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Financial Globalization and Crisis: the Role of Local Financial Markets

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FINANCIAL GLOBALIZATION AND CRISIS:
THE ROLE OF LOCAL FINANCIAL MARKETS
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A Thesis
Presented to
the Graduate School of
Clemson University
_____

In Partial Fulfillment
of the Requirements for the Degree
Masters of Arts
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by
Xin   Chen
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_____

Accepted by:
Michal M. Jerzmanowski, Committee Chair
Michael T. Maloney
Lei Zhang

ABSTRACT

In this paper, I provide a specific channel through which financial development helps economic growth: by reducing the incidence of crises and making them less severe. To support this, I examine the various links among financial markets development, financial crisis, and GDP growth rate. My empirical estimates, using cross-country data from 1980 to 2007, show a statistically significant and economically relevant effect among these variables: countries with better local financial markets can largely decrease the frequency of occurrence of financial crisis, and that efficient banking systems can alleviate the adverse impact of banking crisis on output lost for the long-run, while better stock market can do it for the short-run.

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First of all, I am extremely grateful to my committee chair, Dr. Michal M. Jerzmanowski for sparking me the idea and offering guidance along the way. Grateful acknowledgement is also due to my committee members Dr. Michael T. Maloney, and Dr. Lei Zhang for their support and encouragement.

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CHAPTER I

INTRODCUTION

Financial globalization has been the main trend of world economy since the collapse of Bretton Woods System. While financial globalization has been associated with high growth rates, increased investment, and a better ability to diversify risk in some countries, a number of other countries have experienced economic volatility because of significant financial crises over the same period. These developments have sparked a hot debate on the benefits of financial globalization.

At the initial stage, literature from such debate mainly focused on the direct relationship between financial globalization and economic output. The proponents of financial liberalization, such as Quinn (1997); Fischer (1998); Kraay (1998); Summers (2000); Donnell (2001); Edison, Klein, and Slok (2004), suggest the way in which financial globalization can benefit a country: financial globalization offers the opportunity to augment domestic savings, to relax borrowing constraints, to diversify away country-specific risk, to increase the investment, and to take the advantage of technology spillovers. Their opinions are based on the standard neoclassical framework which opines that it would generate welfare gains for both industrial countries with rich capital and developing countries with poor capital if capital could flow freely between them.[1] However, with the deepening of financial integration came a spate of currency and banking crises since 1980s. A number of developed and developing countries have been hit by several serious financial and economic crises. The merits of international financial

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[1] This is summarized by Kose, Prrasad, Rogoff and Wei (2006)

integration are also under forceful attack and doubt. Kaminsky and Reinhart (1998), Detragiache and Kunt (1998), and Glick and Hutchinson (2001), argue that financial globalization can increase the propensity to financial crises.[2] Bhagwati (1998), Rodrik (1998), and Stiglitz (2002) argue that increasing capital account liberalization and unfettered capital flows are the important keys causing global financial stability.

However, literature in this stage has several disadvantages. First, most of the academic economists analyzed the effects of financial globalization just in a divided way—either positive or negative—rather than in a unified way, leading to a partial or a bias account on the effect of financial globalization. More importantly, although vast empirical literature has shown that GDP of the group of more financially open economies does grow at a more favorable rate than that of group of less financially open economies, or that financial liberalization increases the output volatility, it does not provide strong and robust evidence to establish the causal or direct relationship between globalization and economic growth and volatility.[3]

Therefore, at new stage of literature on such subject, academic economists develop an integrated framework to empirically quantify and contrast the positive and negative effect of financial globalization on economic growth. They found that the positive effect of financial globalization on growth by far outweighs the effect on volatility for the long run. For example, Ranciere, Tornell, and Westermann (2006) contrast experience of Thailand and India to support this assertion. Their finding is that "Although Thailand, a country with high financial liberalization, has experienced lending booms and crises, while India, a country with low financial liberalization, has followed a

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[2]See Klein and Olivei (2006) for more detail.

[3]This is concluded by Kose, Prrasad, Rogoff and Wei (2006), and they thus propose "threshold effect" which I will discuss later.

stable and save growth path, Thailand's GDP per capital grew by 148% between 1980 and 2001, while India's GDP per capita grew by only 99%".

By reviewing the existing literature, Kose, Prrasad, Rogoff and Wei (2006) concluded that there is no strong and robust evidence to establish the causal or direct relationship between globalization and economic growth and volatility. They propose "threshold effect", including financial market development, institutional quality, governance, macroeconomic policies, and trade integration, to argue that globalization effects on domestic economy through the "threshold effect". In other words, whether one country could reap benefit from globalization depends on how well its "threshold effect" is. Especially, more and more economists notice that the financial market development plays a crucial role in economy growth under the financial globalization. Using cross-country data between 1975and 1995, Alfaro, Chanda, Kalemli (2003) show that the direct relationship between FDI and economic growth is not significant in their model, but once the financial market development, a interaction factor, is added into the model, the relationship becomes highly significant. That is, "FDI alone plays an ambiguous role in contributing to economic growth. However, countries with well-developed financial markets gain significantly from FDI."[4] Levine, Loayza, and Beck (1999) use the traditional cross-section, instrumental variable procedures and dynamic panel techniques to argue that "the exogenous components of financial markets development are positively associated with economic growth." By analyzing the cross-border countries data over period 1986 to 1995, Klein and Olivei (2006) also show that "countries with open capital accounts over some part or all of these periods had a significantly greater increase in

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[4]The percentage of FDI to GDP can be simply viewed as the financial openness degree.

financial markets development than countries with continuing capital account restrictions, and, over the twenty-year period, the developed financial markets make them enjoy greater economic growth."

I conclude above: firstly, it is arbitrary to say that financial globalization can directly make countries enjoy the economic growth, or to blame that financial globalization is a hotbed of the financial crises. The effect of financial globalization on economy is realized through mechanism of "threshold effect", especially the local financial markets development. Secondly, lots of existing literature just explored the role of local financial markets development in contributing to economic growth in a direct way. That is, it examines how a well-developed financial market helps a country to realize long-run GDP growth rate increase under the financial globalization.

The goal of my paper is not to perform another test of the direct effect of local financial market development on GDP growth rate. Instead, its main contribution is to provide an indirect perspective: If I can certificate that well-developed local financial markets can decrease the frequency of occurrence of financial crisis and alleviate the negative impact if financial crises occur, then, it can indirectly reflect that the role of local financial markets development is important in contributing to the economic growth. (See figure 1)

The asymmetric information theory, contagion theory (I will show these two theory in next chapter), and the paper of Joyce and Nabar(2008) provide motivation for my work. Joyce and Nabar argue that "in the absence of a banking crisis, a sudden stop event would not by itself have a significant on investment, which can alleviate the negative effect of capital flows on the economic volatility and stabilize the economic

Figure 1
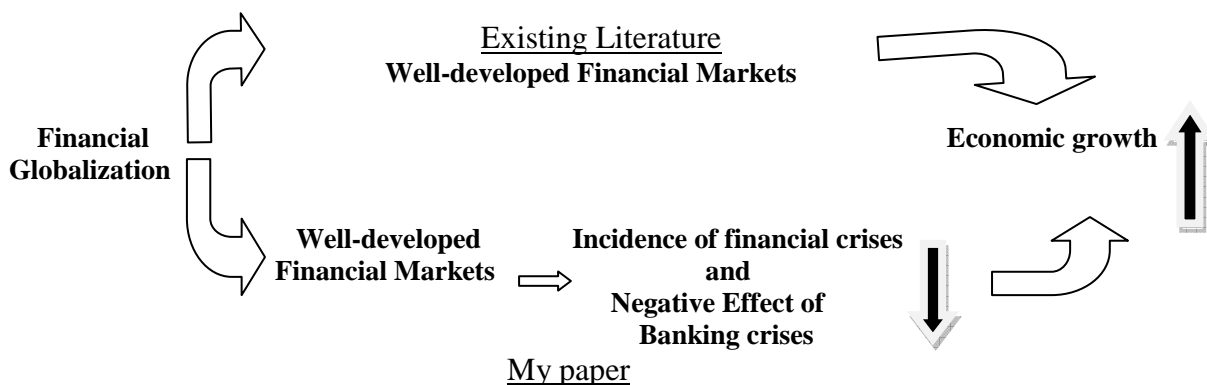
growth for the long run." The assumption their paper bases on is that a country with well-developed local financial markets can avoid the banking crisis under the "sudden stop".

To support my point, I examine the various links among financial markets development, financial crisis, and GDP grow rate. My empirical estimates, using cross-country data from 1980 to 2007, show a statistically significant and economically relevant effect among these variables: countries with better local financial markets experience fewer financial crises, and that efficient banking systems can alleviate the adverse impact of banking crisis on output loss for the long-run, while a better stock market can do it for the short-run.

The rest of the paper is organized as follows: the underlying theory is reviewed in chapter 2; empirical methodology is presented in chapter 3; data are described in chapter 4; regression results are discussed in chapter 5; and chapter 6 concludes.

CHAPTER II

THEORICAL SUPPORT

My paper is going to examine whether well-developed financial markets can reduce the incidence of financial crises and alleviate their adverse effect. Below is a brief summary of several theories that show how local financial markets development works to decrease the financial volatility.

Asymmetric Information Theory. *Asymmetric Information Theory* is provided by Frederic S. Mishkin (1994, 1998) to describe the structure of the financial system and explore the theory of financial instability. He argues that "one of the reasons that using asymmetric information theory to understand the relationship between financial markets and financial crises is so attractive, is that this theory is able to clearly explain the basic facts about financial structure."[5]

Asymmetric information, "a situation in which one party to a financial contract has much less accurate information than other party", has been the problem of our economic activity. Specifically, asymmetric information will lead to both adverse selection and moral hazard in financial system. Mishkin defines adverse selection as "a problem that occurs before the transaction occurs when potential bad credit risks are the ones who most actively seek out a loan." He describes that the "parties who are the most likely to produce an adverse outcome are most likely to be selected, which will make loans be bad credit risks." Thus, lenders may decide not to provide any loans even though there are good credit risks in the market. In contrast, moral hazard is the problem that occurs after the transaction takes place. Mishkin explains that "moral hazard occurs

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[5]For more detail, see "*Preventing Financial Crises*" by Mishkin 1994.

because a borrower has incentives to invest in projects with high risk in which the borrower does well if the project succeeds but the lender bears most of the loss if the project fails." Moreover, the borrower may not work hard, uses the funds personally, or invests it into unprofitable projects. Thus, lenders would rather not make loans.

These problems impedes the efficient function of financial system to channel funds to individuals or firms who have the most productive investment opportunities, which will badly harm the investment and economic growth, and increase the financial volatility. More severely, Mishkin argues that adverse selection and moral hazard problems will become much worse when interest rate rise, uncertainty increases, bank panics happen, and stock market declines.[6] If so, financial crises will occur.

Charles Wyplosz (1998) also points out the important role of adverse selection and moral hazard problems in leading to financial crises. He argues that "adverse selection implies a drying out of the market when risk is perceived to rise, which in turn my elicit dangerous behavior"--Financial crisis in Mexico in 1994 is a good case, and that "moral hazard leads to a variety of market failures as well as inappropriate policies, which lead to financial crises and aggravate their adverse effect."

By the mainstream literature on banks, it is the asymmetric information problem that the existence of banks is justified. Firstly, banking systems and other financial intermediaries are experts at discriminating good from bad credit risks, and Mishkin argues that "financial intermediaries just make private loans that are not traded. As a

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[6] Frederic S. Mishkin gives the explanation to this in his paper "

result, investors are less able to free ride off financial intermediaries and bid up the prices

of the loans."[7]

Secondly, banking systems, compared with other financial intermediaries, are

better in reducing asymmetric information by solving the moral hazard. Because,

Mishkin explains, "banks' advantages in information collection activities are enhanced

by their ability to engage in long-term customer relationships and issue loans using lines

of credit arrangements. In addition their ability to scrutinize the checking account

balances of borrowers provides banks with an additional advantage in monitoring the

borrowers' behavior."

Thirdly, using collateral is another important method for banks to reduce the

adverse selection and moral hazard. If borrowers default on loans, the losses of lenders

can be compensated by taking title and sell the collateral. Similarly, a well-developed

stock market can prevent firms' net worth from declining. The high net worth can also

reduce the lender's losses, if a firm defaults on its debt payments due to the poor

investment.

In sum, the *Asymmetric Information Theory* suggests that efficient banking

systems and a better stock market can reduce adverse selection and moral hazard

problems, and hence reduce the incidence of financial crises and alleviate their adverse

effects.

External shocks, Local financial markets, and Investment. As I have discussed

above, local financial markets play an important role in discriminating good from bad

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[7]In order to reduce asymmetric information, some people are willing to pay for the information. However, many other people not paying for information can still take advantage of information that others have paid for, leading to the "free-rider problem". This suggests that, unlike the financial intermediaries, the private sale of information to solve adverse selection and moral hazard problems is so limited.

credit risks and channel funds to individuals or firms to promote the domestic investment by which they contribute to countries' long run economic growth. Furthermore, it appears to be a significant factor in using foreign direct investment (FDI) and preventing the adverse effect of capital sudden stops under financial globalization. Much of the previous empirical work focusing on the impact of FDI on economic growth, like Alfaro, Chanda, Kalemli (2003, 2006), has shown the importance of well-developed financial intermediaries in taking advantage of those positive externalities of FDI, such as technology spillovers, productivity gains, managerial skills, and introduction of new processes.

In this part, I would like to review the research of Joyce and Nabar (2008) to show how well-developed financial intermediaries reduce negative externalities of FDI: the channels through which well-developed financial markets can alleviate the adverse effects of external crises, such as sudden stops, and of the financial crises caused by that shock, on a country's investment and long run economic growth.

The increasing role of FDI is the essential feature of financial integration. While FDI offers opportunity to countries to promote their economic growth, it also brings potential risk to countries' economic volatility, especially to those countries who mainly rely on FDI and whose local financial markets are fragile. When external shocks (sudden stops) occur, Joyce and Nabar point out that there are "several channels through which sudden stops could potentially inflict serious long run economic costs on the domestic economy due to a fall in investment. Domestic investment may collapse following an external crisis if the supply of foreign funds for domestic investment dries up." Local firms and industries may no longer have access to direct foreign funds since their credit-worthiness declines. Because capital flowing to the local subsidiaries of multinational

corporations declines, those corporations' ability to make domestic investment is impeded. If investment cannot recover quickly, countries' long-run economic growth will be affected adversely. Joyce and Nabar give an example of East Asian countries that experienced the financial crisis in 1997. They find that because most of these countries' investment did not bounce back soon, their output growth also fail to reach the pre-crisis average level quickly.

Local financial markets play a crucial role in connecting external shock and investment collapses. Joyce and Nabar argue that if a country's financial markets are fragile, banking sector crises will easily occur following the external crises. If so, "the allocation of resources and investment could be potentially more severely affected while the financial intermediaries clean up their balance sheets." They point out that even if there are no external crises happening, the banking sectors crises alone can destroy the domestic investment. However, if the local financial markets are well-developed--in the absence of a banking crisis--"a sudden stop event would not by itself have a significant on investment, which can alleviate the negative effect of capital flows on the economic volatility and stabilize the economic growth for the long run."

Contagion Theory. Historical lessons tell us that financial crises are not limited by borders. Within a short period after flotation of the Thai baht in July 2, 1997, the financial crisis had spread to Indonesia, Korea, Malaysia, and Philippines. Similarly, Hong Kong, Brazil, Mexico, and many other countries were quickly affected by the Russian crisis in 1998. The *contagion theory* is thus developed to describe and explain such phenomenon. Contagion is classified into two broad types—*fundamentals-based contagion*, used to describe shock that affect markets due to real and financial links and including common shock, trade linkages, and financial linkage, and *investor-based*

contagion, used to described the "process by which shocks that affect one market are transmitted to related markets despite the lack of actual fundamental relationships between the respective markets." (Santor, 2002)

Common shocks, such as a rise in world interest rates, a sharp decline in world aggregate demand, a large slowdown in commodity prices, or a significant change in exchange rate, may induce pressures and adverse effect of crises on currencies or stock markets of several countries simultaneously. Trade linkages can propagate currency crisis from one country to another. For instance, "currency contagion starts by a real depreciation of country A's currency due to speculative attacks. Such depreciation enhances its export competitiveness and produces a trade deficit for its competitor country B. This result in a depletion of the foreign exchange reserves of country B and thus increase the probability of speculative attacks on country B's currency."[8] For the financial linkages, Eric Santor (2002) argue that the negative effect of crises can be transmitted by undermining the quality of a bank's loan portfolio through credit exposer, which leads to insolvency if credit risks are not well managed. Investor-based contagion can be explained by asymmetric information theory: if a crisis occurs in one country and generates fears of speculative attacks, it may induce financial markets' participants to reassess other countries' fundamentals and investors may expect to profit from speculation against currencies that they think other investors will also sell (Caramazza, Ricci, and Salgado, 2000). The behavior of investors during these periods is called "herding". Since there exist imperfect information and collecting information is costly, investors have to follow those whose actions are thought to be "correct". Such "herding"

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[8]this example is cited from Eric Santor (2002)

behavior would induce asset price falls in the affected countries, thus undermining banks'
balance sheets and spread the crises.

      We can see that both types of contagion spread crises by affecting the local
financial markets—currency market, stock market, and money market, which suggest that
the local financial market condition plays a significant role in spreading crisis. Khalid and
Kawai (2002) argue that "a country with weak financial market fundamentals is more
likely to suffer from shocks elsewhere. Any speculative attack in another country will
make this country more vulnerable to similar attacks." Caramazza, Ricci, and Salgado
(2000), investigating the relevance of external, domestic, and financial weaknesses as
well as trade and financial linkages in inducing financial crises for 61 emerging markets
and industrial countries, find that once the domestic and external fundamentals and trade
spillovers are controlled, financial linkages and weaknesses play a significant role in
spreading crises. Thus we can expect that well-developed financial markets are necessary
for a country to avoid crises transmitted by other countries, and thus to reduce the
incidence of financial crises.

CHAPTER III

<u>EMPIRICAL METHODOLOGY</u>

The purpose of my empirical analysis is to test: 1) whether well-developed

financial markets can reduce the incidence of financial crises; 2) whether, if financial

crises occur, well-developed financial markets can alleviate their adverse effects on

economic growth. The first test reflects the defense ability of local financial markets

against financial crises, while the second test indicates the adjustment ability of local

financial markets on the economies after financial crises occur. The reason I divide the

empirical analysis into two parts is that we have to recognize that no matter how well the

local financial markets development, it cannot totally eliminate the financial crises.

Although some industrial countries have a high level of financial markets development,

they also have suffered from financial crises, such as the examples of collapse of the

Japanese asset price bubble in 1980s, three Scandinavian countries (Norway, Sweden and

Finland) crisis in the late 1980s, and sub-prime mortgage crisis of U.S. in 2007.

For the first test, I use regression analysis to look at the direct effect of the level of

local financial markets development on incidence of financial crises. This regression

analysis uses data from 84 countries consisting of developed countries and emerging

markets from 1980 to 2007 (Years of a small group of countries begin from 1982 or 1983

because of absence of some data). The basic regression takes the form:

$$INCIDENCE^i = \beta_0 + \beta_1 FINANCE^i + \beta_2 X^i + \varepsilon^i \qquad (1)$$

Where, $INCIDENCE^i$ is the number of times of a financial crisis including currency

crisis, banking crisis, twin crisis, and debt crisis occurred in country i from 1980 to 2007,

$FINANCE^i$ indicates country i's average level of its local financial markets development

during this period (That is the variables of commercial-central bank assets, liquid liability

of financial system, private sector credit, and bank credit which I will explain in next

chapter.), X^i represents a vector of other control variables including average level of

Financial Openness, ***Trade Openness*** during this period, the ratio of ***Governments***

Expense to GDP, as well as the ***GDP*** per capita and ε^i is an error term.

For the second test, I also use regression method to test the direct effect of the

level of local financial markets development on difference of GDP growth rate between

post-banking crisis and pre-banking crisis for occurred-year, short-term, and long-term.

The data are from 45 countries consisting of developed countries and emerging markets

from 1990 to 2004. The following equation is estimated:

$$\textbf{\textit{Gr.Dec.}}^{\textbf{i}} = \beta_0 + \beta_1 \textbf{\textit{FINANCE}}^{\textbf{i}} + \beta_2 \textbf{X}^{\textbf{i}} + \varepsilon^{\textbf{i}} \qquad (2)$$

Where ***Gr.Dec.*^{i}** (GDP growth rate decline) is difference of country i's GDP growth rate

between post-banking crisis and pre-banking crisis, which represents the impact of local

banking crisis on its output (Here, I just use the data after banking crisis rather than other

financial crises because, I have shown in last chapter, external or internal shock would

finally lead to banking system crisis if local financial markets cannot avoid such shock.

In addition, the change of GDP growth rate due to banking crisis can reflect more clearly

about the direct function of domestic financial intermediaries to alleviate adverse effects

on economic growth.), ***FINANCE*$_{\cdot}^i$** indicates country i's level of its local financial

markets development before the banking crisis occurred (in this test, these variables not

only contain the bank-system variables-- bank assets, liquid liability of financial system,

private sector credit, and bank credit, but also the stock market variables— valued trade***,***

and capitalization, which I will explain in next chapter), X^i represents a vector of other

control variables including the level of country i's ***Financial Openness***, ***Trade Openness***,

the ratio of **Governments Expense to GDP**, **Inflation Rate, Control of Corruption,**

Regulatory Ability, and Rule of Law before the banking crisis occurred, and ε^i is a mean

zero, constant variance disturbance term.

CHAPTER IV

DATA

This chapter describes and explains the data used in the regression analysis. I

collect information about 5 variables for 84 countries from 1980 to 2007 for test 1, and

about 10 variables for 44countries from1990 to 2004 for test 2, including incidence of

financial crises, the change of GDP growth rate, the level of local financial markets

development, and some control variables.

Incidence, used as the dependent variable in test 1, represents the number of

times a financial crisis occurred in each of the 84 countries from 1980 to 2007. The data

are obtained from the IMF working paper of Laeven and Valencia (2008)—"*Systemic

Banking Crises: A New Database*", which reports a latest database on the timing of

systemic financial crises including banking crisis, currency crisis, and sovereign debt[9]

crisis. The database covers 161 countries for the period 1970-2007. I just select 84

countries from it for the period 1980-2007 due to lack of other data of some countries and

before 1980.

Gr.Dec., the dependent variable in test 2, is the decline of a country's growth of

real GDP per capita, due to a banking crisis; it measures the magnitude of the crisis. The

GDP growth rate data come from Penn World Table 6.2[10]. I test the impact of banking

crisis on GDP growth rate change for three periods: the impact in occurred year—the

GDP growth rate of the year in which the banking crisis occurred minus the average of

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[9]In test 2, I get the data from the paper of Reinhart and Rogoff (2008)—"*This Time Is Different*".

[10]The **Penn World Table** "provides purchasing power parity and national income accounts converted to international prices for 188 countries for some or all of the years 1950-2004. The European Union or the OECD provides more detailed purchasing power and real product estimates for their countries and the World Bank makes current price estimates for most PWT countries at the GDP level."

three years GDP growth rate prior to the banking crisis (The later term represents the level of GDP growth rate before the banking crisis occurred.), the short run impact—the average of two years GDP growth rate after banking crisis occurred minus the average of three years GDP growth rate prior to the banking crisis, and the long run impact—the average of five years GDP growth rate after banking crisis occurred minus the average of three years GDP growth rate prior to the banking crisis. In addition, the information of banking crisis is obtained from the paper of Reinhart and Rogoff (2008)—"*This Time Is Different*".

Finance, the independent variable in both tests, is measured as the level of a country's local financial markets development, including monetary market (banking system), and capital market (stock market)[11]—in test 1, it is the average of the level from 1980 to 2007; in test 2, it is the level prior to the banking crisis. The accurate and comparable measures of level of the local financial markets development are very difficult to construct. I draw on such variables introduced by King and Levine (1993a), Levine and Zervos (1998), and Levine (2000). Alfaro et al. (2003) also follow these existing literatures to measure financial markets development, they argue that these variables can be classified into two broad categories: those concerning banking sector— liquid liability of financial system (henceforth, **LLY**), commercial-central bank assets (henceforth, **BTOT**), private sector credit (henceforth, **PRIVCR**), and bank credit (henceforth, **BANKCR**), and those relating to stock market—valued trade (henceforth, **SVALT**), and capitalization (henceforth, **SCAPT**). Levine et al. (2000) explain these variables in their paper that they "would ideally like to construct measures of the ability

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[11]In test 1, I just use the data about local monetary market because lots of countries did not realize stock market liberalization before 1990s.

of different financial systems to research and identify profitable ventures, monitor and control managers, ease risk management and facilitate resource mobilization. It is impossible, however, to construct accurate, comparable measures of these financial services." Consequently, they use these indicators, but each of them, they argue, has particular strengths and weakness.

I obtain these six indicators from World Bank Financial Structure Database (2007)[12]. **LLY**: equals Liquid Liabilities (currency plus demand and interest-bearing liabilities of bank and financial intermediaries) divided by GDP. It is the broadest measure of the depth and size of financial intermediation, including central bank, deposit money bank, and other financial institution. Levine et al. (2000) point out the shortcomings of this variable. They assert that 'it may not gauge the effectiveness of financial sector in ameliorating information asymmetries and easing transactions costs. Also, it includes deposits by one financial intermediary in another, which may involve 'double counting'". This may be the reason that LLY is not significantly associated with the dependent variable in test 2, which is shown in next chapter. **BTOT**: equals the ratio of commercial bank assets divided by commercial bank plus central bank assets. This indicator measures the degree to which commercial banks allocate society's saving. However, Levine et al. (2000) point out that it is not a direct measure of the quality and quantity of financial services provided by financial intermediaries, because "it does not directly measure the effectiveness of bank in researching firms, exerting corporate control, mobilizing saving, and easing transaction." **PRIVCR:** equals the value of credit by financial intermediaries to the private sector divided by GDP. Levine et al. (2000) assert that it is the best indicator among these variables "because it improves on other measures

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[12] The URL for the database is http://www.worldbank.org/research/projects/finstructure/database.htm.

of financial development used in the literature". They argue that "this measure of

financial development is more than a simple measure of financial sector size. It isolates

credit issued to private sector, as opposed to credit issued to governments and public

enterprises. Furthermore, it excludes credit issued by central bank". This advantage

avoids the 'double counting' problem of **LLY**. Moreover, they also argue that **PRIVCR**

could, although not in a direct way, measure the amelioration information asymmetries.

BANKCR: equals private credit by deposit money banks divided by GDP. It is similar

with **PRIVCR,** but it does not include non-BANKCR to the private sector. Thus, it may

be not comprehensive for some countries. **SVALT** (it equals stock market total value

traded divided by GDP), and **SCAPT** (it equals stock market capitalization divided by

GDP) are indicators about the liquidity and size of stock market.

  Control Variables. The regression result may be affected by some other factors,

such as the level of a country's openness, government consumption, inflation rate, control

of corruption, government regulation and policy ability, and rule of law, which are

necessarily to be controlled in the tests.

  Although existing literature does not provide strong and robust evidence to

establish the causal or direct relationship between globalization and economic growth and

volatility, it does not necessarily imply there is no connection between them. Vast

empirical literature has shown that financial crises of the group of more financially open

economies are more than that of group of less financially open economies. So, the level

of openness should be considered I consider two aspects of openness: the finance

openness and trade openness. **Finance openness** equals the sum of FDI inflow and

outflow divided by GDP[13]. It may not be an accurate way to show the degree of finance openness, but considering FDI accounts for the largest part of capital flows, it can be simply viewed as the financial openness degree. The data for FDI flows are obtained from United Nations' "*WIR Annex Table*" (2008).[14] **Trade openness** equals import plus export and then divided by GDP. I collect the export and import data from Penn World Table 6.2. Existing literature, such as Calvo et al. (2004) and Frankel et al. (2005), show that trade openness can make countries less vulnerable to financial crises, and mitigate the costs of such crises if they do occur.

I have shown in chapter 1 that it is the interaction between financial globalization and "threshold effect" that determines growth and volatility. Besides the development of local financial sectors, "threshold effect" also includes "improvements in institutions (defined broadly to include governance, the rule of law etc.), and better macroeconomic policies etc" (Kose, Prrasad, Rogoff and Wei 2006), which I should consider in the regression analysis: **Control of Corruption** plays a great role in affecting a country's ability to attract and stabilize FDI flows by which a country can promote more domestic investment, facilitate its economic growth and decrease the output volatility. The corruption index in my tests comes from "*Annual Report Transparency International*"[15]; **Regulation** ability is an important key for a country's government to prevent the country from crises under the financial integration. Kose et al. (2006) assert that premature opening of finance poses risk to crises when financial regulation and supervision are

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[13] This method is introduced by Kose et al. (2006)

[14] The most relevant time-series data from the WIR annex tables include selected FDI and cross-border M&A data. The URL for the database is
http://www.unctad.org/Templates/Page.asp?intItemID=3277&lang=1

[15] In test 2, this control variable represents the level of a country's corruption which is prior to banking crisis. Such data of those counties in which banking crisis occurred before 1995 are substituted by 1995's index, since the data are absent before 1995.

inadequate. Financial integration can intensify the capital flows which are channeled by excessive risks or weak fundamentals. In turns those premature capital inflows could have adverse effect on the health of financial institution in the event of adverse shocks. The data about government regulation and **Rule of Law** come from World Bank's "*Governance Matters—Worldwide Governance Indicators*" (2008)[16]

Other control variables are **Government Expense** of which data are from Penn World Table 6.2, and **Inflation rate** of which data are obtained from IMF's "*World Economic Outlook Database*" (2008, Oct.)

Finally, I have to note that the data of control variables in test 1 are the average value from 1980 to 2007, which give the outlook of these countries' economy condition, while in test 2, I get these data of the year prior to banking crisis year, which show the local condition before banking crisis occurred.

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[16] The URL for the database is http://info.worldbank.org/governance/wgi/index.asp

CHAPTER V

REGRESSION   RESULT

Test 1

Test 1, with the sample size of 84 countries from 1980 to 2007, examines whether a well-developed local financial markets could decrease the incidence of financial crises under financial integration. Table 1 (A,B,C,D) reports the results that, at 5% significance level, all financial indicators (BTOT, LLY, BANKCR, and PRIVCR) turn out to be negatively and significantly associated with the incidence of financial crises (including banking crisis, currency crisis, and debt crisis). That is, the higher the level of a country's local financial markets development (especially the banking systems, since the stock markets' indicators are not counted in this test), the less the possibility of occurrence of financial crises in that country. The impact is quantitatively important. For example, a one standard deviation increase in PRIVCR could reduce a country's incidence of financial crises by 0.4%. This result confirms those theories I have shown in chapter 2: A country with well developed local financial markets may decrease the incidence of financial crises, because well developed local financial markets help the country alleviate asymmetric information problem, reduce adverse selection and moral hazard, stand against the external shock (sudden stop and reversal of capital flows), and decrease probability of contagion due to financial crises occurred in other countries. Also, my regression result could support the finding of Husain, Mody and Rogoff (2005). They show that "emerging markets experience more banking or twin crises than do advanced or developing economies." They explain that emerging markets, for the one hand, are

more exposed to financial integration, but for the other hand they have much weaker financial markets than advanced countries have.

Test 2

Since it is hard to completely prevent financial crises no matter how well a country's financial markets, test 2 examines whether a country with well-developed financial sectors could alleviate the adverse effect of financial crises on economic growth if crises occur.

Banking system. Table 2 (A-F) reports that a country's GDP growth rate decreases for the long run after a banking crisis occurred (five years after). Table 2-A shows that, at 5% significance level, the PRIVCR indicator is negatively and significantly associated with GDP growth rate lose, while other tables (table 2-B,C,D) show that LLY, BTOT, and BANKCR are not. However, Levine et al. (2000) explain that each of those variables has its own shortcoming to measure the financial sectors development. For example, LLY "may not gauge the effectiveness of financial sector in ameliorating information asymmetries and easing transactions costs. Also, it includes deposits by one financial intermediary in another, which may involve 'double counting'". BTOT "is not a direct measure of the quality and quantity of financial services provided by financial intermediaries, because it does not directly measure the effectiveness of bank in researching firms, exerting corporate control, mobilizing saving, and easing transaction." Compared with other financial sectors indicators, Levine et al. (2000) argue that PRIVCE is the best, "because it improves on other measures of financial development used in the literature". They argue that "this measure of financial development is more than a simple measure of financial sector size. It isolates credit issued to private sector, as opposed to credit issued to governments and public enterprises. Furthermore, it excludes credit

issued by central bank". Thus, this result could still show that, for the long run, the higher the level of a country's banking systems development, the smaller the GDP growth rate loss due to the banking crisis. Since investment plays an important role in countries' long run economic growth and well-developed banking system could reduce the adverse impact of external shock and local banking crisis on investment, the result is understandable and acceptable. To give a sense of the magnitude of the estimates, I make table 6 to show the change in GDP growth rate decline for the long run when Private sector credit (PRIVCR) changes by the difference between two countries' PRIVCR. For example, the difference between UK's PRIVCR (1.1158) and Indonesia's PRIVCR (0.5120) is 0.6038, so the change in GDP growth rate decline for the long run for these two countries is 0.6038* -3.337=-2.01. It indicates that Indonesia suffered 2.01% more GDP growth rate decline during banking crisis than UK did due to their PRIVCR difference. However, table 3, for the short run impact (two years after), and table 4, for the impact of occurred year, report the results that all banking system indicators are not very significantly associated with GDP growth rate lose. Joyce and Nabar (2008) may be able to explain this result. They argue that GDP even could grow in the short run after crises occurred because net exports rise due to a currency devaluation. Calvo and Reinhart (2000), and Hutchison and Noy (2006) also point out that output could have a quick recovery after financial crises due to the net export. Although not significant, table 3 and table 4 also indicate that the relationship between financial sectors variables and GDP growth rate lose is negative. That is, a well-developed banking system more or less could reduce the decline of GDP growth rate for the short run.

Stock market. Table 3-E,F show that stock market development is negatively and significantly associated with GDP growth rate lose for the short run in aftermath of

banking crisis, while table 2-E,F and table 4-E,F report that the relationship among them is not significant for the long run as well as in occurred year. There are some probable explanations for these results. Firstly, a well-developed stock market could decrease the incidence of *herding* behavior and speculative bubbles when crises occurred, which could delay the crises extension. Secondly, as shown in chapter 2, a well-developed stock market can prevent firms' net worth from declining. The high net worth can reduce the lender's losses, and hence prevent the domestic investment from declining sharply. Thirdly, **SVALT** and **SCAPT** are indicators about the liquidity and size of stock market. Levine and Zervos (1998) also find that stock market size is not robustly linked with long run GDP growth rate.

In addition, for test 2, I also try to add the square of finance indicator on the right hand side of equation 2. This will test if for very large financial markets relative to GDP the crisis can actually be very bad (worse than for intermediate levels). This consideration is motivated by the experience of Iceland during this crisis – their financial sector was huge and when the crisis hit, it took the whole economy down with it. However, I finally find that there does not seem to be a non-linear relationship. I will continue this study in future.

CHAPTER VI

CONCLUSION

This paper studied the empirical relationship between various measures of local financial markets development and incidence of financial crises as well as GDP growth rate loss in the aftermath of a banking crisis. I find that countries with better local financial markets experience significantly fewer financial crises, and that efficient banking systems can alleviate the adverse impact of a banking crisis on output lost for the long-run, while better stock market can do it for the short-run. Basing on these results, I provide a specific channel to show that well-developed local financial markets play an important role in contributing to long-run economic growth under the financial globalization.

TABLES

Table 1-A: The effect of the level of local financial markets development on incidence of financial crises — Liquid liability of financial system
  (Significance At 5% Level; 84 Observations; R Square: 0.3469)

	Coefficients	Standard Error	t Stat	Mean
Intercept	4.7047	0.5186	9.0725	
Liquid liability of financial system	-2.7796	0.5353	-5.1923	0.4840
FDI openness	-0.0988	0.0932	-1.0602	0.9304
Trade Openness	-0.0075	0.0048	-1.5789	67.7920
GOV.EX./GDP	-0.0247	0.0190	-1.2979	20.6233
GDP/CAPITA	6.3654	9.4292	0.6751	602319.9

Table 1-B: The effect of the level of local financial markets development on incidence of financial crises — Commercial-central bank assets
  (Significance At 5% Level; 84 Observations; R Square: 0.3426)

	Coefficients	Standard Error	t Stat	Mean
Intercept	6.8463	0.7854	8.7159	
Commercial-central bank assets	-4.8701	0.9502	-5.1252	0.7891
FDI openness	-0.0563	0.0955	-0.5902	0.9304
Trade Openness	-0.0015	0.0051	-0.3034	67.7920
GOV.EX./GDP	-0.0303	0.0191	-1.5815	20.6233
GDP/CAPITA	1.1013	9.4967	1.1596	602319.9

Table 1-C: The effect of the level of local financial markets development on incidence of financial crises — Bank credit
  (Significance At 5% Level; 84 Observations; R Square: 0.4475)

	Coefficients	Standard Error	t Stat	Mean
Intercept	4.7204	0.4664	10.1189	
Bank credit	-3.0428	0.4483	-6.7864	0.4032
FDI openness	-0.0623	0.0862	-0.7231	0.9304
Trade Openness	-0.0066	0.0043	-1.5133	67.7920
GOV.EX./GDP	-0.0364	0.0176	-2.0622	20.6233
GDP/CAPITA	8.5100	8.6800	0.9809	602319.9

Table 1-D: The effect of the level of local financial markets development on incidence of financial crises — Private sector credit
(Significance At 5% Level; 84 Observations; R Square: 0.4262)

	Coefficients	Standard Error	t Stat	Mean
Intercept	4.7307	0.4778	9.9010	
private sector credit	-2.6329	0.4089	-6.4390	0.4565
FDI openness	-0.0344	0.0892	-0.3852	0.9304
Trade Openness	-0.0076	0.0044	-1.6952	67.7920
GOV.EX./GDP	-0.0374	0.0180	-2.0747	20.6233
GDP/CAPITA	1.1900	8.8700	1.3457	602319.9

Table 2-A: The long run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Private sector credit (banking system)
  (Significance At 5% Level; 44 Observations; R Square: 0.3828)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-4.2491	2.3311	-1.8227	
Private sector credit	-3.3379	1.5189	**-2.1976**	0.4607
GOV/GDP	0.0377	0.0707	0.5338	19.5002
FDI openness	0.8715	0.7323	1.1899	0.6015
Trade openness	0.0095	0.0107	0.8852	64.3827
Corruption	0.3411	0.4215	0.8092	3.9527
Inflation Rate	0.0379	0.0126	3.0086	22.7901
Regulation	0.4320	1.0163	0.4250	0.3134
RULE OF LAW	0.4826	1.0862	0.4443	0.0468

Table 2-B: The long run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Liquid liability of financial system (banking system)
      (Significance At 5% Level; 44 Observations; R Square: 0.3078)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-4.8924	2.6983	-1.8131	
Liquid liability of financial system	-1.3477	1.8827	**-0.7158**	0.478817
GOV/GDP	0.0207	0.0754	0.2743	19.5002
FDI openness	0.6675	0.7766	0.8594	0.6015
Trade openness	0.0076	0.0114	0.6658	64.3827
Corruption	0.4060	0.4493	0.9035	3.9527
Inflation Rate	0.0423	0.0132	3.1967	22.7901
Regulation	0.3761	1.0777	0.3490	0.3134
RULE OF LAW	-0.3080	1.1381	-0.2706	0.0468

Table 2-C: The long run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Commercial-central bank assets (banking system)
  (Significance At 5% Level; 44 Observations; R Square: 0.3015)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-4.5572	3.7665	-1.2099	
Commercial-central bank assets	0.0198	0.0772	**-0.4390**	0.8406
GOV/GDP	0.7903	0.7898	0.2570	19.5002
FDI openness	0.0063	0.0113	1.0006	0.6015
Trade openness	0.4608	0.4446	0.5629	64.3827
Corruption	0.0435	0.0131	1.0364	3.9527
Inflation Rate	0.5228	1.1088	3.3105	22.7901
Regulation	-0.6979	1.0047	0.4715	0.3134
RULE OF LAW	-1.4306	3.2585	-0.6947	0.0468

Table 2-D: The long run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Bank credit (banking system)
  (Significance At 5% Level; 44 Observations; R Square: 0.3612)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-4.4187	2.3797	-1.8568	
Bank credit	-3.0406	1.6294	**-1.8660**	0.4149
GOV/GDP	0.0356	0.0719	0.4956	19.5002
FDI openness	1.0494	0.7620	1.3771	0.6015
Trade openness	0.0101	0.0110	0.9197	64.3827
Corruption	0.2715	0.4372	0.6210	3.9527
Inflation Rate	0.0400	0.0127	3.1458	22.7901
Regulation	0.5075	1.0351	0.4903	0.3134
RULE OF LAW	0.3097	1.1018	0.2811	0.0468

Table 2-E: The long run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Valued trade (stock market)
(Significance At 5% Level; 44 Observations; R Square: 0.4749)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-6.3289	2.0840	-3.0368	
Valued trade	-3.0338	1.6989	**-1.7857**	0.1332
GOV/GDP	0.1015	0.0674	1.5056	19.5002
FDI openness	0.8659	0.6439	1.3447	0.6015
Trade openness	0.0118	0.0115	1.0268	64.3827
Corruption	0.5613	0.3600	1.5591	3.9527
Inflation Rate	0.0282	0.0109	2.5808	22.7901
Regulation	-1.1943	1.1359	-1.0514	0.3134
RULE OF LAW	-0.7494	0.8912	-0.8408	0.0468

Table 2-F: The long run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Valued trade (stock market)
(Significance At 5% Level; 44 Observations; R Square: 0.4709)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-6.4001	2.0958	-3.0537	
Capitalization	-1.8963	1.1052	**-1.7158**	0.3462
GOV/GDP	0.1055	0.0677	1.5576	19.5002
FDI openness	0.8970	0.6519	1.3759	0.6015
Trade openness	0.0115	0.0116	0.9942	64.3827
Corruption	0.6408	0.3561	1.7993	3.9527
Inflation Rate	0.0259	0.0109	2.3594	22.7901
Regulation	-1.2531	1.1360	-1.1030	0.3134
RULE OF LAW	-0.7957	0.8911	-0.8929	0.0468

Table 3-A: The short run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Private sector credit (banking system) (Significance At 5% Level; 44 Observations; R Square: 0.2300)

	Coefficients	Standard Error	t Stat	Mean
Intercept	-4.5543	3.2688	-1.3932	
Private sector credit	-3.6905	2.1299	**-1.7327**	0.4606
GOV/GDP	0.0340	0.0992	0.3428	19.5002
FDI openness	0.8824	1.0269	0.8592	0.6015
Trade openness	0.0171	0.0150	1.1386	64.3827
Corruption	-0.0558	0.5910	-0.0945	3.9527
Inflation Rate	0.0328	0.0177	1.8530	22.7901
Regulation	1.3774	1.4252	0.9664	0.3134
RULE OF LAW	1.0968	1.5232	0.7200	0.0468

Table 3-B: The short run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Liquid liability of financial system (banking system)
(Significance At 5% Level; 44 Observations; R Square: 0.1644)

	Coefficients	Standard Error	t Stat	Mean
Intercept	-6.5499	3.7220	-1.7597	
Liquid liability of financial system	0.3225	2.5970	**0.1241**	0.4584
GOV/GDP	0.0247	0.1040	0.2379	19.5002
FDI openness	0.7350	1.0713	0.6860	0.6015
Trade openness	0.0132	0.0157	0.8382	64.3827
Corruption	0.0908	0.6198	0.1465	3.9527
Inflation Rate	0.0397	0.0182	2.1772	22.7901
Regulation	1.3675	1.4865	0.9199	0.3134
RULE OF LAW	-0.3003	1.5699	-0.1912	0.0468

Table 3-C: The short run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Commercial-central bank assets (banking system)

(Significance At 5% Level; 44 Observations; R Square: 0.1667)

	Coefficients	Standard Error	t Stat	Mean
Intercept	-4.9620	5.1649	-0.9607	
Commercial-central bank assets	-1.5073	4.4683	**-0.3373**	0.8405
GOV/GDP	0.0146	0.1059	0.1381	19.5002
FDI openness	0.7894	1.0830	0.7288	0.6015
Trade openness	0.0136	0.0155	0.8810	64.3827
Corruption	0.0765	0.6096	0.1255	3.9527
Inflation Rate	0.0389	0.0180	2.1608	22.7901
Regulation	1.4722	1.5205	0.9682	0.3134
RULE OF LAW	-0.2084	1.3777	-0.1513	0.0468

Table 3-D: The short run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Bank credit (banking system)

(Significance At 5% Level; 44 Observations; R Square: 0.1887)

	Coefficients	Standard Error	t Stat	Mean
Intercept	-5.2028	3.3669	-1.5452	
Bank credit	-2.3806	2.3053	**-1.0326**	0.4149
GOV/GDP	0.0291	0.1018	0.2864	19.5002
FDI openness	0.9747	1.0781	0.9040	0.6015
Trade openness	0.0166	0.0156	1.0637	64.3827
Corruption	-0.0713	0.6186	-0.1153	3.9527
Inflation Rate	0.0363	0.0179	2.0182	22.7901
Regulation	1.4310	1.4646	0.9770	0.3134
RULE OF LAW	0.5808	1.5590	0.3725	0.0468

Table 3-E: The short run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Valued trade (stock market) (Significance At 5% Level; 44 Observations; R Square: 0.2516)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-6.4313	2.8522	-2.2548	
Valued trade	-5.0468	2.3252	**-2.1704**	0.1332
GOV/GDP	0.0740	0.0923	0.8013	19.5002
FDI openness	0.9821	0.8813	1.1144	0.6015
Trade openness	0.0246	0.0157	1.5636	64.3827
Corruption	0.2178	0.4927	0.4421	3.9527
Inflation Rate	0.0153	0.0150	1.0230	22.7901
Regulation	-0.4620	1.5546	-0.2972	0.3134
RULE OF LAW	-0.3772	1.2198	-0.3090	0.0468

Table 3-F: The short run effect of the level of local financial markets development on GDP growth rate loss due to banking crisis — Capitalization (stock market) (Significance At 5% Level; 44 Observations; R Square: 0.2517)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-6.5705	2.8572	-2.2995	
Capitalization	-3.2719	1.5067	**-2.1715**	0.3462
GOV/GDP	0.0806	0.0923	0.8729	19.5002
FDI openness	1.0516	0.8888	1.1831	0.6015
Trade openness	0.0249	0.0158	1.5753	64.3827
Corruption	0.3479	0.4855	0.7166	3.9527
Inflation Rate	0.0113	0.0149	0.7586	22.7901
Regulation	-0.5431	1.5488	-0.3506	0.3134
RULE OF LAW	-0.4393	1.2148	-0.3616	0.0468

Table 4-A: The effect of the level of local financial markets development on GDP growth rate loss due to banking crisis in occurred year— Private sector credit (banking system)

(Significance At 5% Level; 44 Observations; R Square: 0.2924)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-1.2705	3.7440	-0.3393	
Private sector credit	-2.1700	2.4395	**-0.8895**	0.4606
GOV/GDP	-0.0976	0.1136	-0.8591	19.5002
FDI openness	2.4134	1.1762	2.0517	0.6015
Trade openness	0.0325	0.0172	1.8865	64.3827
Corruption	-1.0302	0.6770	-1.5218	3.9527
Inflation Rate	0.0243	0.0202	1.2007	22.7901
Regulation	2.9466	1.6324	1.8050	0.3134
RULE OF LAW	1.0016	1.7447	0.5741	0.0468

Table 4-B: The effect of the level of local financial markets development on GDP growth rate loss due to banking crisis in occurred year— Liquid liability of financial system (banking system)

(Significance At 5% Level; 44 Observations; R Square: 0.2764)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-2.3517	4.1381	-0.5682	
Liquid liability of financial system	0.0594	2.8873	**0.0206**	0.4584
GOV/GDP	-0.1037	0.1157	-0.8968	19.5002
FDI openness	2.3211	1.1911	1.9487	0.6015
Trade openness	0.0304	0.0175	1.7326	64.3827
Corruption	-0.9494	0.6891	-1.3775	3.9527
Inflation Rate	0.0282	0.0203	1.3928	22.7901
Regulation	2.9370	1.6527	1.7770	0.3134
RULE OF LAW	0.2177	1.7454	0.1247	0.0468

Table 4-C: The effect of the level of local financial markets development on GDP growth rate loss due to banking crisis in occurred year— Commercial-central bank assets (banking system)
  (Significance At 5% Level; 44 Observations; R Square: 0.2784)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-0.9129	5.7424	-0.1589	
Commercial-central bank assets	-1.5487	4.9679	**-0.3117**	0.8405
GOV/GDP	-0.1127	0.1178	-0.9566	19.5002
FDI openness	2.3887	1.2042	1.9836	0.6015
Trade openness	0.0306	0.0172	1.7708	64.3827
Corruption	-0.9528	0.6778	-1.4056	3.9527
Inflation Rate	0.0277	0.0200	1.3854	22.7901
Regulation	3.0524	1.6906	1.8055	0.3134
RULE OF LAW	0.2336	1.5317	0.1525	0.0468

Table 4-D: The effect of the level of local financial markets development on GDP growth rate loss due to banking crisis in occurred year— Bank credit (banking system)
  (Significance At 5% Level; 44 Observations; R Square: 0.2986)

	Coefficients	*Standard Error*	*t Stat*	*Mean*
Intercept	-1.0425	3.7403	-0.2787	
Bank credit	-2.6966	2.5610	**-1.0529**	0.4149
GOV/GDP	-0.0971	0.1131	-0.8589	19.5002
FDI openness	2.6058	1.1977	2.1755	0.6015
Trade openness	0.0339	0.0173	1.9554	64.3827
Corruption	-1.1205	0.6872	-1.6305	3.9527
Inflation Rate	0.0247	0.0199	1.2371	22.7901
Regulation	3.0177	1.6270	1.8547	0.3134
RULE OF LAW	1.1276	1.7319	0.6510	0.0468

Table 4-E: The effect of the level of local financial markets development on GDP growth rate loss due to banking crisis in occurred year— Valued trade (stock market) (Significance At 5% Level; 44 Observations; R Square: 0.2659)

	Coefficients	Standard Error	t Stat	Mean
Intercept	-2.3207	3.2739	-0.7088	
Valued trade	-3.9653	2.6690	**-1.4857**	0.1332
GOV/GDP	-0.0388	0.1060	-0.3663	19.5002
FDI openness	2.3699	1.0116	2.3426	0.6015
Trade openness	0.0396	0.0181	2.1913	64.3827
Corruption	-0.8430	0.5655	-1.4905	3.9527
Inflation Rate	0.0071	0.0172	0.4126	22.7901
Regulation	1.0974	1.7844	0.6149	0.3134
RULE OF LAW	-0.0040	1.4001	-0.0029	0.0468

Table 4-F: The effect of the level of local financial markets development on GDP growth rate loss due to banking crisis in occurred year— Capitalization (stock market) (Significance At 5% Level; 44 Observations; R Square: 0.2510)

	Coefficients	Standard Error	t Stat	Mean
Intercept	-2.3646	3.3130	-0.7137	
Capitalization	-2.2002	1.7471	**-1.2593**	0.3462
GOV/GDP	-0.0339	0.1070	-0.3175	19.5002
FDI openness	2.3687	1.0306	2.2983	0.6015
Trade openness	0.0374	0.0183	2.0388	64.3827
Corruption	-0.7338	0.5630	-1.3034	3.9527
Inflation Rate	0.0041	0.0173	0.2402	22.7901
Regulation	0.9802	1.7959	0.5458	0.3134
RULE OF LAW	-0.1002	1.4086	-0.0711	0.0468

Table 5: The correlation of the indicators of local financial markets

	Liquid liability of financial system	Commercial-central bank assets	Private sector credit	Bank credit	Valued trade	Capitalization
Liquid liability of financial system	1					
Commercial-central bank assets	0.210396	1				
Private sector credit	0.766677	0.445054	1			
Bank credit	0.84968	0.428391	0.929122	1		
Valued trade	0.477458	0.259335	0.551607	0.584144	1	
Capitalization	0.576834	0.35168	0.62997	0.680084	0.941845	1

Table 6:

	INDONESIA	COLOMBIA	RUSSIA
UK	-2.01	-2.54	-3.47
FRANCE	-1.44	-1.94	-2.87
JAPAN	-3.03	-4.53	-5.45

This is the report of the change in GDP growth rate decline for the long run when Private sector credit (PRIVCR) changes by the difference between two countries' PRIVCR. For example, the difference between UK's PRIVCR (1.1158) and Indonesia's PRIVCR (0.5120) is 0.6038, so the change in GDP growth rate decline for the long run for these two countries is 0.6038* -3.337=-2.01

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