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Effects of increasing foreign shareholding on competition in telecommunication industry

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ABSTRACT

In 2015, the ASEAN Economic Community (AEC) will force every member country to open her telecommunication sector and raise the rate of foreign shareholding in the sector to 70 percent. This study explores the effects of increasing foreign shareholding on competition in the telecommunication industry, mobile tariff and the price of internet service. The research uses information based on the World Economic Forum in 2012. The data are collected from 187 countries, but some countries have concealed the information. Therefore, the countries that can be analyzed cover 97 countries. The data are analyzed by Tobit model. The results of this study reveal that higher foreign shareholding will induce higher competition, and decrease the price of internet service.

Keywords: Telecommunications, foreign shareholding, oligopoly, mobile tariff, price of internet service

JEL Classification: L96, D43, L52

1. Introduction

Foreign shareholding is an important issue in Thailand because the country has a law stating,

"*Any juristic person with its share or capital held by foreigners not exceeding 49 percent and its shares or capital held by Thai people not less than 51 percent, is considered as a Thai juristic person, which is entitled to operate its business in the same manner as Thai person. On the other hand, any juristic person with its share or capital held by foreigners exceeding 49 percent and its shares or capital held by Thai people less than 51 percent, is considered as a foreign juristic person, which cannot operate its business in the same manner as Thai person. Foreigners' business is controlled by the Alien Business Act BE 1999.*"

In 2015, the ASEAN Economic Community (AEC) will force every member country to open her telecommunication sector and raise the rate of foreign shareholding in the sector to 70 percent. This study explores the effects of increasing foreign shareholding on competition in the telecommunication industry, mobile tariff and the price of internet service.

2. Literature Review

Foreign direct investment is crucial in boosting the economy of many coutries up. Sanithi Ratanasurang (2008) present the effects of foreign direct investment on economic growth in Asia. The model used in this study is in linear form, which consists of independent variables as follows: Foreign direct investment, domestic private investment and domestic employment. The dependent variable is gross domestic product. This study analyzed 8 countries including Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam. The data from 1990 to 2006 were used and estimated by panel data analysis with fixed effects model. In the case of Cambodia, Indonesia, Laos and the Philippines, it was found that the variable that affect gross domestic product is domestic private investment. For Malaysia, Thailand and Vietnam, it was found that the variables that affect gross domestic product are foreign direct investment, domestic private investment and real export value. In Singapore, it was found that the variables that affect gross domestic product is foreign direct investment, domestic private investment and domestic employment.

It is hypothesized that rasising the foreign shareholding may increase the foreign direct investment since foreign shareholders will be more influential in the companies and it leads to the stronger investor protection. This linkage between increasing foreign shareholding, investor protection and competition may be guided by the work of Amornmekin and Suriya (2013) which shows that the protection will increse the competition in the telecommunication sector.

3. Methodology and Model

The research uses information based on the World Economic Forum in 2012. The data are collected from 187 countries, but some countries have concealed the information. Therefore, the countries that can be analyzed cover 97 countries. The data are analyzed by Tobit model.

There are 3 models in this study as follows:

First Model : Competition = a1 + b1 *Foreign shareholders + b2 *Investor protection
+ b3 *Asia + b4 *Population
+ b5 *Venture capital availability + b6 *Number of firms
+ b7 *Tertiary education gross enrollment rate
+ b8 *Mobile network coverage

where : Competition = Competition index (ranges from 0 – 2)

Foreign shareholders = Proportion of foreign shareholding in the company (%)

Investor protection = Strength of investor protection (ranges from 0 – 10)

Asia = Dummy variable indicating being an Asian country

Population = Amount of population

Venture capital availability = Index of the amount of venture capital in the country (ranges from 0 – 5)

Number of firms = Number of entrepreneurs in the telecommunication industries

Tertiary education gross enrollment rate = Rate of enrollment in the universities

Mobile network coverage = Coverage of cellular network (percentage of population)

Second Model : Mobile tariff = a1 + b1*Foreign shareholders + b2*Investor protection
+ b3 *Asia + b4 *Population
+ b5 *venture capital availability
+ b6 *Number of firms
+ b7 *Tertiary education gross enrollment rate
+ b8 *Mobile network coverage

where : Mobile tariff = Price of mobile services (measured by PPP in U.S. dollars.)

Foreign shareholders = Proportion of foreign shareholding in the company (%)

Investor protection = Strength of investor protection (ranges from 0 – 10)

Asia = Dummy variable indicating being an Asian country

Population = Amount of population

Venture capital availability = Index of the amount of venture capital in the country (ranges from 0 – 5)

Number of firms = Number of entrepreneurs in the telecommunication industries

Tertiary education gross enrollment rate = Rate of enrollment in the universities

Mobile network coverage = Coverage of cellular network (percentage of population)

Third Model : Broadband tariff = a1 + b1 *Foreign shareholders
+ b2 *Investor protection + b3 *Asia
+ b4 *Population+ b5 *venture capital availability
+ b6 *Number of firms
+ b7 *Tertiary education gross enrollment rate
+ b8 *Mobile network coverage

where : Broadband tariff = Price of internet services (measured by PPP in U.S. dollars.)

Foreign shareholders = Proportion of foreign shareholding in the company (%)

Investor protection = Strength of investor protection (ranges from 0 – 10)

Asia = Dummy variable indicating being an Asian country

Population = Amount of population

Venture capital availability = Index of the amount of venture capital in the country (ranges from 0 – 5)

Number of firms = Number of entrepreneurs in the telecommunication industries

Tertiary education gross enrollment rate = Rate of enrollment in the universities

Mobile network coverage = Coverage of cellular network (percentage of population)

4. Results

The results consist of 3 parts. The first part presents factors that affect the level of competition in the telecommunication industry. The second reveals factors that affect the price of mobile services. The last part displays factors that affect the price of internet services. The results in all parts are analyzed by Tobit model.

In the first part, the results from Tobit with robust estimator show that the factors which are positively significant to competition in telecommunication industry are foreign shareholders, population and tertiary education gross enrollment rate. This means if foreign shareholders increase by 1%, competition in the telecommunication industry will also increase 0.0058299 points. In the same way, if population increases by 1 million people, the competition in the telecommunication industry will increase by 2.77×10^{-10} point. Finally, if the tertiary education gross enrollment rate increases by 1%, the competition in the telecommunication industry will increase 0.0059154 points (Table 1).

Table 1: Significant factors affecting the competition in telecommunication industry

Dependent Variables	Competition					
Variables	Coef.	Std. Err.	t	P>(t)	95% Conf. Interval	
Foreign shareholders	.0058299	.0020864	2.79	0.006	.0016861	.0099737
Population	2.77×10^{-10}	1.33e-10	2.09	0.040	1.33×10^{-11}	5.41e-10
Tertiary education gross enrollment rate	.0059154	.0014731	4.02	0.000	.0029897	.0088411
Con.	.9496904	.2204574	4.31	0.000	.5118429	1.387538
/sigma	.3902188	.0280963			.3344171	.4460206
Number of obs.			95			
F(3, 91)			-			
Prob > F			-			
Pseudo R2			0.2116			
Log pseudolikelihood			-45.399638			
Obs. summary			0 left-censored observations 95 uncensored observations 0 right-censored observations			

Source: Calculation using Stata 10.

In the second part, the results from Tobit with robust estimator show that factors which is negatively significant to the price of mobile service is the dummy variable indicating Asian countries. This means if the country is an Asian country, the price of mobile services will be lower than the other countries outside Asia by USD1.491667 measured by purchising power parity (PPP) (Table 2).

Table 2 : Significant factors affecting the price of mobile service

Dependent Variables	Price of mobile services (measured by PPP in U.S. dollars.)					
Variables	Coef.	Std. Err.	t	P>(t)	95% Conf. Interval	
Asia	-.1491667	0.421816	-3.54	0.001	-.2329078	-.0654255
Con.	.3991667	.0301465	13.24	0.000	.3393183	.459015
/sigma	.2129666	.0215378			.1702087	.2557245
Number of obs.			96			
F(1, 95)			12.51			
Prob > F			0.0006			
Pseudo R2			-0.7428			
Log pseudolikelihood			12.257413			
Obs. summary			0 left-censored observations 96 uncensored observations 0 right-censored observations			

Source: Calculation using Stata 10.

In the last part, the results display that factors which are negatively significant to the price of internet service are foreign shareholders, population, venture capital availability, tertiary education gross enrollment rate and mobile network coverage.

This means if foreign shareholders increase by 1%, the price of internet service will decrease by USD0.8332458 in PPP. Additionally, if population increases by 1 million people, the price of internet service will decrease by USD4.11×10^{-8}. For the venture capital availability, if the index of the amount of venture capital in the country increases by 1 point, the price of internet service will decrease by USD17.91892. Moreover, if the tertiary education gross enrollment rate increases by 1%, the price of internet service will decrease by USD0.7821792. Finally, if the mobile network coverage increases by 1%, the price of internet service will decrease by USD1.289878 dollars.

Overall from all parts, the increase of foreign shareholding will be increase the competition in telecommunication industry and decrease the price of internet service. Only the effect of the foreign shareholding on the price of mobile service is insignificant, but at least the relationship does not against the argument that it should have reduced the mobile tariff.

Table 3: Significant factors affecting the price of internet service

Dependent Variables	Price of internet services (measured by PPP in U.S. dollars.)					
Variables	Coef.	Std. Err.	t	P>(t)	95% Conf. Interval	
Foreign shareholders	-.8332458	.4658791	-1.79	0.077	-1.758938	.092446
Population	-4.11×10^{-8}	1.05e-08	-2.74	0.007	-7.09×10^{-8}	-1.13e-08
Venture capital availability	-17.91892	9.055452	-1.98	0.051	-35.91191	.0740681
Tertiary education gross enrollment rate	-.7821792	.2922179	-2.68	0.009	-1.36281	-.2015483
Mobile network coverage	-1.289878	.7409981	-1.74	0.085	-2.762225	.1824695
Con.	322.8597	101.9713	3.17	0.002	120.2449	525.4746
/sigma	63.77044	13.02523			37.88959	89.65128
Number of obs.			94			
F(5, 89)			4.07			
Prob > F			0.0023			
Pseudo R2			0.0379			
Log pseudolikelihood			-520.24178			
Obs. summary			0 left-censored observations 93 uncensored observations 1 right-censored observations at y3 >= 500			

Source: Calculation using Stata 10.

5. Conclusions

This study uses Tobit model to analyze the relationship between foreign shareholding and the competition in telecommunication industry as well as prices of mobile and internet services. It uses data from the Networked Readiness Index (NRI) of 97 countries in 2012.

The results show that foreign shareholding is a main factor that positively affects competition in the telecommunication industry. Moreover, the increase of foreign shareholding can negatively affect the price of internet service. However, the foreign shareholding don't affect the price of mobile service significantly.

Other factors that are significant to competition in the telecommunication industry are population and tertiary education gross enrollment rate. These factors affect competition in the telecommunication industry in a positive way. Another significant factor to the price of mobile service is being a country in Asia. When the country is an Asian country, the price of mobile service will be lower than the other countries outside the group.

Finally, factors which are negatively significant to the price of internet service are population, venture capital availability, tertiary education gross enrollment rate and mobile network coverage.

This study clarifies the findings in Amornmekin and Suriya (2013) such that not only the investor protection but also the increasing foreign shareholding that crate the competitive environment in the global telecommunication industry. The combination of the findings in both studies will construct the linkage between the foreign shareholding, the investor protection and the competition.

It is still unclear whether the increasing foreign shareholding creates stronger investor protection or vice versa. It may be hypothesized that the incrasing foreign shareholding may come first. Then the foreign shareholders ask for more investor protection from both the firm's policy and industrial policy. However, this hypothesis may be argued such that the investor protection depends on the public regulations offered by the government which may be uncontrollable to even foreign shareholders in the firms.

Thus, it may be interesting to extend the investigation about the causality of this relationship. It may be modelled by a more flexible technique such as the structural equation model (SEM) which can show the appropriate causalities among variables and analyze both direct and indirect effects in the multi-layer style (Figure 1). This gap of knowledge will be left for a further study.

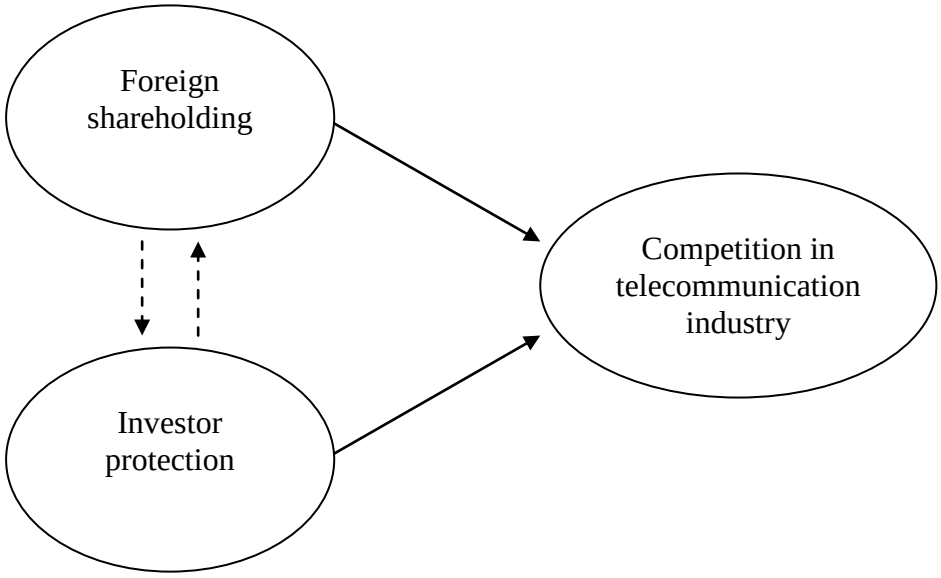

Figure 1: Relationship between foreign shareholding, investor protection and competition

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