused commitments). For the banking firms in Thailand, significant determinant is GDP growth when combing effect is examined. While separate effect of GDP and inflation is found to be significantly positive. Separate effect of bank related factors on not loans and unused commitments, effect of liquidity ratio and risk is significant.

With aggregated analysis of bank lending behavior, it is observed that for net loans and unused commitments in ASEAN region, GDP inflation, and risk have their significant impact. While GDP and inflation have their significant impact, when they are examining except with bank related factors. Meanwhile effect of risk from bank related factors for net loans and unused commitments is significant. For growth of net loans, effect of GDP, inflation risk and ROA is found to be significant at 5 percent in overall ASEAN region. Based on these

findings, it is highly suggested that credit managers in banking firms, and related departments should use these findings as documentary evidence for the future decision making. Additionally, these findings are also useful facts for country administration, dealing with the macroeconomic factors and their direct influence on bank lending. However, various limitations are also observed which can be addressed in upcoming research studies. Sample size is limited to five banking firms from each state with seven years of time period. At second, specific macroeconomic and bank related measures are used which can be expanded in coming studies.

References

Abdullah, S., Samdin, Z., Teng, P., & Heng, B. (2019). The impact of knowledge, attitude, consumption values and destination image on tourists' responsible environmental behaviour intention. Management Science Letters, 9(9), 1461-1476. http://dx.doi.org/10.5267/j.msl.2019.5.005

Abraham, R., Harris, J., & Auerbach, J. (2017). Earnings yield as a predictor of return on assets, return on equity, economic value added and the equity multiplier. Modern Economy, 8(1): 10-24. Available at: https://doi.org/10.4236/me.2017.81002

Alper, K., Binici, M., Demiralp, S., Kara, H., & ÖZLÜ, P. (2018). Reserve requirements, liquidity risk, and bank lending behavior. Journal of Money, Credit and Banking, 50(4), 817-827. Available at: https://doi.org/10.1111/jmcb.12475

Barajas, A., Chami, R., Ebeke, C., & Oeking, A. (2018). What's different about monetary policy transmission in remittance-dependent countries? Journal of Development Economics, 134, 272-288. Available at: https://doi.org/10.1016/j.jdeveco.2018.05.013

Barrell, R., & Nahhas, A. (2019). The role of lender country factors in cross border bank lending. International Review of Financial Analysis (in press). https://doi.org/10.1016/j.irfa.2019.01.008

Behr, P., Norden, L., & Noth, F. (2013). Financial constraints of private firms and bank lending behavior. Journal of Banking & Finance, 37(9), 3472-3485. Available at: https://doi.org/10.1016/j.jbankfin.2013.05.018

Bernanke, B. S. (1983). Non-monetary effects of the financial crisis in the propagation of the Great Depression: National Bureau of Economic Research Cambridge, Mass., USA.

Botsch, M., & Vanasco, V. (2019). Learning by lending. Journal of Financial Intermediation, 37, 1-14.

Charumilind, C., Kali, R., & Wiwattanakantang, Y. (2006). Connected lending: Thailand before the financial crisis. The Journal of Business, 79(1), 181-218. Available at: https://doi.org/10.1086/497410

Chudik, A., Mohaddes, K., Pesaran, M. H., & Raissi, M. (2018). Rising Public Debt to GDP Can Harm Economic Growth. Economic Letter, 13(3), 1-4.

Ciccarelli, M., Maddaloni, A., & Peydró, J.-L. (2015). Trusting the bankers: A new look at the credit channel of monetary policy. Review of Economic Dynamics, 18(4), 979-1002. Available at: https://doi.org/10.1016/j.red.2014.11.002

Cohen, M. A. (1983). Learning by doing: World Bank lending for urban development 1972-82.

Chang'ach, J. K. (2018). An historical trajectory of the economic transformation of the southern Keiyo community in Kenya. Global Journal of Social Sciences Studies, 4(2), 52-69.

Cowling, M., Marlow, S., & Liu, W. (2019). Gender and bank lending after the global financial crisis: are women entrepreneurs' safer bets? Small Business Economics, 1-28.

Cucinelli, D. (2015). The impact of non-performing loans on bank lending behavior: evidence from the Italian banking sector. Eurasian Journal of Business and Economics, 8(16), 59-71. Available at: https://doi.org/10.17015/ejbe.2015.016.04

Darmouni, O., & Sutherland, A. (2018). Learning about Competitors: Evidence from SME Lending. Available at SSRN.

Eze, P. (2018). An Analytical Model of Demand for Hospital Inpatient Care. International Journal of Social Sciences Perspectives, 2(1), 80-86.

Fatouh, M., Markose, S., & Giansante, S. (2019). The impact of quantitative easing on UK bank lending: Why banks do not lend to businesses? Journal of Economic Behavior & Organization.

Fengyang, W. U. (2018). An Analysis of Chinas Poverty Research Based on CiteSpace. Journal of Social Economics Research, 5(2), 75-84.

Gitman, L. J., Juchau, R., & Flanagan, J. (2015). Principles of managerial finance: Pearson Higher Education AU.

Ge, J., Wang, X., Wu, P., Huang, T., & Jiang, H. (2018). Establishing Shipping Service Complex Standard Framework: Experience from Shanghai. International Journal of Management and Sustainability, 7(4), 215-224.

George, M., & Georgios, M. M. (2017). The Expansion of the Contemporary Economic Role of Crete throughout its Extensive History. International Journal of Economics, Business and Management Studies, 4(1), 17-37.

Guirguis, R. (2018). Should We Let them Play? Three Key Benefits of Play to Improve Early Childhood Programs. International Journal of Education and Practice, 6(1), 43-49.

Gyebi, F., Owusu, M., & Etroo, J. K. (2013). Foreign Direct Investment and Gross Domestic Product in Ghana. International Journal of Academic Research in Accounting, Finance and Management Services, 3(3), 256-65.

Hsiao, C. M., Zhang, W. F., Chiu, C. C., Huang, J. C., & Huang, Y. L. (2017). The Enterprise Risk Management of Foreign Exchange Exposures: Evidence from Taiwanese Hospitality Industry. Asian Journal of Economics and Empirical Research, 4(1), 32-48.

Hussain, H.I., Grabara, J., Razimi, M.S.A., & Sharif, S.P. (2019) Sustainability of Leverage Levels in Response to Shocks in Equity Prices: Islamic Finance as a Socially Responsible Investment, Sustainability, 11, 3260.

Hyun, J., & Uddin, A. (2016). Heterogeneous lending behaviors and gross loan flows in developing economies. Economic Modelling, 55, 359-372. Available at: https://doi.org/10.1016/j.econmod.2016.02.024

Illes, A., Lombardi, M. J., & Mizen, P. (2015). Why did bank lending rates diverge from policy rates after the financial crisis? https://www.nottingham.ac.uk/cfcm/documents/papers/cfcm-2015-05.pdf

Ivashina, V., & Scharfstein, D. (2010). Bank lending during the financial crisis of 2008. Journal of Financial Economics, 97(3), 319-338. Available at: https://doi.org/10.1016/j.jfineco.2009.12.001

Iyede, R. O., Onah, F. E., & Agu, C. C. (2018). A Survey of Studies on Money Demand and Inflation amidst Banking Crisis. Journal of Accounting, Business and Finance Research, 2(2), 34-54.

Jones, P. W. (2007). World Bank financing of education: Lending, learning and development: Routledge. ISBN 9780415404761

Kamran, H. W., Chaudhry, N., Murtaza, M. M., Zafar, N., Yousaf, A., & Nazish, H. (2016). Financial Market Development, Bank Risk with Key Indicators and Their Impact on Financial Performance: A Study from Pakistan. American Journal of Industrial and Business Management, 6(03), 373. Available at: https://doi.org/10.4236/ajibm.2016.63033

Kapan, M. T., & Minoiu, C. (2013). Balance sheet strength and bank lending during the global financial crisis: International Monetary Fund. https://pdfs.semanticscholar.org/368c/e59241b490438e0264bc1c08a7591e568c9e.pdf

Kim, D., & Sohn, W. (2017). The effect of bank capital on lending: Does liquidity matter? Journal of Banking & Finance, 77, 95-107. Available at: https://doi.org/10.1016/j.jbankfin.2017.01.011

Koford, K., & Tschoegl, A. E. (1999). Problems of bank lending in Bulgaria: Information asymmetry and institutional learning. MOCT-MOST: Economic Policy in Transitional Economies, 9(2), 123-152.

Košak, M., Li, S., Lončarski, I., & Marinč, M. (2015). Quality of bank capital and bank lending behavior during the global financial crisis. International review of financial analysis, 37, 168-183. Available at: https://doi.org/10.1016/j.irfa.2014.11.008

Kumar, N. (2019). Political interference and crowding out in bank lending. Journal of Financial Intermediation (in press).

Laeven, L., Ratnovski, L., & Tong, H. (2016). Bank size, capital, and systemic risk: Some international evidence. Journal of Banking & Finance, 69, S25-S34. Available at: https://doi.org/10.1016/j.jbankfin.2015.06.022

Louhichi, A., & Boujelbene, Y. (2017). Bank capital, lending and financing behaviour of dual banking systems. Journal of Multinational Financial Management, 41, 61-79. Available at: https://doi.org/10.1016/j.mulfin.2017.05.009

Malekipirbazari, M., & Aksakalli, V. (2015). Risk assessment in social lending via random forests. Expert Systems with Applications, 42(10), 4621-4631. Available at: https://doi.org/10.1016/j.eswa.2015.02.001

Modarres, C., Ibrahim, M., Louie, M., & Paisley, J. (2018). Towards Explainable Deep Learning for Credit Lending: A Case Study. arXiv preprint arXiv:1811.06471

Nyoni, T. (2019). Forecasting Australian CPI using ARIMA models (in press) https://www.sciencedirect.com/journal/journal-of-financial-

intermediation/articles-in-press

Puddu, S., & Waelchli, A. (2015). TARP Effect on Bank Lending Behaviour: Evidence from the Last Financial Crisis: IRENE Working Paper.

Sornette, D. (2017). Why stock markets crash: critical events in complex financial systems (Vol. 49): Princeton University Press.

Sabri, M., Razak, N., & Wijekoon, R. (2019). The mediation effect of intention in the pro-environmental workplace (PEW) behavior of Malaysian public employees. Management Science Letters, 9(10), 1567-1576. http://dx.doi.org/10.5267/j.msl.2019.5.029

Tvaronavičienė, M., Masood, O., Javaria, K. 2018. Preconditions of the Eurozone economic security: how to overcome liquidity risk and cost inefficiency in leading banks of UK and Germany. Polish journal of management studies, 18(1), 418-427. https://doi.org/10.17512/pjms.2018.18.1.31

Vause, N., & von Peter, G. (2011). Euro area sovereign crisis drives global financial markets. BIS Quarterly Review, December, 1-14.

Vo, X. V. (2018). Bank lending behavior in emerging markets. Finance Research Letters, 27, 129-134. Available at: https://doi.org/10.1016/j.frl.2018.02.011

Webb, I., & Martin, G. (2017). The effect of banking and insurance on the growth of capital and output. http://www.sbs.gob.pe/Portals/0/jer/EDIPUB_VOLUMEN2NB/1Grace.pdf

Xie, L., Zhang, M., & Song, X. (2019). Does internal competition shape bank lending behavior? Evidence from a Chinese bank. Pacific-Basin Finance Journal. https://doi.org/10.1016/j.pacfin.2019.03.011

Włodarczyk, B., Szturo, M., Ionescu, G.H., Firoiu, D., Pirvu, R., Badircea, R. (2018). The impact of credit availability on small and medium companies. Entrepreneurship and Sustainability Issues, 5(3), 565-580. https://doi.org/10.9770/jesi.2018.5.3(12)

Zhang, D., Cai, J., Dickinson, D. G., & Kutan, A. M. (2016). Non-performing loans, moral hazard and regulation of the Chinese commercial banking system. Journal of Banking & Finance, 63, 48-60. Available at: https://doi.org/10.1016/j.jbankfin.2015.11.010

Associate Professor Dr. GholamReza ZANDI is currently Head of Research and Innovation Section at Business School, Universiti Kuala Lumpur, Malaysia. He earned his Ph.D. degree from Universiti Sains Malaysia (USM) in 2007 specializing in Financial Accounting and Corporate Governance. He also carries Professional Qualification as Certified Practicing Accountant (CPA) from Australia. His research articles have been published in many national and international reputed journals. He has been awarded a few Medals from International Research, Invention and Innovation for his research studies. Dr. GholamReza has more than 20 years' experience of teaching to both undergraduate and postgraduate level and received a few International and national research grants. His research interests are in the areas of Corporate Governance, Financial Reporting & Disclosure, Accounting Education Behavioral and Islamic Finance & Banking.
ORCID: orcid.org/0000-000109517-8474

Dr. Muhammad HASEEB is currently serving as a senior lecturer in Taylors Business School (TBS), Taylors University Malaysia. He have 15 years working expreince in industry and academia. He is recipient of several best papers award, national and international scholarships and research grants. He is editor, reviewer and author of several Scopus and ISI indexed journals. His research interest are Environemtnal and natural resurce economics, energy economics, International trade and sustainable development.
ORCID ID: orcid.org/0000-0002-0307-6751

Dr. Umair AHMED is Assistant Professor at Business Studies department at Arab Open University Bahrain. He is a seasoned scholar with notable publications in top ranked journals. Dr. Ahmed is passionate to collaborate with scholars with interest in different fields and domains. He has actively worked with researchers and scholars from UK, Malaysia, Indonesia, Vietnam, Pakistan, Bahrain, Bangladesh and Saudi Arabia. Dr. Ahmed believes that multidisciplinary and interdisciplinary research is a need of time and with complex and closely integrated global system at present, such research attempts can only help us to present notable implications for practitioners and organizational scientists.
ORCID: orcid.org/0000-0001-9130-5210

Thitinan CHANKOSON is an Assistant Professor of Business Administration at the Faculty of Business Administration for Society, Srinakharinwirot University, Thailand and an Academic and Research Counselor for Thai Studies Center of Yulin Normal University, China. He holds a Doctor of Science in International Service Business Management from North Eastern University, Thailand. His research interests are service business management, aviation management, international business management, supply chain management, tourism and hospitality industry.
ORCID ID: orcid.org/0000-0003-1855-678X