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Does a Banking Crisis Reduce Foreign Direct Investment?

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DOES A BANKING CRISIS REDUCE FOREIGN DIRECT INVESTMENT?

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
Economics

by
Eunjeong Kim
May 2013

Accepted by:
Dr. Scott Baier, Committee Chair
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Dr. Michal Jerzmanowski

Abstract

With as much importance as Foreign Direct Investment, an enormous amount of study on the factors which might hamper Foreign Direct Investment has been done with a lot of research. Also, the impact of a crisis on FDI has been especially appealing due to the recent economic depression. However, the literature about the linkage between one of the crises, a banking crisis and FDI is sparse even though a banking crisis is highly correlated with the overall economy's damage. With data collected for 60 countries for the years 1990-2010, this paper examines the relationship between Foreign Direct Investment and a banking crisis in addition to the linkage between a banking crisis and domestic investment. The pooled ordinary least squares is used for the first empirical method. The lagged investment is done for robustness and the fixed effects is used to check a final robustness. The results indicate that banking crisis is highly correlated with domestic investment rate while the lagged value of banking crisis does not seem to have any significant impact. However, the results with fixed effects show that the lagged effect of banking crisis has a large impact on investment while the banking crisis variables turn out to be not correlated with investment. For FDI, both the banking crisis and the lagged value of banking crisis do not show any significance in all specifications. From a policy perspective, these results suggest that building up the strength of the banking sector is critical to protect domestic economies. Meanwhile it is not an important determinant to attract and host FDI.

Dedication

I dedicate this to my family and friends for their support and encouragement that you have provided me throughout this journey. There are three people I would like to thank individually: my parents, Sunkwan Kim and Kyongsuk Lee, and my best friend, Hwansoo Ahn. Without the three of you, I could not have accomplished my thesis.

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1. Introduction

Foreign Direct Investment plays a critical role in accelerating the economic growth of host countries. The vast majority of the world's developing countries eagerly seek FDI because it boosts economic growth by (1) augmenting domestic savings and investment, (2) helping transfer of technology from the home country, (3) boosting competition in the host domestic market, (4) increasing exports and earning foreign exchange, and (5) imparting several other types of positive externalities to the economy at large (Ram and Zhang(2002)). However, even with continuous attempts by developing countries to attract FDI, there have been some concerns that cause multinational corporations to hesitate when investing. There has been an enormous amount of study on the matter, but the relationship between FDI and a crisis has been appealing due to the recent economic depression.

A banking crisis is a financial crisis associated with banking activity. It happens when a large number of withdrawals occur at the same time from a financial institution. It can be detrimental to an overall economy since financial institutions become insolvent as a bank run progresses. Many times bank runs result in a recession so the link between FDI and banking crisis should be dealt with more often.

This paper examines the relationship between Foreign Direct Investment and a banking crisis in addition to the linkage between a banking crisis and domestic investment. The pooled ordinary least squares is used for the first empirical method. The lagged investment is done for robustness and the fixed effects is used to check a

final robustness. The results indicate that banking crisis is highly correlated with domestic investment rate while the lagged value of banking crisis does not seem to have any significant impact. However, the results with fixed effects show that the lagged effect of banking crisis has a large impact on investment while the banking crisis variables turn out to be not correlated with investment. For FDI, both the banking crisis and the lagged value of banking crisis do not show any significance in all specifications. From a policy perspective, these results suggest that building up the strength of the banking sector is critical to protect domestic economies meanwhile it is not an important determinant to attract and host FDI.

This paper consists of 5 sections. Section 1.1 provides an overview of banking crisis. Section 2 reviews the related literatures. Section 3 describes the data. Section 4 presents the empirical models and analysis methodology adopted and results. Section 5 summarizes the conclusion of the work and gives the possible discussion.

1.1 Banking Crises: An overview

A banking crisis is a financial crisis related to banking activity. It consists of three levels of crises; bank runs, bank panics and systemic banking crises. A bank run occurs when a huge number of customers withdraw their deposits under a belief that the financial institution is or might be insolvent. This belief triggered the momentum that boosts more people to withdraw their deposits, which cause further withdrawals. As more financial institutions are involved, it becomes a bank panic and a systemic banking crisis

when the majority of reserve banking system loses their capita.

As almost all of the bank's resources are depleted due to a banking crisis, the overall economy soon confronts a recession which in many cases causes much of a recession's damage. Reinhart and Rogoff (2009) described that banking crisis reduces output and employment sharply. Their sample shows that the cumulative decline in real asset prices decrease from max to min by about 35.5% and continues to do so for about six years following the impending banking crisis. The decline in equity prices is more noticeable with an average of 55.9%, but this fall is over a shorter period of time than that of the real estate prices. For the most part, unemployment rises over a five year period by about seven percentage points. Decreases in output per capita have an average magnitude of 9.3% while the declines in output last for about two years. In addition to this, whenever there is a banking crisis, real government debt also rises following that event. Due to increases in government spending and a decrease in revenues from taxes, in the three years following the banking crisis, government debt had increased by over 86%.

2. Literature Review

Mishkin(1999) stated that banks are the only source of lending for many businesses and play an important role in overcoming adverse selection and moral hazard problems in credit markets. Thus, whenever bank lending collapses, so will the economy. Barro (2001) reported that currency and banking crisis reduces economic growth by 3 % per year for the 1997-98 crises in five East Asian countries. Also Reinhart and Rogoff (2009) reported in their paper that banking crises are associated with substantial declines in output and employment. The unemployment rate raises an average of 7 percentage points over the down phase of the cycle, which lasts on average over four years. Output falls an average of over 9 percent, although the duration of the downturn is considerably shorter than for unemployment. (this part needs to be changed into my version)

The results described in Joyce and Nabar (2006) seem to be consistent with these negative impacts of banking. They have investigated the effect of external crises combined with banking crises on investment. Their results show that the external crises lower investment by 1.27 of a percentage of GDP in the short-term and 3.33 percentage points in the long-run. This impact takes place even when the impact of past growth and other standard determinants of investments are considered. They also find that banking crises lower the investment share of GDP by 1.1 percentage points in the short term and 2.89 percentage points in the long-run. This suggests that fragility in the banking sector can worsen the impact of an external sector crisis.

Due to the lack of research on the linkage between a banking crisis and Foreign Direct Investment, it is hard to find out if there is any relationship between them. However, since a financial crisis includes and is highly associated with banking panics as we can see from a lot of cases in the 19th and early 20th centuries, the papers about the relationship between a financial crisis and FDI are reviewed instead. In a lot of papers, it is demonstrated that FDI flows do not get affected much by financial crises. Lipsey(2001) derived the same results that inflows of direct investments have been more stable than portfolio or other forms of capital flows in response to economic crises. When focusing on the U.S. affiliates, they seemed to handle the crisis well by changing host-country sales to export sales. Besides, throughout the samples, these affiliates maintained relatively stable employment rate. Edward et al.(2000) specifically focuses on Mexico's case and argued that although there was an evidence of the aggregate withdrawal of liquid funds from Mexico at the time of the crisis of 1995, for technical reasons, this withdrawal does not seem to be associated with the FDI data per se. It is demonstrated that while owners' equity, which indicates approximately the stock of FDI, continued to grow in years following the crisis, there was a dip on the quantities of current assets of foreign-controlled affiliates, which reflects the liquid component of assets of these affiliates.

Edmund R. Thompson et al. (2000) explains the reasons of this phenomenon: the first reason why this can be explained is FDI by MNCs is relatively long-term unlike other forms of financial flows. For instance, some industries such as green-field production facilities require either more or less fixed investment. Secondly, it is hard to

stop investing for some networks like acquired factories and organically grown or purchased supply and distribution networks. It is mainly because it takes time to build them up and there will be a lot of sunk costs for them. Lastly, the authors argue that crises can attract more investment which might hold a stable investment level. There has been significant correlation found for European and U.S. MNCs between crisis-induced reform expectations and anticipations of the ASEAN region becoming a more attractive sales and production investment region. Their arguments seem pretty plausible and thus boost the assumption that FDI flows do not get affected much by crises compared to other forms of capital inflows.

3. Data

The data for 60 countries¹ for the years 1990-2010 is collected to provide a comprehensive evaluation of the linkage between a systemic banking crisis and investment especially Foreign Direct Investment in this paper. The dataset includes Foreign Direct Investment inflows, gross capital formation (formerly gross domestic investment), a banking crisis dummy variable, market capitalization, economic freedom and GDP per capita². To test the effect of the banking crisis which might persist beyond the first year, the lagged values of a banking crisis is created. In addition, the lagged investment variables are generated for robustness.

For the main dependent variable, the share of Foreign Direct Investment inflows in GDP is taken rather than FDI itself to adjust the level of FDI for the size of the country's economy. This action is taken for two reasons. Firstly, it is useful for a more direct comparison between countries. For instance, it seems unreasonable to compare the amount of FDI inflows in the US versus that of South Korea because of their dramatic differences in the size of their economies. Second, it is likely that a country's GDP is associated with the amount of FDI the country receives. To put it simply, a larger economy tends to have more chances for investment. Thus, this transformation will help to avoid the problem of endogeneity when taking the market size into account.

Data for FDI inflows is collected from UNCTAD, and the nominal GDP is from

¹ A complete list of countries is provided in Table 1

² A summary of the variables is provided in Table 2.

World DataBank. FDI inflows and outflows are made up of capital provided by an investor to a FDI enterprise. This transaction can either be made directly or indirectly. Firstly, included in FDI is equity capital. This is the foreign investor's purchase of shares in an enterprise other than that in their country of residency. The second thing is that reinvested earnings are also included in FDI. These reinvested earnings are composed of direct investor's shares of an enterprise in a country other than that of their residency. The last portion is the intra-company loans. These loans are short or long-term borrowing of funds/capital between direct investors and associated enterprises. Data on FDI are given on net bases. Net decreases in assets or net increases in credits are recorded as credits, while the opposite of such is recorded as a debit. Thus, a negative FDI flow (negative sign) indicates that at least one of its components are negative and is not offset by a positive amount in the other components. All of these factors are called reverse investment or disinvestment.

The second dependent variable is gross capital formation (formerly gross domestic investment) a share of GDP collected from World DataBank. Gross capital formation is made of additions to the fixed assets of the economy added to net changes in the level of inventories. Included in the fixed assets are land improvements, machinery, plant, equipment purchases, and commercial industrial buildings. Inventories on the other hand consist of the amount of goods held by corporations to meet temporary or unexpected changes in production, sales, and works in progress. According to the 1993 SNA, considered in the capital formation GDP are the net acquisitions of valuables (Gross Value of all resident producers plus product taxes minus subsidies not included in

value). This calculation is made without making deductions for depreciation of assets or for the use of natural resources.

The banking crisis database utilized in this paper comes from the paper, Systemic Banking Crises Database by Laeven and Valencica (2012). According to them, a banking crisis is regarded as systemic if (1) the banking system shows significant signs of bank distress, and (2) significant losses in the banking system has brought significant policy intervention. The year that meets both phenomena is considered as the first year of a systemic banking crisis. The end year is determined to be the year prior to at least two consecutive years of positive real credit and real GDP growth. They identify 147 banking crises over the period 1970- 2011 in their paper. However, due to the availability of other variables taken for this paper, the period of time examined is narrowed from 1990 to 2010. The final set of banking crises consists of 49 episodes in 42 countries³. A list of those countries along with the start and end years of the systemic banking crisis is provided in table 3.

Data for market capitalization, also known as market value, is pulled from World Databank. It is measured by the share price multiplied by the number of outstanding shares of domestically incorporated companies which are listed on the country's stock exchanges at the end of year. However, these companies exclude investment companies, mutual funds, or other collective investment vehicles. Data for economic freedom is

³ A list of countries with banking crises used in this paper is provided in Table 3. There are some countries that had banking crises starting before 1990 but persisted afterward. To provide the complete information, the start years for these countries are presented even though this paper only focuses on the years of 1990 -2010

from Economic Freedom⁴. The components of the Economic Freedom of the world index are 1) size of government and taxation, 2) private property and the rule of law, 3) soundness of money, 4) trade regulation and tariffs and 5) regulation of business, labor and capital markets. The sum of these components is used in this paper. GDP per capita is gross domestic product divided by midyear population and data used for this paper is measured in U.S. dollars.

⁴ Updated and revised as of Oct 23, 2012. (<http://www.freetheworld.com>)

4. Empirical Models and Results

In this section, we use several different empirical specifications to assess how banking crises impact capital accumulation. In particular, we first look at whether a banking crisis retards capital accumulation. As our measure of capital accumulation, we use investment rates defined as investment's share of GDP. We find evidence there is a negative (partial) correlation between banking crisis and investment rates. These findings are robust across many different specifications. We then look to see if foreign direct investment (FDI) is impacted by a banking crisis. There is no evidence found that there is an impact of a banking crisis on FDI flows.

The empirical approach to the first three models uses the pooled ordinary least squares. This specification will yield consistent estimates as long as we have controlled variables for all important (relevant) country specific variables. We included the lags of the investment rates for robustness. In the event, the results are subject to an omitted variable bias, we specify a fourth model that includes country specific fixed effects.

4.1 Does A Banking Crisis Reduce Domestic Investment?

The first model focuses on the correlation between the incidence of a systemic banking crisis and gross capital formation. In particular, our baseline specification is

$$I/Y = \beta_0 + \beta_1 \text{Bank Crisis} X_1 + \beta_2 Z X_2 + \varepsilon \quad (1.1)$$

where, I/Y stands investment's share of GDP. The independent variables include a dummy that takes on the value of unit if the country is in a banking crisis and zero otherwise, and Z includes a set of control variables. Among the set of controls, we include market capitalization as a share of GDP, economic freedom, GDP per capita, and year dummies that capture systemic shocks that impact all countries. We will use these controls throughout the paper.

Banking crises are typically associated with recessions, and we know that investment is more volatile than GDP. Therefore, we would expect to see a decline in investment rates associated with the presence of a banking crisis. In addition, a banking crisis can make it more difficult to obtain funds to finance investment projects and this will also tend to lower investments. These considerations lead us to the first hypothesis of the paper:

Hypothesis: We expect a negative correlation between investment rates and the banking crisis dummy.

In Table 4.1 column (1), we regress investment rates on the banking crisis dummy. Consistent with our hypothesis we find a negative correlation between investment rates and the banking crisis dummy. In addition, we find that after controlling for several other country effects, the impact of banking crises on investment rates does not change much

qualitatively or quantitatively. It remains very significant and steady ranging from 2.30% - 2.81 %. It may be the case that the negative correlation is not associated with a banking crisis, but there may be some omitted variable that is correlated with banking crises and investment rates. The sign of the other controls are as expected. The market capitalization variable has a positive impact on investment, but they do not show much significance throughout all the columns. GDP per capita variables show that they decline the investment rate although this explanation can be ignored due to its insignificance.

In Table 4.2, we include the lagged values of investment that may pick up some of the dynamic aspect of the model that were not captured in the baseline specifications:

$$I/Y = \beta_0 + \beta_1 \text{Bank Crisis} X_1 + \beta_2 L.\text{Investment} X_2 + \beta_3 Z_3 + \varepsilon. \quad (1.2)$$

We would expect that investment is pretty persistent over time; however, investment is substantially more volatile than GDP so we would expect the coefficient on lagged investment rates to be less than unity. The results in all five columns in Table 4.2 are consistent with this. We find that presence of a banking crisis is still negatively correlated with the contemporaneous investment rates. However, the point estimates of the impact of a banking crisis become weaker—in the range of 1.27 - 1.41 % compared to 2.30 – 2.81 % from the one in table 4.1. This table indicates that a banking crisis will impact future investment rates through the lagged investment rates. For example using the estimates in Table 4.2 column 1, suppose in the long run investment rate is 0.20 and in the current period there is a banking crisis. If the impact of a banking crisis lowers

investment rates by 0.0136 percentage points, then contemporaneous investment would fall to 0.186. If there were no banking crises in subsequent periods and all other economic variables remained constant, investment the year after the banking crisis would be about 0.192 ($= 0.878 \cdot (0.186) + 0.0284$)

To investigate if there are additional dynamic effects we include a lagged value of the banking crises dummy:

$$!Y = \beta_0 + \beta_1 \text{Bank Crisis } X_1 + \beta_2 L. \text{Bank Crisis } X_2 + \beta_3 L. \text{Investment } X_3 + \beta_4 Z_4 + \varepsilon. \quad (1.3)$$

It is likely that investors will consider the banking crisis in the last term as an obstacle of its overall economy to the current term and thus lower their investment. However, the addition of the lagged dummy variable of a banking crisis is not statistically significant in most of the specifications. It may seem surprising that the lagged effect of a banking crisis does not seem to be associated with investment. However, recall the inclusion of the lagged investment share will introduce dynamic effects of a banking crisis.

4.1.1 Robustness check

To check a final robustness, we will apply the fixed effects to the model 1.3 and compare the results. By using this method, it will allow us to capture time-invariant effects which might be legal system or the shares of different industries.

$$\Delta Y = \beta_0 + \beta_1 \text{Bank Crisis } X_1 + \beta_2 \text{L. Bank Crisis } X_2 + \beta_3 Z_4 + \varepsilon. \quad (1.3.1)$$

The results in table 4.3.1 show very interesting results. Applying the fixed effects makes the lagged value of banking crisis becomes very significant unlike the previous results. It shows that the lagged effect of banking crisis will bring falls in investment rate ranging of 1.48 – 2.28 %. Meanwhile, the banking crisis variable turns out to be insignificant. It still keeps its negative sign which is consistent with the previous results.

4.2 Do Banking Crises Discourage Foreign Direct Investment?

While we found the domestic investment rates typically declined following a banking crisis, it is not clear how a banking crisis will impact foreign direct investment. If a country has a banking crisis it may indicate that the potential destination country is too risky and FDI will decline. On the other hand, that banking crises have little to no impact on FDI. This could be the case because the credit issues associated with domestic credit may not impact foreign investment flows. In addition, if the source country perceives the impact of the banking crisis as a temporary disruption in the destination economy, it may not discourage FDI. We do not have a data that would allow us to sort out these competing effects, instead we use the same empirical approach as above to assess the strength of these effects.

Hypothesis 2: If FDI declines in response to a banking crisis, it would be consistent with

the theory that the presence of a banking crisis makes a country look more risky and less attractive for FDI flows. Alternatively, if there is no affect it would be consistent with the story that the shocks are generally perceived to be temporary and the source country not being as credit constrained as the domestic market.

There may be alternative theories that would be consistent with the empirical results, but these two stories seem the most plausible.

Similar to the above model, we specify FDI as a share of GDP and regress this on the banking crisis dummy and a set of country and time controls. The first model is built to focus on the linkage between a banking crisis and its impact on FDI:

$$FDI/Y = \beta_0 + \beta_1 Bank\ Crisis X_1 + \beta_2 Z X_2 + \varepsilon \quad (1.4)$$

FDI/Y is the share of Foreign Direct Investment inflows in GDP, and Bank Crisis is a banking crisis dummy. Z incorporates market capita value as a share of GDP, economic freedom, the share of domestic investment in GDP, GDP per capita and year dummies as the control terms. These control variables will remain the same for all the models in this section.

Table 4.4 shows there seems to be little to no impact of a banking crisis on FDI. The estimates are small and imprecisely measured. The other controls all have their expected sign. Having a higher level of economic freedom seems beneficial for FDI as shown in column 3 and 4, but does not show much significance when GDP per capita is

included. At first glance, the level of domestic investment rate seems to have a close relationship with FDI, but the results show it does not have any significant effect at all while it keeps the positive sign. The expected sign of GDP per capita is positive while it does not show a significant level.

$$FDI/Y = \beta_0 + \beta_1 \text{Bank Crisis } X_1 + \beta_2 L.FDI X_2 + \beta_3 Z_3 + \varepsilon. \quad (1.5)$$

Table 4.5 presents the results with the lagged value of FDI. It is apparent that having the lagged effect of FDI brings a positive impact on the current period. Its impact decreases slightly as other control variables are included. Throughout all the columns, the results show that the banking crisis variable does not have much impact on FDI flows. Its sign is negative when the effect of other control terms is not considered in column 1, but its sign shows that it will increase FDI inflows in the rest of the columns. The coefficient of the market capitalization variable declines, but it still maintains 1% significance level except for the one result within year fixed effect. The economic freedom variables show 5% significance level in column 3 and 4, but turns out to be insignificant with the impact of the GDP per capita variable. The domestic investment and GDP per capita variables still show a positive sign, but both maintain low significance.

The third set of the models is set to measure the possible effect of a banking crisis which might persist beyond the first year:

$$FDI/Y = \beta_0 + \beta_1 \text{Bank Crisis } X_1 + \beta_2 \text{L.Bank Crisis } X_2 + \beta_3 \text{L. FDI } X_3 + \beta_4 Z_4 + \varepsilon. \quad (1.6)$$

Table 4.6 has added the expected effect of having a bank crisis in the prior year. Its signs show that its effect causes falls in investment, but it does not show any significance. Meanwhile, the lagged value of FDI remains very significant ranging from 0.29 – 0.36 % which is almost the same level as the findings in table 4.5. The sign of the banking crisis variable still continues to be positive, yet it is insignificant. All the control variables shows a very similar result as table 4.5 which suggests that having the lagged effect of banking crisis does not influence on other control aspects.

4.2.1 Robustness check

$$FDI/Y = \beta_0 + \beta_1 \text{Bank Crisis } X_1 + \beta_2 \text{L.Bank Crisis } X_2 + \beta_3 Z_4 + \varepsilon \quad (1.6.1)$$

The results in table 4.6.1 show that having both the effect of banking crisis this year and the lagged effect of banking crisis seem to have insignificant impact on FDI flows as the same as the previous results. The banking crisis variables have mostly positive sign throughout the columns, but do not show any significance. The lagged effect of banking crisis keeps a negative sign except for the results with year fixed effect. The market capita value variables show a high level of significance throughout all of the columns even after including year fixed effect. The impact of domestic investment appears to have a positive impact yet its sign still remains insignificant.

5. Conclusion and Discussion

The purpose of this study was to assess how banking crises impact capital accumulation. Firstly, investment rates defined as investment's share of GDP was used as one of the capital accumulations. Secondly, we looked at Foreign Direct Investment as another form of capital accumulation. The pooled ordinary least squares is used for the first empirical method. The lagged investment is done for robustness and the fixed effects is used to check a final robustness.

In many specifications, the results are consistent with the hypothesis that there is a negative correlation between investment rates and the banking crisis. The results derived from the pooled method show that there is a negative impact of banking crisis on domestic investment rates. The impact of crisis seems to decrease when the lagged effect of investment is included, and slightly increase when both the lag value of a banking crisis and investment are included. One possible explanation can be that the effect of banking crisis tends to become weaker in the countries where the effect of investment last year is still ongoing. Moreover, having a crisis in addition to the one in the previous term will cause more damage which will eventually lead to a higher impact of a banking crisis this year. However, surprisingly, the lagged dummy variable of a crisis is not statistically significant in most of the specifications and the coefficients on the other variables do not seem to have much of an impact at all. This may be explained with the idea that the inclusion of the lagged investment share will cause dynamic effects of a banking crisis.

Overall, with the lagged investment, the effect of the banking crisis will have persistent effects due to the lag of investment share. However, after fixed effects is included, the results seem very different. The banking crisis does not seem to have any impact on investment while it still keeps a negative sign. Instead, the lags effect of banking crisis becomes very significant.

It is found out that a banking crisis is not correlated with FDI. This can be interpreted with one of the hypotheses that shocks are generally perceived to be temporary and the source country not being as credit constrained as the domestic market. Just like the results for domestic investment, even after including the lagged investment for robustness, the banking crisis will have persistent effects. In addition, even after including the fixed effect for a final robustness check, the banking crisis variables still do not seem to have any significance. There shows little evidence that having an incidence of banking crisis last year has an impact on foreign direct investment. The interesting finding for the control variable is that domestic investment rate is not correlated with FDI inflows while it keeps its positive sign throughout all the regressions.

There can be multiple reasons to keep FDI from being directly affected by host countries' banking system. One of the possible reasons can be that domestic investment is more influenced by domestic banking system when compared to FDI. This is because multinational corporations investing in host countries also can get help from their home countries when crises occur. The second reason can be Foreign Direct Investment tends to be relatively long-term as Edmund R. Thompson et al. (2000) reported. For instance,

the industries foreign investors invest into tend to require a more fixed investment. Besides, it takes times to build up those industries and there will be a lot of sunk costs for them which are not easily ignored. Lastly, they argue that crises can attract more investment which might hold a stable investment level. There has been significant correlation found for European and U.S. MNCs between crisis-induced reform expectations and anticipations of the ASEAN region becoming a more attractive sales and production investment region. From the policy perspective, it is believed that building up the strength of the banking sector is critical to protect domestic economies while it is not an important determinant to attract and host FDI.

APPENDICES

Appendix A Figures

Figure 1.1: Domestic Investment VS. FDI in Brazil (The banking crisis of 1990 -1998)

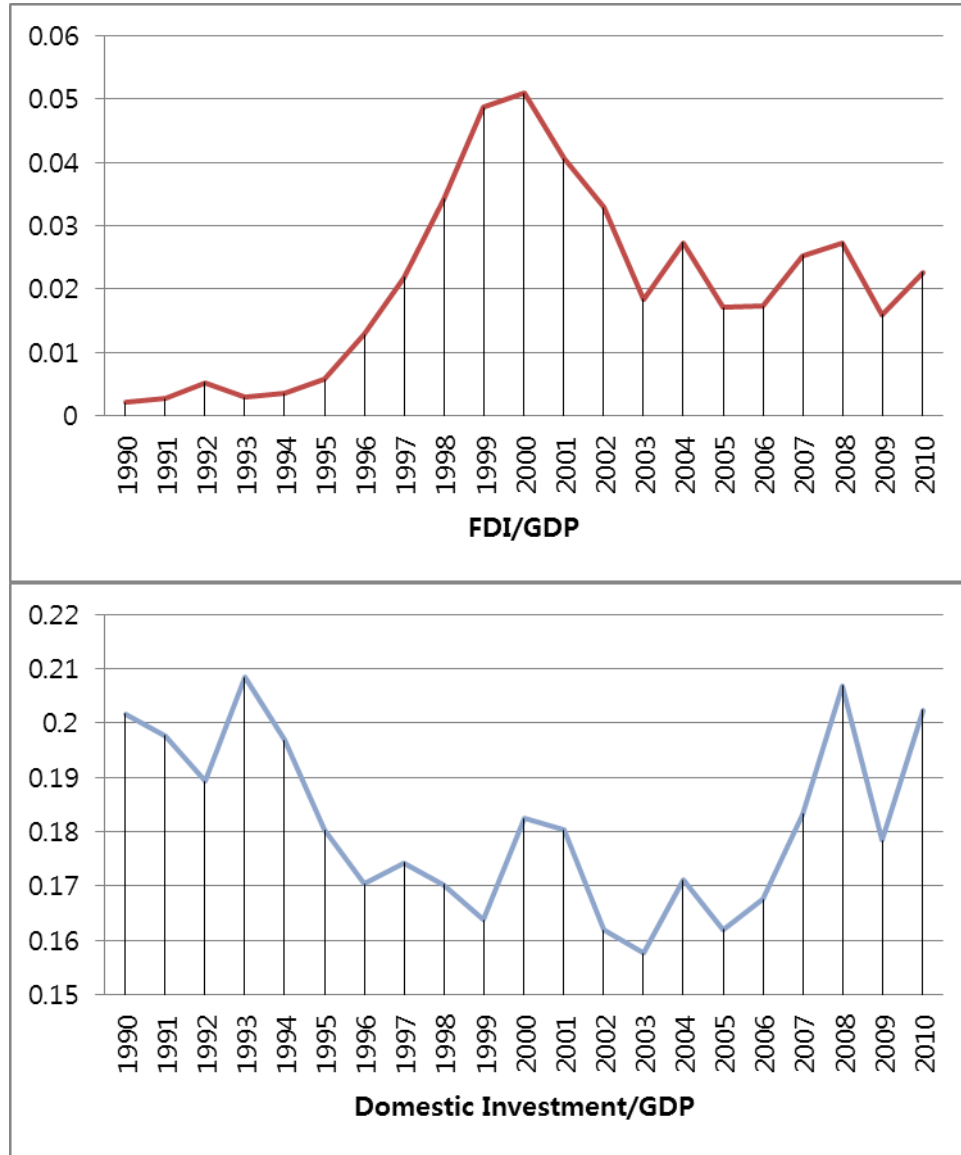


Figure 1.2: Domestic Investment VS. FDI in Costa Rica (The banking crisis of 1994 -1995)

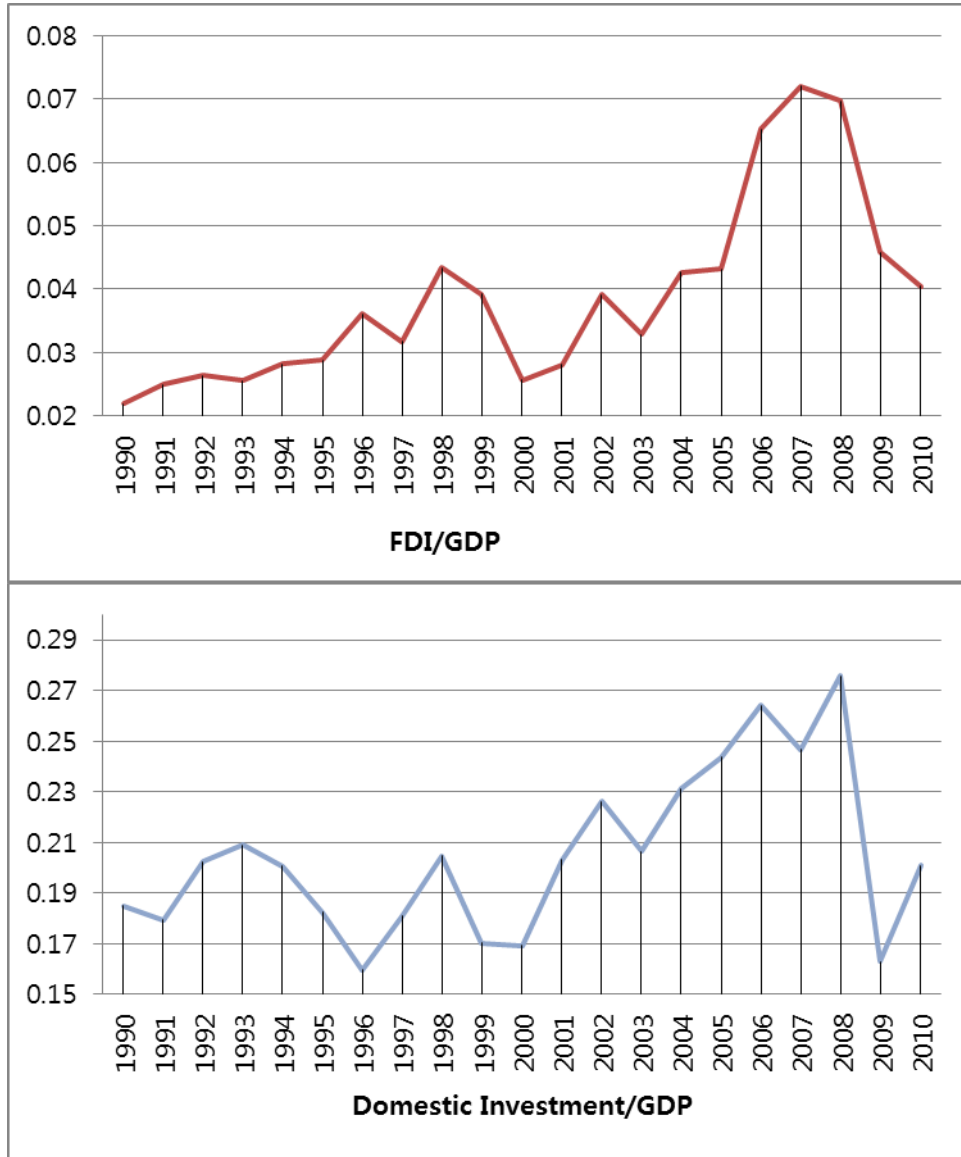
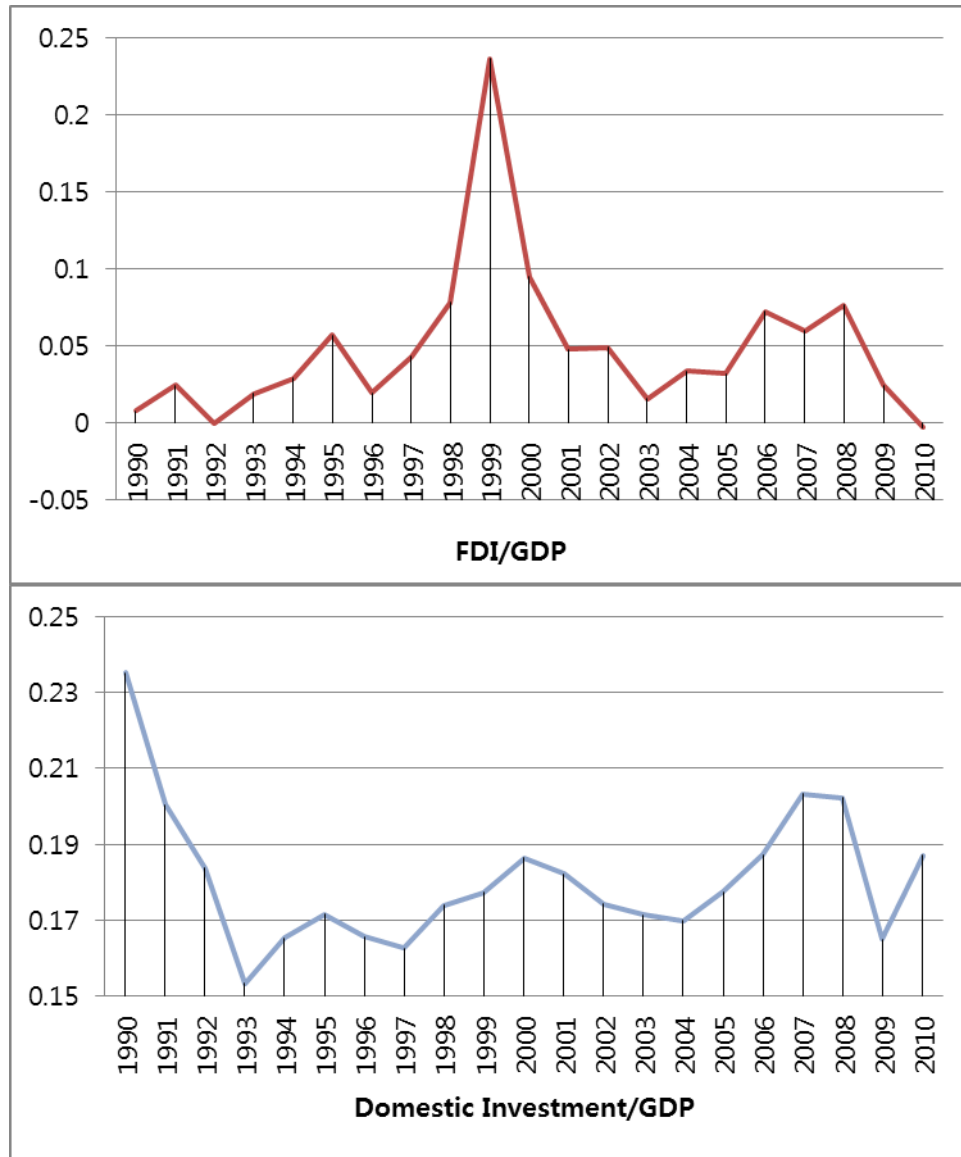


Figure 1.3: Domestic Investment VS. FDI in Sweden (The banking crisis of 1991 -1995, 1998- ongoing)



Appendix B Tables

Table 1: Country List

Argentina	Kenya
Australia	Korea, Rep.
Austria	Luxembourg
Bangladesh	Malaysia
Barbados	Mauritius
Belgium	Mexico
Botswana	Morocco
Brazil	Netherlands
Canada	New Zealand
Chile	Nigeria
China	Norway
Colombia	Pakistan
Costa Rica	Panama
Cote d'Ivoire	Peru
Cyprus	Philippines
Denmark	Portugal
Ecuador	Singapore
Egypt, Arab Rep.	South Africa
Finland	Spain
France	Sri Lanka
Germany	Swaziland
Ghana	Sweden
Greece	Switzerland
Hungary	Thailand
India	Trinidad and Tobago
Indonesia	Tunisia
Israel	Turkey
Italy	United Kingdom
Japan	United States
Jordan	Venezuela, RB

Table 2: Summary of the Variables

Variable	Observation	Mean	Standard Error	Min	Max
FDI(% of GDP)	1248	.032497	.0503784	-.550655	.7483171
Gross Capital Formation (% of GDP)	1237	.225818	.0567957	.066888	.4824343
Bank Crisis	1260	.1222222	.3276723	0	1
Market Capitalization (% of GDP)	1242	56.46362	55.21795	.5349585	328.8763
Economic Freedom	1239	6.854431	1.012598	3.52	8.88
Log of GDP per capita	1260	3.17e+11	8.20e+11	6.80e+08	6.73e+12

Table 3: List of Countries and Dates of Systemic Banking Crises

Country	Start Year	End Year	Country	Start Year	End Year
Argentina	1989	1991	Kenya	1992	1994
Argentina	1995	1995	Korea	1997	1998
Argentina	2001	2003	Luxembourg	2008	ongoing
Austria	2008	ongoing	Malaysia	1997	1999
Belgium	2008	ongoing	Mexico	1994	1996
Brazil	1990	1994	Netherlands	2008	ongoing
Brazil	1994	1998	Nigeria	1991	1995
China, Mainland	1998	1998	Nigeria	2009	ongoing
Colombia	1998	2000	Norway	1991	1993
Costa Rica	1987	1991	Philippines	1997	2001
Costa Rica	1994	1995	Portugal	2008	ongoing
Cote d'Ivoire	1988	1992	Spain	2008	ongoing
Denmark	2008	ongoing	Sri Lanka	1989	1991
Ecuador	1998	2002	Swaziland	1995	1999%
Finland	1991	1995	Sweden	1991	1995
France	2008	ongoing	Sweden	2008	ongoing
Germany	2008	ongoing	Switzerland	2008	ongoing
Greece	2008	ongoing	Thailand	1997	2000
Hungary	1991	1995	Togo	1993	1994
Hungary	2008	ongoing	Tunisia	1991	1991
India	1993	1993	Turkey	2000	2001
Indonesia	1997	2001	United Kingdom	2007	ongoing
Italy	2008	ongoing	United States	2007	ongoing
Japan	1997	2001	Venezuela	1994	1998
Jordan	1989	1991			

Table 4.1: Model 1.1: Domestic Investment

	(1)	(2)	(3)	(4)	(5)
	investment_ share	investment_ share	investment_ share	investment_ share	investment_ share
bank_crisis	-0.0281*** (0.00493)	-0.0268*** (0.00497)	-0.0271*** (0.00506)	-0.0230*** (0.00512)	-0.0262*** (0.00528)
nmkgdp		0.0000719* (0.0000288)	0.0000793* (0.0000344)	0.0000922** (0.0000342)	0.000111** (0.0000351)
econfree_i			-0.00195 (0.00197)	0.00471 (0.00249)	0.00607* (0.00255)
lnrgdppc				-0.00924*** (0.00213)	-0.0101*** (0.00215)
_cons	0.229*** (0.00170)	0.225*** (0.00240)	0.239*** (0.0128)	0.277*** (0.0155)	0.277*** (0.0170)
Year	No	No	No	No	Yes
<i>N</i>	1237	1219	1201	1200	1200
<i>R</i> ²	0.026	0.030	0.029	0.044	0.074

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.2: Model 1.2: Domestic Investment_Including The lagged value of Investment

	(1)	(2)	(3)	(4)	(5)
	investment_ share	investment_ share	investment_ share	investment_ share	investment_ share
L.investment_share	0.878 ^{***} (0.0130)	0.875 ^{***} (0.0131)	0.875 ^{***} (0.0132)	0.872 ^{***} (0.0132)	0.883 ^{***} (0.0128)
bank_crisis	-0.0136 ^{***} (0.00227)	-0.0134 ^{***} (0.00230)	-0.0141 ^{***} (0.00234)	-0.0132 ^{***} (0.00237)	-0.0127 ^{***} (0.00234)
nmkgdp		0.0000170 (0.0000132)	0.0000359 [*] (0.0000157)	0.0000402 [*] (0.0000157)	0.0000390 [*] (0.0000154)
econfree_i			-0.00219 [*] (0.000928)	-0.000713 (0.00118)	-0.00129 (0.00115)
lnrgdppc				-0.00206 [*] (0.000997)	-0.00174 (0.000958)
_cons	0.0284 ^{***} (0.00307)	0.0280 ^{***} (0.00315)	0.0424 ^{***} (0.00678)	0.0516 ^{***} (0.00801)	0.0427 ^{***} (0.00829)
Year	No	No	No	No	Yes
<i>N</i>	1178	1168	1151	1150	1150
<i>R</i> ²	0.800	0.798	0.799	0.801	0.823

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.3: Model 1.3: Domestic Investment_Including The lagged value of Banking Crisis

	(1)	(2)	(3)	(4)	(5)
	investment_ share	investment_ share	investment_ share	investment_ share	investment_ share
L.investment_share	0.879*** (0.0131)	0.876*** (0.0132)	0.875*** (0.0133)	0.872*** (0.0133)	0.887*** (0.0128)
bank_crisis	-0.0150*** (0.00324)	-0.0150*** (0.00328)	-0.0148*** (0.00332)	-0.0140*** (0.00333)	-0.0180*** (0.00330)
L.bank_crisis	0.00211 (0.00337)	0.00229 (0.00340)	0.00103 (0.00347)	0.00110 (0.00345)	0.00770* (0.00341)
nmkgdp		0.0000173 (0.0000132)	0.0000358* (0.0000157)	0.0000401* (0.0000157)	0.0000384* (0.0000154)
econfree_i			-0.00216* (0.000934)	-0.000676 (0.00119)	-0.00106 (0.00116)
lnrgdppc				-0.00207* (0.000998)	-0.00178 (0.000956)
_cons	0.0281*** (0.00310)	0.0277*** (0.00319)	0.0420*** (0.00688)	0.0513*** (0.00808)	0.0411*** (0.00830)
Year	No	No	No	No	Yes
<i>N</i>	1178	1168	1151	1150	1150
<i>R</i> ²	0.800	0.798	0.799	0.801	0.824

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.3.1: Model 1.3.1: Domestic Investment_Robustness Check

	(1)	(2)	(3)	(4)	(5)
	investment_share	investment_share	investment_share	investment_share	investment_share
bank_crisis	-0.00472 (0.00445)	-0.00253 (0.00444)	-0.00211 (0.00452)	-0.00202 (0.00454)	-0.00704 (0.00454)
L.bank_crisis	-0.0223*** (0.00460)	-0.0222*** (0.00456)	-0.0228*** (0.00468)	-0.0228*** (0.00468)	-0.0148** (0.00465)
nmkgdp		0.000179*** (0.0000321)	0.000165*** (0.0000347)	0.000166*** (0.0000352)	0.000268*** (0.0000371)
econfree_i			0.00278 (0.00267)	0.00314 (0.00288)	0.0136*** (0.00307)
lnrgdppc				-0.00118 (0.00549)	0.0177** (0.00620)
_cons	0.228*** (0.00107)	0.218*** (0.00220)	0.200*** (0.0180)	0.208*** (0.0469)	-0.0580 (0.0606)
Year	No	No	No	No	Yes
<i>N</i>	1178	1168	1151	1150	1150
<i>R</i> ²	0.051	0.078	0.082	0.082	0.182

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.4: Model 1.4: FDI

	(1)	(2)	(3)	(4)	(5)	(6)
	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp
bank_crisis	-0.00272 (0.00434)	0.000692 (0.00427)	0.00213 (0.00436)	0.00159 (0.00451)	0.000477 (0.00458)	-0.000669 (0.00473)
nmkgdp		0.000251*** (0.0000255)	0.000196*** (0.0000303)	0.000186*** (0.0000306)	0.000181*** (0.0000307)	0.000163*** (0.0000315)
econfree_i			0.00604*** (0.00167)	0.00761*** (0.00174)	0.00558* (0.00222)	0.00326 (0.00227)
investment_share				0.0377 (0.0255)	0.0432 (0.0257)	0.0497 (0.0259)
lnrgdppc					0.00285 (0.00192)	0.00416* (0.00193)
_cons	0.0328*** (0.00152)	0.0186*** (0.00209)	-0.0201 (0.0108)	-0.0393** (0.0128)	-0.0526*** (0.0155)	-0.0582*** (0.0170)
Year	No	No	No	No	No	Yes
<i>N</i>	1248	1230	1212	1189	1188	1188
<i>R</i> ²	0.000	0.073	0.085	0.094	0.096	0.127

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.5: Model 1.5: FDI_Including The lagged value of FDI

	(1)	(2)	(3)	(4)	(5)	(6)
	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp
L.fdi_gdp	0.366*** (0.0273)	0.315*** (0.0282)	0.311*** (0.0284)	0.304*** (0.0288)	0.302*** (0.0289)	0.294*** (0.0293)
bank_crisis	-0.000877 (0.00419)	0.00115 (0.00419)	0.00207 (0.00428)	0.00161 (0.00445)	0.000834 (0.00452)	0.000347 (0.00469)
nmkgdp		0.000160*** (0.0000261)	0.000120*** (0.0000304)	0.000114*** (0.0000307)	0.000112*** (0.0000308)	0.000102** (0.0000315)
econfree_i			0.00454** (0.00169)	0.00572** (0.00177)	0.00437 (0.00225)	0.00280 (0.00230)
investment_share				0.0278 (0.0254)	0.0315 (0.0256)	0.0334 (0.0259)
lnrgdppc					0.00187 (0.00191)	0.00279 (0.00192)
_cons	0.0213*** (0.00173)	0.0137*** (0.00213)	-0.0153 (0.0109)	-0.0295* (0.0130)	-0.0381* (0.0156)	-0.0416* (0.0168)
Year	No	No	No	No	No	Yes
<i>N</i>	1188	1178	1161	1139	1138	1138
<i>R</i> ²	0.132	0.159	0.166	0.170	0.171	0.195

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.6: Model 1.6: : FDI_Including The lagged value of Banking Crisis

	(1)	(2)	(3)	(4)	(5)	(6)
	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp
L.fdi_gdp	0.366*** (0.0273)	0.315*** (0.0282)	0.311*** (0.0284)	0.304*** (0.0288)	0.303*** (0.0289)	0.295*** (0.0293)
bank_crisis	0.00438 (0.00601)	0.00526 (0.00600)	0.00563 (0.00608)	0.00510 (0.00627)	0.00437 (0.00632)	0.00267 (0.00659)
L.bank_crisis	-0.00757 (0.00621)	-0.00594 (0.00619)	-0.00521 (0.00632)	-0.00516 (0.00653)	-0.00524 (0.00654)	-0.00340 (0.00676)
nmkgdp		0.000158*** (0.0000261)	0.000121*** (0.0000304)	0.000115*** (0.0000307)	0.000112*** (0.0000308)	0.000102** (0.0000315)
econfree_i			0.00438* (0.00170)	0.00556** (0.00178)	0.00419 (0.00226)	0.00269 (0.00231)
investment_share				0.0257 (0.0256)	0.0293 (0.0258)	0.0324 (0.0260)
lnrgdppc					0.00190 (0.00192)	0.00281 (0.00192)
_cons	0.0216*** (0.00174)	0.0140*** (0.00214)	-0.0141 (0.0110)	-0.0278* (0.0132)	-0.0365* (0.0157)	-0.0409* (0.0168)
Year	No	No	No	No	No	Yes
<i>N</i>	1188	1178	1161	1139	1138	1138
<i>R</i> ²	0.133	0.159	0.167	0.171	0.171	0.195

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.6.1: Model 1.6.1: FDI_Robustness Check

	(1)	(2)	(3)	(4)	(5)	(6)
	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp	fdi_gdp
bank_crisis	- 0.000105 (0.00544)	0.00355 (0.00544)	0.00517 (0.00551)	0.00504 (0.00567)	0.00480 (0.00568)	0.00132 (0.00591)
L.bank_crisis	-0.00323 (0.00562)	-0.00275 (0.00557)	-0.000935 (0.00570)	-0.00137 (0.00591)	-0.00132 (0.00592)	0.000135 (0.00606)
nmkgdp		0.000271*** (0.0000405)	0.000218*** (0.0000434)	0.000205*** (0.0000444)	0.000200*** (0.0000451)	0.000164*** (0.0000497)
econfree_i			0.0109*** (0.00319)	0.0132*** (0.00336)	0.0122*** (0.00369)	0.00662 (0.00408)
investment_share				0.0141 (0.0380)	0.0151 (0.0380)	0.0330 (0.0398)
lnrgdppc					0.00449 (0.00773)	-0.00350 (0.00937)
_cons	0.0336*** (0.00134)	0.0178*** (0.00272)	-0.0548* (0.0213)	-0.0734** (0.0238)	-0.109 (0.0653)	0.00105 (0.0891)
Year	No	No	No	No	No	Yes
<i>N</i>	1189	1179	1162	1140	1139	1139
<i>R</i> ²	0.001	0.039	0.050	0.054	0.055	0.093

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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