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# **FINANCIAL OPENNESS AND ECONOMIC GROWTH**

**By**  
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**UUM**  

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**Universiti Utara Malaysia**

**Research Paper Submitted to**  
**School of Economics, Finance and Banking,**  
**Universiti Utara Malaysia,**  
**in Partial Fulfillment of the Requirement for the**  
**Master of Science (MSc) Finance**



**Pusat Pengajian Ekonomi,  
Kewangan dan Perbankan**

SCHOOL OF ECONOMICS, FINANCE, AND BANKING

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## ABSTRACT

In last few decades, financial openness has been widely noted around the world. The process of financial openness such as banking liberalization, trade openness, capital account liberalization has closely brought together the financial market and institutions around the world. The objective of the study is to examine the effect of financial openness on economic growth for the five major economies in ASEAN (Thailand, Singapore, Indonesia, Malaysia and Philippines) between 2000 and 2014. The balanced panel data from 2000 to 2014 for these countries has been employed in this study. The variables used are independent variable (financial openness), dependent variable (GDP) and four control variables (inflation, official exchange rate, trade and government expense). Using the Panel OLS, this study discovers a positive relationship between financial openness and economic growth. In addition, the official exchange rate and government expense are also found to influence the economic growth positively. However, the level of trade and inflation do not significantly related to economic development. For the robustness model, the FDI net inflow is employed as the independent variable to measure the financial openness. Although, different measurement of financial openness (FDI net inflows) has been used to replace the KAOPEN index, these three variables (financial openness, official exchange rate and government expense) remain to be the factors that affect the level of economic growth. In addition, supporting the earlier conclusion, inflation and trade are not influencing the economic growth. Thus, the findings provided by this study would assist the policy makers in the five ASEAN countries in assessing and strengthening the strategies on the financial openness for the benefits of the countries.

Keywords: Financial Openness, Liberalization, Economic Growth, ASEAN, FDI net inflows, Inflation.

## ABSTRAK

Dalam beberapa dekad yang lalu, keterbukaan kewangan telah banyak diperhatikan di seluruh dunia. Proses keterbukaan kewangan seperti liberalisasi perbankan, keterbukaan perdagangan, liberalisasi modal modal telah menyatukan pasaran kewangan dan institusi kewangan di seluruh dunia. Objektif kajian ini adalah untuk mengkaji kesan keterbukaan kewangan terhadap pertumbuhan ekonomi bagi lima ekonomi utama di ASEAN (Thailand, Singapura, Indonesia, Malaysia dan Filipina) antara 2000 dan 2014. Data panel seimbang dari tahun 2000 hingga 2014 untuk negara-negara ini telah digunakan dalam kajian ini. Pembolehubah yang digunakan adalah pembolehubah bebas (keterbukaan kewangan), pembolehubah bersandar (KDNK) dan empat pemboleh ubah kawalan (inflasi, kadar pertukaran rasmi, perbelanjaan perdagangan dan kerajaan). Menggunakan Panel OLS, kajian ini menemui hubungan positif antara keterbukaan kewangan dan pertumbuhan ekonomi. Di samping itu, kadar pertukaran rasmi dan perbelanjaan kerajaan juga didapati mempengaruhi pertumbuhan ekonomi secara positif. Bagaimanapun, tahap perdagangan dan inflasi tidak banyak berkaitan dengan pembangunan ekonomi. Bagi model ketahanan, aliran masuk bersih FDI digunakan sebagai pembolehubah bebas untuk mengukur keterbukaan kewangan. Walau bagaimanapun, ukuran keterbukaan kewangan (aliran masuk bersih FDI) telah digunakan untuk menggantikan indeks KAOPEN, ketiga pembolehubah ini (keterbukaan kewangan, kadar pertukaran rasmi dan perbelanjaan kerajaan) kekal sebagai faktor yang mempengaruhi tahap pertumbuhan ekonomi. Di samping itu, menyokong kesimpulan terdahulu, inflasi dan perdagangan tidak mempengaruhi pertumbuhan ekonomi. Oleh itu, penemuan yang disediakan oleh kajian ini akan membantu pembuat dasar di lima negara ASEAN dalam menilai dan mengukuhkan strategi mengenai keterbukaan kewangan untuk faedah negara-negara.

Kata kunci: Keterbukaan Kewangan, Liberalisasi, Pertumbuhan Ekonomi, ASEAN, aliran masuk bersih FDI, Inflasi.

## ACKNOWLEDGEMENT

**In the name of ALLAH, most Gracious, the most Merciful  
All the praises and thanks to ALLAH**

I would like to extend my deepest gratitude and thanks to Allah the Almighty for giving me excellent health, energy, and capability to complete my thesis.

First in place, I would like to thank to my very friendly lecturer, Dr. Sharmilawati binti Sabki for her great wisdom and expertise, endless support, useful suggestions, guidance and enthusiasm throughout the duration of my knowledge acquisition study in thesis work. Your professional and supervising skills will always be remembered by me and I have really enjoyed.

To my Mum and Dad, Normah binti Ahmad and Johari bin Ariffin for their constant prayers, continuous love and support since the day I was born, thanks for raising and teaching me so well and may ALLAH bless you two. This credit also goes to the rest of my family.

I also wish to thank my friends especially Hidayah, Syuhada, Nurnina, Hamizah and other lecturers in Universiti Utara Malaysia. Without their endless assistance, attention, care, encouragement, and sacrifice, it would have been hard for me to complete this study.

Finally, I wish to thank all individuals and institutions that have directly or indirectly contributed toward the completion of my Master dissertation.

Many thanks to these good people and may ALLAH bless you all.



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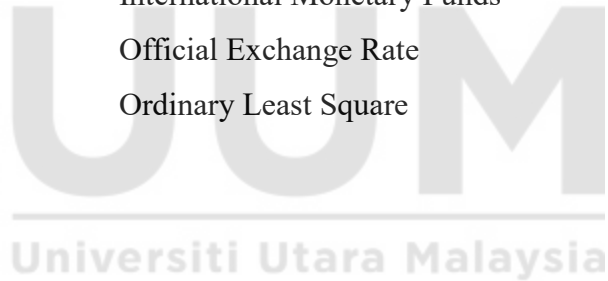
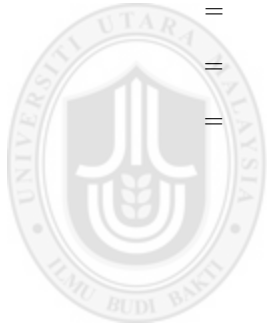
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## LIST OF ABBREVIATIONS

<b>Abbreviation</b>		<b>Meaning</b>
<b>Terms</b>	<b>=</b>	<b>Definition</b>
AEC	=	ASEAN Economic Blueprint
ASEAN	=	Association of Southeast Asian National
CPI	=	Inflation
FDI	=	Foreign Direct Investment
FO	=	Financial Openness
GDP	=	Gross Domestic Product
GOVEXP	=	Government Expense
IMF	=	International Monetary Funds
OER	=	Official Exchange Rate
OLS	=	Ordinary Least Square



# CHAPTER ONE

## INTRODUCTION

### 1.0 BACKGROUND OF THE STUDY

In last few decades, financial openness has been widely noted around the world. Financial openness is defined as the free flows of cross-country investments which are derived from the liberalized government regulation. According to Baele, Ferrando and Hordahl (2004), Adam (2011) and Patnaik and Shah (2012), the process of financial openness has closely brought together the financial market and institutions around the world. Previous studies have identified few approaches in which the financial system is being opened to other countries. Among them are financial liberalization, capital account deregulation, relaxation in the cross-country savings and investment and deregulation in current account transactions (Bekaert, Harvey & Lundblad, 2005; Chinn & Ito, 2008; Lane & Milesi-Ferretti, 2007; Quinn, Schindler & Toyoda, 2011).

Benefits of financial openness to the financial system have been highlighted by the previous literature. According to Georgios (2013), Tekin (2012) and Ayanwale (2007), financial openness will increase the risk sharing and risk diversification activities that would reduce the overall investment risk of the investors. Next, the financial liberalization also increases the efficiency in capital allocation which could improve the functions of the financial market. As noted by McKinnon (1973) and Shaw (1973), financial liberalization enhances the investment and savings activities by reducing the government controls. As the financial constrains being eliminated by the process of

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## APPENDIX A

### Construction of *KAOPEN*

*KAOPEN* is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (*AREAER*). Up to 1996, we assign dummy variables for the four major categories on the restrictions on external accounts.

These variables are:

- variable indicating the presence of multiple exchange rates (*k1*);
- variable indicating restrictions on current account transactions (*k2*);
- variable indicating restrictions on capital account transactions (*k3*); and
- variable indicating the requirement of the surrender of export proceeds (*k4*).

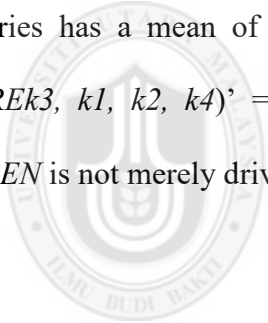
In 1996, the classification method in the *AREAER* changed and these four categories were disaggregated further, in an effort to better reflect the complexity of capital controls policies.<sup>7</sup> For the extension of the four binary classifications after 1996, we followed Mody and Murshid (2005).

In order to focus on the effect of *financial openness* – rather than *controls* – we reverse the values of these binary variables, such that the variables are equal to one when the capital account restrictions are non-existent. Moreover, for controls on capital transitions

( $k_3$ ), we use the share of a five-year window (encompassing year  $t$  and the preceding four years) that capital controls were not in effect ( $SHAREk_3$ ).

$$SHAREk_{3,t} = \left( \frac{k_{3,t} + k_{3,t-1} + k_{3,t-2} + k_{3,t-3} + k_{3,t-4}}{5} \right)$$

Then we construct an index for capital “openness” ( $KAOPEN_t$ ), which is the first standardized principal component of  $k_1t, k_2t, SHAREk_3, k_4t$ . This index takes on higher values the more open the country is to cross-border capital transactions. By construction, the series has a mean of zero. The first eigenvector for  $KAOPEN$  was found to be  $(SHAREk_3, k_1, k_2, k_4)' = (0.57, 0.25, 0.52, 0.58)'$ , indicating that the variability of  $KAOPEN$  is not merely driven by the  $SHAREk_3$  series.



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## APPENDIX B

. (9 vars, 75 obs pasted into editor)

```
. tsset code year
    panel variable : code, 1 to 5
    time variable : year, 2000 to 2014
```

```
. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp
```

Source	SS	df	MS	Number of obs	=	75
Model	28.284879	5	5.65697581	F( 5, 69)	=	596.39
Residual	.654492234	69	.009485395	Prob > F	=	0.0000
				R-squared	=	0.9774
				Adj R-squared	=	0.9757
Total	28.9393713	74	.391072585	Root MSE	=	.09739

Lngdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
x1fo	.0956732	.0146442	6.53	0.000	.0664589 .1248876
x2cpi	.016568	.005824	2.84	0.006	.0049494 .0281865
x3lnoer	.0344904	.0077103	4.47	0.000	.0191088 .049872
x4trade	-.0000488	.0002102	-0.23	0.817	-.0004682 .0003706
x5lngovexp	.9057597	.0195045	46.44	0.000	.8668493 .9446702
_cons	4.228388	.4571826	9.25	0.000	3.316334 5.140442

```
. vif
```

Variable	VIF	1/VIF
x4trade	4.90	0.203929
x3lnoer	4.39	0.227594
x1fo	2.48	0.403848
x2cpi	2.10	0.476257
x5lngovexp	1.26	0.793040
Mean VIF	3.03	

```
. xtreg lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp,fe
```

Fixed-effects (within) regression	Number of obs	=	75
Group variable (i): code	Number of groups	=	5
R-sq: within	= 0.9860	Obs per group: min	= 15
between	= 0.2755	avg	= 15.0
overall	= 0.0617	max	= 15
corr(u_i, Xb)	= -0.7189	F(5,65)	= 912.99
		Prob > F	= 0.0000

Lngdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
x1fo	.0629764	.0133059	4.73	0.000	.0364026 .0895501
x2cpi	.0067367	.0040983	1.64	0.105	-.0014482 .0149215
x3lnoer	-.2267257	.0854198	-2.65	0.010	-.3973208 -.0561306

x4trade		.0004592	.000436	1.05	0.296	-.0004115	.0013299
x5lngovexp		.9058611	.0186705	48.52	0.000	.8685735	.9431487
_cons		5.15058	.6895455	7.47	0.000	3.773462	6.527697
-----							
sigma_u		.96321649					
sigma_e		.06262532					
rho		.9957906 (fraction of variance due to u_i)					

F test that all u\_i= 0: F(4, 65) = 25.47 Prob > F = 0.0000

```
. ssc install xtserial
ssc install: "xtserial" not found at SSC, type -findit xtserial-
(To find all packages at SSC that start with x, type -ssc describe x-)
r(601);
```

```
. findit xtserial
```

```
. xttest3
```

Modified Wald test for groupwise heteroskedasticity  
in fixed effect regression model

H0:  $\sigma(i)^2 = \sigma^2$  for all i

chi2 (5) = 7.73  
Prob>chi2 = 0.1719

```
. xtserial lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp
```

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation

F( 1, 4) = 50.800  
Prob > F = 0.0020

```
. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp, robust cluster (code)
```

Regression with robust standard errors

Number of obs = 75  
F( 3, 4) = .  
Prob > F = .  
R-squared = 0.9774  
Root MSE = .09739

Number of clusters (code) = 5

lngdp	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
x1fo	.0956732	.0270526	3.54	0.024	.0205633 .1707832
x2cpi	.016568	.0108889	1.52	0.203	-.0136644 .0468004
x3lnoer	.0344904	.0150597	2.29	0.084	-.007322 .0763028
x4trade	-.0000488	.0001434	-0.34	0.751	-.000447 .0003495
x5lngovexp	.9057597	.0312753	28.96	0.000	.8189255 .9925939
_cons	4.228388	.7309021	5.79	0.004	2.199078 6.257698

## APPENDIX C

. (9 vars, 75 obs pasted into editor)

. tsset code year

panel variable : code, 1 to 5

time variable : year, 2000 to 2014

. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp

Source	SS	df	MS	Number of obs	=	75
Model	27.9811414	5	5.59622829	F( 5, 69)	=	402.97
Residual	.958229816	69	.013887389	Prob > F	=	0.0000
				R-squared	=	0.9669
				Adj R-squared	=	0.9645
Total	28.9393713	74	.391072585	Root MSE	=	.11784

Lngdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
x1fdinetin~s	.0113785	.0042167	2.70	0.009	.0029665 .0197905
x2cpi	.0258658	.0068487	3.78	0.000	.0122031 .0395286
x3lnoer	.0499759	.008722	5.73	0.000	.032576 .0673759
x4trade	-.000236	.0003154	0.75	0.457	-.0003932 .0008652
x5lngovexp	.8505671	.0229374	37.08	0.000	.8048082 .896326
_cons	5.398322	.5561256	9.71	0.000	4.288882 6.507762

. vif

Variable	VIF	1/VIF
x4trade	7.54	0.132656
x1fdinetin~s	4.74	0.211049
x3lnoer	3.84	0.260396
x2cpi	1.98	0.504238
x5lngovexp	1.19	0.839540
Mean VIF	3.86	

. xtreg lngdp x1fdinetinflows x2cpi x3lnoer x4trade x5lngovexp, fe

Fixed-effects (within) regression

Group variable (i): code

R-sq: within = 0.9825

between = 0.2452

overall = 0.0909

corr(u\_i, Xb) = -0.6766

Number of obs = 75

Number of groups = 5

Obs per group: min = 15

avg = 15.0

max = 15

F(5,65) = 731.73

Prob > F = 0.0000

Lngdp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
x1fdinetin~s	.0066394	.0028862	2.30	0.025	.0008753 .0124035
x2cpi	.0116489	.0044237	2.63	0.011	.0028141 .0204836

x3lnoer		-2160056	.0952038	-2.27	0.027	-4061406	-.0258705
x4trade		-.0000465	.0004749	-0.10	0.922	0009948	.0009019
x5lngovexp		.8758505	.020564	42.59	0.000	.8347814	.9169196
_cons		5.892604	.7635076	7.72	0.000	4.367774	7.417434
-----							
sigma_u		.89388548					
sigma_e		.06983212					
rho		.99393397 (fraction of variance due to u_i)					
-----							
F test that all u_i= 0:				F(4, 65) = 32.87		Prob > F = 0.0000	

```
. ssc install xtserial
ssc install: "xtserial" not found at SSC, type -findit xtserial-
(To find all packages at SSC that start with x, type -ssc describe x-)
r(601);
```

```
. findit xtserial
```

```
. xttest3
```

Modified Wald test for groupwise heteroskedasticity  
in fixed effect regression model

H0:  $\sigma(i)^2 = \sigma^2$  for all i

```
chi2(5) = 4.80
Prob>chi2 = 0.4404
```

```
. xtserial lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp
```

Wooldridge test for autocorrelation in panel data

```
H0: no first order autocorrelation
F( 1, 4) = 14.581
Prob > F = 0.0188
```

```
. regress lngdp x1fo x2cpi x3lnoer x4trade x5lngovexp, robust cluster (code)
```

Regression with robust standard errors

```
Number of obs = 75
F( 3, 4) = .
Prob > F = .
R-squared = 0.9669
Root MSE = .11784
```

Number of clusters (code) = 5

lngdp	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
x1fdinetin~s	.0113785	.0040602	2.80	0.049	.0001055 .0226514
x2cpi	.0258658	.0158425	1.63	0.178	-.0181201 .0698518
x3lnoer	.0499759	.0208621	2.40	0.075	-.0079466 .1078985
x4trade	.000236	.0004612	0.51	0.636	-.0010446 .00151655
x5lngovexp	.8505671	.0467468	18.20	0.000	.7207773 .9803569
_cons	5.398322	1.042492	5.18	0.007	2.503901 8.292743

## APPENDIX D

### Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
<b>GDP (USD billion)</b>	75	7630	91800	26000	19700
<b>FO (KAOPEN Index)</b>	75	-1.89	2.39	0.55	1.22
<b>CPI (%)</b>	75	-0.85	13.11	3.74	2.82
<b>OER (LCU/USD)</b>	75	1.25	11865.21	1926.91	3854.63
<b>Trade (%)</b>	75	45.51	441.60	166.71	119.25
<b>Govexp (USD billion)</b>	75	845	8690	2870	2050
<b>Valid N (list wise)</b>	75				

## APPENDIX E

Variable	Singapore	Malaysia	Indonesia	Thailand	Philippine
<b>GDP(USD billion)</b>	18300	19900	50100	25900	15700
<b>FO (KAOPEN Index)</b>	2.39	-0.33	0.77	-0.62	0.56
<b>CPI (%)</b>	2.05	2.25	7.47	2.58	4.35
<b>OER (LCU / USD)</b>	1.52	3.50	9545.18	36.39	47.94
<b>Trade (%)</b>	384.60	180.51	55.76	128.87	83.84
<b>Govexp (USD billion)</b>	18600	25200	44400	39300	15800

## APPENDIX F

	Y= LNGDP	X1 = FO	X2 = CPI	X3 = LNOER	X4 = Trade	X5 = LNGovexp
<b>Y=LNGDP</b>	1					
<b>X1 = FO</b>	-0.1432	1				
<b>X2 = CPI</b>	0.3236	0.0947	1			
<b>X3 = LNOER</b>	0.4905	-0.1378	0.6929	1		
<b>X4 = Trade</b>	-0.3336	0.5673	-0.4674	-0.7531	1	
<b>X5 = LNGovexp</b>	0.9464	-0.3260	0.1159	0.3047	-0.2830	1