Financial Liberalization and the Banking Crisis: A Study of ASEAN Nations

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Abstract

Capital Account Liberalization has always been a major policy concern among the economist and researchers in India since the occurrence of 1991 Balance of Payment Crises. In the last four decades a lot of policy discussion has been done over the issues by the policy makers and the scholars, but no common consensus has been formed, also lately IMF has changed its views on the openness of the economy in its report by . Therefore, in this paper we make an attempt to analyse the empirical relationship between the Financial Liberalization, Economic Freedom and the Banking Crises. The data set adopted for the purpose of study is for the years 1980-2005 and covers Emerging Asian Markets: ASEAN 5 [Indonesia, Korea, Malaysia, Philippines and Thailand (those impacted by 1997-98 crises)]. The impact over the various dimensions of the financial reforms has been tested using the Panel Logit model. The results of the paper support the cautious approach towards the liberalization of the capital account if the nation is having weak institutional environment.

Keywords: Financial Liberalization, Banking Crises, Economic Freedom, Institutional Environment, Logit Model.

INTRODUCTION

Since past four decades the researchers and the policy makers are discussing and probing the relationship between the financial liberalization and financial crisis, but have not derived a definite conclusion. "Minsky" who gave the financial instability hypothesis, states that: if the financial institutions and the financial markets are not stable, the financial liberalization shows positive expectations in the short run only. The liberalization leads to surge of capital into the markets, which are speculative in nature and these flows are invested into the high risk projects to earn higher returns. These flows only show positive and greater impact on the economic growth in the initial years of capital account openness and in the later years the risk and the defaults increases, reversing the situation. This leads to instability and crisis in various sectors of the economy, primarily affecting the banking sector. The experiences of the various Latin American nations

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and the South East Asian nations supports the fact that the liberalization policies till date are not efficient and the researchers have no common views on the issue.(Eichengreen, 2001; Eichengreen & Arteta, 2000) in their paper mentioned that "removing controls on the capital account may not be beneficial in the presence of the other distortions which are plausibly the case in the developing economies".

Various studies (Beck, Demirgüç-Kunt, & Levine, 2006; Asli Demirguc-Kunt & Detragiache, 1998; Shehzad & Haan, 2009) focuses on the issue that more open economies are prone to crisis in particular the banking sector[3] as it becomes more fragile due to the frequent inflows and outflows of the funds. The capital account convertibility (CAC) induces the behaviour of higher risk taking among the investors by investing into riskier projects in expectation of better returns from the emerging markets. But these studies basically used very objective data for liberalization i.e. just focusing on the deregulation of the banking interest rates. It is a cycle where investors invest in the fast growing economies i.e. where the opportunity cost is higher, (the herd behaviour of the investor follows), thus reducing the cost of capital ("pooling liquidity risk"(Diamond & Dybvig, 1983)) and the returns on investment. Given the situation, the investors start moving out the money from these projects in emerging markets again the herd behaviour of investors follow, the sudden inflows and outflows in the economy traumatize the banking sector. The openness and the removal of the controls on the international capital flows render the financial intermediaries to jeopardy of foreign exchange risk. (Graciela L. Kaminsky &

Reinhart, 1999) states that the foreign currency risk is transformed to the credit risk (the financial intermediaries raise funds in foreign currency abroad and lend it to domestic borrowers) causing the twin crises (both currency and banking crisis).

The primary function of the banking system is to channelize the short-term deposits into the long term funds (loans), matching the maturities. The theory states that in the more closed economies the bank lending interest rates are subject to ceilings, due to which they can't invest or lend loans in the high risk projects and makes it impossible for these banks to charge the high risk premium and earn higher returns. In an open economy the interest rates (nominal) are market determined and are more volatile[4]. Once the financial system is deregulated i.e. the ceilings are lifted, more investing participants enter into the competition, therefore it becomes easier for the banks to lend and disburse the funds to the more risky projects, charging high risk premia and earning higher returns. These investment bankers hedge the credit risk by holding well-diversified portfolios, but these portfolios are exposed to the various risk and economy wide shocks. In a less developed banking system the maturity mismatch can occur leading to fund shortages in the system, leading to liquidity problem and contagion due to market imperfections and panic among the public. The evaluation and the monitoring of these loans and the collateral is a primary activity and requires lot of skills, which may not be the case with all of these banks. Thus the failure to evaluate the loan during the term (along with other factors like economic slowdown, reduction in demand etc) leads to the non-payment

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3. *"Chilean experiences, and those of other Latin American countries, also show that fiscal extravagance is a sure way to bring about not only economic dislocation, but also the weakening and even collapse of fragile democratic institutions" (Diaz-Alejandro, 1985). The same situation was faced by the Asian tigers or the fast growing Asian economies which suffered with crisis in 1997-98 after the fall of Thai Bhatt.*

4. *"Bank insolvency often occurs when macroeconomic volatility is on the rise and when incentives appear to have weakened – not a good time to try to determine causality. When financial deregulation occurs at the same time it becomes a convenient target, though in many countries deregulation proceeded faster than improvements in financial infrastructure and incentives, suggesting that weak financial infrastructure and poor incentives led to the crises".(Caprio and Klingebiel, 1997)*

of the instalments, increasing the Non-Performing Loans (NPLs) of the banks.

The paper is an attempt to analyse empirically the theoretical reasons why the capital account open economies, in particular the liberalized banking system, makes economy more vulnerable to the crisis. With the insights from the research of (Minsky, 1993), we try to argue that the financial liberalization makes the economy more inclined to BC (Banking Crisis).

REVIEW OF LITERATURE

As per (Caprio & Klingebiel, 1997) the bank insolvencies are increasing due to systemic failure, weak institutional policies which drain the country's finances. (Demirgüç Kunt & Detragiache, 1998), analyse the empirical relationship between financial liberalization and banking crises using the data from 1980-1995 for 53 nations. Their findings suggest that in a liberalized financial system the probability of the banking crises is more likely. But in a stable and a strong institutional environment the impact of liberalization on the vulnerability of banks is lesser. (Graciela Laura Kaminsky, 1999)analysed the link between the 76 currency crisis and 26 banking crisis for the period 1970 to 1995, taking into account 20 countries and focusing on the fragility of economy as an indicator for future crisis. But (A. Demirguc-Kunt & Detragiache, 2000) uses a multivariate Logit technique to develop the model for banking crisis, that can be used for monitoring the vulnerabilities in the banking sector. The results are lower in type I and type II error than the previous approaches used for determining the banking crisis. After investigating almost 90 banking crises, 202 currency crisis and 37 twin crisis (Glick & Hutchinson, 2005), finds the more liberalized emerging economies are prone to twin crises and mainly concentrated on, openness triggers excessive booms and busts cycles in financial markets leading to crisis. (Graciela L. Kaminsky & Reinhart, 1999) focuses on the issue of both banking and balance of payment crises, and states that the sudden liberalization in the financial

sector leads to a shock to all the financial institutions as the capital flow increases, also the access in capital markets abroad fuels the system during the boom period of the economy, providing excessive financing options.(Graciela L Kaminsky & Schmukler, 2003; Graciela Laura Kaminsky & Schmukler, 2008; Ranciere, Tornell, & Westermann, 2006) supports the same school of thought with little difference in the findings. They show that financial openness in the short run causes larger investment cycles witnessing the development of lending boom which ends up in financial distress.

(Blackburn & Forgues-puccio, 2008) summarized their study stating that the effect of corruption is more adverse in an open economy that the closed one and in a weak bureaucratic system. The growth of an economy is far less in presence of corruption even if the capital account is made open and foreign flows are invited for the investment. If the governance is weak the investors will lose the confidence in the long run finding it riskier and less profitable to invest in the nations with weak rule of law, (Elbir & Goaied, 2012) in their paper suggest that the lower corruption and financial liberalization are substitutes in promoting growth. There is clear evidence from literature that in the developing nations, if the institutional environment is weak, the financial liberalization has costs in terms of increased fragility in the economy and the financial markets. This may even spread from one nations to many other in the integrated and liberalized markets. It is really very important to develop the strong institutional environment before taking up full capital account liberalization.(Beck, 2008; Hellmann, Murdock, & Stiglitz, 2000) suggest that due to the regulatory and supervision failures, the financial liberalization and unfettered competition globally, has resulted in the systemic failures and undermine prudential bank behaviour. Similarly (Giannetti, 2007; Noy, 2004)in their research writes that one of the main culprits of volatility in the banking sector is financial liberalization due to the sudden loss of monopoly power of the domestic regulated bank, as the uninformed international lenders invest the large

amount funds at a lower cost. Thus, from the literature it's clear that financial openness makes the system fragile and contagious, therefore signalling the developing nations a cautious approach towards the fuller capital account convertibility.

DATA AND METHODOLOGY

The data set adopted for the purpose of study is for the years 1980-2005 and covers ASEAN 5 [Indonesia, Korea, Malaysia, Philippines and Thailand (those impacted by 1997-98 crisis)] nations. These nations are gauged in the paper as stated in (Stiglitz, 2003) "when the THAI baht collapsed... the currency speculation spread and hit Malaysia, Korea, the Philippines and Indonesia and by the end of the year what had started as an exchange rate disaster threatened to take down many of the region's banks, stock markets and even entire economies". Also these Emerging Asian nations had recently opened there capital accounts and had adopted policies for the integrated trade and financial markets.

1   **Banking Crises**
     The dataset for the banking crises has been adopted from the(Reinhart & Rogoff, 2008b), which is based upon detailed country to country analysis of various forms of economic and financial crises. The definition of the banking crises as given in the(Reinhart & Rogoff, 2008a) basically analyse the stresses events in the banking sector. There are two situations which define the banking crises in the nation; first when the "bank runs that lead to the closure, merging, or takeover by the public sector of one or more financial institutions and second situation is when; there are no runs, the closure, merging, takeover, the large-scale government assistance has been provide to an important financial institution (or group of institutions), that marks the start of a string of similar outcomes for other financial institutions". But researchers criticised this method as the closure

of the banks can be too late after the actual problem with the bank. On the similar pattern (Laeven & Valencia, 2013) defined the banking crises dating process, the second criterion mentioned above is adopted is the first one is not met. One of the reasons for adopting the data base is the wide coverage of the time period which begins from 1800 and is dated till the year, which helps to capture different period of financial turmoil.

The index of the banking crises is a binary variable where 1 represents the year of banking crises (onset of the banking crises) and 0 otherwise. A total of 54 episodes were identified for all the nations included in the sample during the defined period (See the appendix I). Out of the 54 crises episodes 13 were recorded as the twin crises. The twin crises are the situation when the nations bear both the banking and the currency crises. The currency crisis is defined as "a nominal depreciation of 25% or greater in the value of the currency, which is at least 10% greater than the depreciation in the previous year"(Frankel & Rose, 1996). But for the current study we only focus on the 54 banking crises episodes.

2   **Financial Liberalization**
     Financial Liberalization means the deregulation of the domestic markets and the free currency convertibility with the motive of long-run economic growth. There are different categories of measurement of financial liberalization or upliftment of controls from the Capital account :[5]

- De Jure: De Jure measures are the binary indicators developed for evaluating the level of controls implemented on the capital account i.e. the controls instigated upon the cross border capital flows. It is the accounts which maintains the record of- the presence and the absence of the control measure over the different categories of flows and is coded in 0 and 1 form. The zero

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5.   Study considered the financial liberalization as openness of the capital account.

here represents the presence of the control and the 1 represents free mobility of the capital. But this construct does not record the actual amount of flows, nor the magnitude and the direction of the flows.

• De Facto: De Facto measures captures the real market situation taking into the account the integration of a nation into the international capital and money markets (Lane & Milesi-Ferretti, 2001). It is an alternative approach to the DeJure index or the regulatory index as it accounts the actual flows in and out of the economy. It includes both the price and the quantity based measures for recording the actual flows of the economy.

• Hybrid Measures: It's the blend of both De Jure and De facto measures of capital controls.

For the purpose of this paper we take into account only De Jure measures as they are directly related to the policies and regulatory aspect of the nation. Any change in this is relates to the change in the policies of a nation in relation to financial liberalization. The de jure measure takes into account the scale based on the rigorousness and the degree of capital controls or in particular the binary variables from the AREAER recorded by the IMF. These binary variables include the restrictive and non-restrictive regulations in relation to capital controls further diversifying in according to the resident and the non-resident categories. In these studies the 1 indicates the liberalization or deregulation of control and 0 represents any kind of restriction imposed. The Annual report on Exchange Arrangements and Exchange Restrictions was a binary Measure until 1996 and then recorded with the sub Categories subsequently. For the liberalization (the openness of the Capital account) of the economy, we adopted the data set named **FINREFORM** from (Abiad, Detragiache, & Tressel, 2008),they measured the intensity of the openness of the financial sector by taking into account the different dimensions and scoring on the scale

from 3(fully liberalized) to 0 (not liberalized at all). It also take into account the policy reversals (but not measured in the paper). The first dimension is the credit controls and reserves requirement focusing on the credit ceilings, the next dimension is interest rate controls than is entry barriers followed by the state ownership. The next important dimensions are the restriction on the international capital flows, security market restrictions and the last is the prudential banking regulations (a greater score in the prudential regulation dimension would mean better regulation). A raw scale was assigned to each dimension and there after it was normalized to the 0-3 scale so that the score is comparable among the dimensions and the cross sections. Each dimension individually was scored on the 0-4 or 0-2 scale depending upon the categorization, where 0 being fully repressed and 2or 4 means fully liberalized transactions, before the normalization process. The finre form index is the total of all seven categories of Financial Account and the score lies on the scale of 0-21 (3 being the maximum score and total number of categories are 7), therefore the financial reform index was normalized to 0-1 scale, i.e. the score of the country for each year lies between minimum 0 to maximum 1.

3 **Economic Freedom of the World Index**

In the previous studies the researchers had evaluated the impact of financial liberalization over the increase of the growth of the economy. Authors like (Stiglitz, 2003; Vasudevan, 2006) and others concluded that there are pre requisites to the liberalization of the financial account, that needed to be met before the integration of the nation with the rest of the world. These include strong domestic financial system, corruption free environment, strong regulatory system and free movement of labour and trade & capital. The Regulatory Efficiency takes into account the amount of government intervention into the Legal, Economic and Monetary aspects of a country. The freedom is

based on three fundamental principles: "empowerment of the individual, non-discrimination and open competition leading to the creation and maintenance of mutual sense of liberty for all. The Economic freedom should provide an absolute right of property ownership, free movement of labour and capital, consumption of goods and services, economic decisions at the decentralized form". Various previous researches have reported in their studies the relationship between the 'lax supervision' and the failure of the financial liberalization. Therefore it becomes important to study the bureaucratic environment of the nation before commenting of the volatility in the banking and the financial sector and economic freedom as a whole.So, we used the Economic Freedom of the World Index[6] (Gwartney, Lawson, & Hall, 2017) developed by the FRASER Institute, is based on 42 quantitative and qualitative data points recorded separately under 5 different categories:

i.   Size of government: expenditures, taxes, and enterprises;
ii. Legal structure and security of property rights;
iii. Access to sound money;
iv. Freedom to trade internationally;
v.   Regulation of credit, labour, and business.

4.   Macroeconomic Variables

To avoid the spurious regression problem we added various macroeconomic and financial variables that have been mentioned in the earlier studies to be used as control variables. Control variables are those which are not of primary concern in the regression outcome, but any change in these variables would skew the relation between the dependent variable and independent variable. These are used as the control variables as they have a significant impact on the banking crises. We selected these variables from

the list mentioned in the Demirguc-Kunt and Detragiache (2000); Eichengreen and Arteta (2000); Mehrez and Kaufmann (2000); Glick and Hutchinson (2005). The various variables used in the regression were: GDP growth, Terms of Trade adjustment, Real Interest Rate, Real effective Exchange Rate, Inflation (Consumer price Index), Money and Quasi Money to Total Reserve Ratio, Bank Non-Performing Loans to Total Gross Loans, Domestic Credit to Private Sector Loans and Inflation GDP deflator (See appendix II for the definition of Variables and Sources for the data).

5.   Panel Data Logit Model Specification

As the dependent variable in the study i.e. the banking crises is binary in nature (representing 1 for the crises period and 0 otherwise) and to normalize the analysis we use Logistic distribution function and employ panel data Logit model as given in equation (1). In the Logit model the estimated coefficients capture the effect of change in an explanatory variable, where the sign of the coefficient implies the direction of the change, whereas the slope of the cumulative distribution function defines the magnitude of change. So the Logit model is appropriate for the purpose of study, as we want to analyse the effects of financial liberalization reforms over the occurrence or the non-occurrence of banking crises (Asli Demirguc-Kunt & Detragiache, 1998) as given in equation 2. So, we use panel containing yearly observations the defined set of indicators for the A5 nations.

$$L = \sum_{t=1}^{k} \sum_{i=1}^{n} \{P_{it} ln[F(\beta' X_{it})] + (1 - P_{it}) ln[1 - F(\beta' X_{it})]\} \quad \text{((1) The Logit Function)}$$

Thus in this paper the Logit Function is:

$$\{BNK_{i,t} = \beta_{i,t} + \lambda(LIB_{i,t}) + \psi(LIBC_{i,t}) + \theta(ECFR_{i,t}) + \eta(ECFRC_{i,t}) + \delta[LIB_{i,t} * ECFR_{i,t}]$$
$$+ \rho[LIBC_{i,t} * ECFRC_{i,t}] + \gamma(CTRL_{i,t}) + \xi_{i,t}\} \qquad (2)$$

- $BNK_{i,t}$: is a binary variable for the onset of the banking crises in i country and t year

6.   For the detail methodologies review the study: (Hall & Lawson, 2014). Economic Freedom of the World: An Accounting of the Literature. Contemporary Economic Policy. http://onlinelibrary.wiley.com/doi/10.1111/coep.12010.

- $LIB_{i,t}$: is the financial reform (liberalization) variable in i country and t year
- $LIBC_{i,t}$: is the decomposed financial reform (liberalization) variable into 7 Components in i country and t year
- $ECFR_{i,t}$: is the economic freedom index variable in i country and t year
- $ECFRC_{i,t}$: is the decomposed economic freedom variable into 5 Areas in i country and t year
- $LIB_{i,t}$: * $ECFR_{i,t}$: is the integrated variable to study the financial integration in presence of economic freedom
- $LIBC_{i,t}$: * $ECFRC_{i,t}$: is the integrated variable to study the different type of flows in the financial reform index and evaluating the bureaucracy environment, economic environment and the enforcement of prudential regulation
- i subset : represents countries from 1 to 5 (Indonesia, Korea, Malaysia, Philippines and Thailand)
- t subset : represents the time in terms of a year (25 years from 1980-2005)

We have reported the marginal effects alongside the coefficient values as the literature suggest reporting of the marginal effects is more apt as it explains the change in outcome as a function of the change in the independent variable holding all other variables in the regression constant.

Thus, the Key Objectives of the Study are:

- To test the effect of financial reform (Liberalization) and its various categories of flows on the probability of banking crises and macroeconomic variables.
- To test the effect of Economic Freedom variables on the probability of banking crises and macroeconomic variables.
- To test the effect of financial reform (Liberalization) and it's various categories of flows, conditional on economic freedom on the probability of banking crises and macroeconomic variables.

EMPIRICAL RESULTS

The results are shown using the panel Logit model and analyse the relationship between the banking crisis and financial liberalization with the regulatory and macroeconomic control variables. We run the different regressions for being more liberalized and better ranking according to Economic freedom index:

I.   Effect of financial reforms on banking crises (Table 1)
ii. Effect of economic freedom on banking crises (Table 2)
iii. Effect of financial reform and economic freedom on banking crises (Table 3)

For all the three objectives we have divided the analyses in two panel Logit regressions separately as following:

- **Regression 1:** is the equation where we measure the composite index and
- **Regression 2:** is the equation where we measure the components of the index in details.

i   Financial Liberalization and the Banking Crises

We estimate the equation using the Panel Logit model with the Random effects and report the results in table I. We regress banking crises only on the financial reform variables and control variables. We report the regression with average marginal effects on means because they are more meaningful and accurate measures, as suggested in literature (Drukker, 2010). The Coefficient value tells the direction and the magnitude of the variable in the Logit models. Our findings are in line with those of the previous studies.

Hypothesis: Ho: There is no impact of financial reforms over the occurrence of the banking crises.

In Regression 1 study analyse the relationship between the total score of financial reform variable

and found that it is not significant, but when we segregate the Financial reform variables into different categories as mentioned in (Abiad et al., 2008), we found the results significant in few cases. In Regression 2, the interest rate controls, privatization and capital controls are negative and significant in the occurrence of the banking crises, whereas the banking entry barriers come out to be

positive and significant showing the increases in the occurrence of the crises. In case of A5 international capital flows are significant in increasing the probability of crises. In case of control variables the real GDP growth, Broad Money to reserves and terms of trade also predict the chances of crises. The significance of the dummies for Indonesia, Korea and Malaysia are negatively significant.

Table 1 : Effect of Financial Reforms on the Banking Crises

Independent Variables	Regression 1			Regression 2		
	Coefficient	Standard Error	Marginal Effect	Coefficient	Standard Error	Marginal Effect
Financial Liberalization:						
CRT CO				-0.5451676	(0.5306086)	-0.18525005
INT CO				-0.7067674	(0.4344894)*	-0.24016227
BAN EN				2.322484	(0.8912714)***	0.7891889
PVT				-2.172099	(0.5577231)***	-0.73815546
SUP CO				0.3458771	(0.9382983)	0.11753038
CAC CO				-0.7969142	(0.5936918)*	-0.27079453
SCR MA				-0.1074989	(0.9668383)	-0.03652856
LIB (Financial Reform)	-1.50508	(2.326691)	-0.32473832			
Independent Control Variables						
GDP GROW	-0.2729851	(0.083021)***	-0.6259947	-0.2063608	(0.1043508)**	-0.07012219
TOT	2.04e-14	(1.05e-14)**	4.708e-15	2.39e-14	(1.17e-14)**	8.108e-15
RE INT	0.0046713	(0.0570223)	0.00253734	0.1096183	(0.761263)	0.03724873
REER	-0.0029423	(0.008547)	-0.00060297	0.0057636	(0.011608)	0.00195849
INF CP	-0.0945496	(0.052986)*	-0.02066407	-0.0380163	(0.0661288	-0.01291808
M2/TR	0.4830128	(0.1440825)***	0.10866487	0.9153535	(0.2333569)***	0.31104066
CRD PVT/GDP	0.0210603	(0.0127301)*	0.00458958	-0.0102278	(0.0185888)	-0.00347546
D1	-0.9997108	(1.411226)	-0.2630243	-7.340934	(2.442753)***	-2.4944775
D2	-1.369177	(0.9191256)	-0.29320014	-5.597816	(1.664951)***	-1.9021593
D3	-0.8486101	(0.788677)	-0.19945199	1.961069	(1.372955)*	0.66637886
D4	0.917987	(1.08702)	0.17846298	-0.9754114	(1.655878)	-0.33144855

***, **,* indicates rejection of null (coefficient=0) at 1%, 5%, 10% significance levels, respectively. The values in the parentheses are the standard errors

ii Economic Freedom and the Banking Crises

In table 2 we regress the dependent variable banking crises on the economic freedom index. In the first regression (Regression 1) and the Components of

Economic freedom (listed above) in Regression 2.

Hypothesis: Ho: There is no impact of economic freedom over the occurrence of the banking crises.

Table 2 : Effect of Economic Freedom on the Banking Crises

Independent Variables	Regression 1			Regression 2		
	Coefficient	Standard Error	Marginal Effect	Coefficient	Standard Error	Marginal Effect
Economic Freedom of the World:						
SOG				0.424255	(0.3614469)	0.28778948
LSPR				-0.4127375	(0.2428195)*	-0.23471626
SM				0.0377333	(0.1472014)	0.00708855
FTI				0.2429699	(0.2836905)	0.15717806
REG				-1.158626	(0.3805981)**	-0.72926666
Economic Freedom Index Value	-0.4327184	(0.5314052)	-0.16116057			
Independent Control Variables						
GDP GROW	-0.2776158	(0.083594)***	-0.10339455	-0.172255	(0.0543723)***	-0.108312
TOT	2.01e-14	(1.05e-14)**	7.500e-15	8.63e-15	(6.31e-15)	5.476e-15
RE INT	0.0093297	(0.0540239)	0.00347472	0.0091372	(0.0345184)	0.00479312
REER	-0.0042224	(0.0071886)	-0.0015726	0.0007644	(0.0052654)	-0.000032449
INF CP	-0.090468	(0.0509865)*	-0.0336937	-0.0447489	(0.0345732)	-0.02844347
M2/TR	0.4796449	(0.1451649)***	0.1786378	0.2924145	(0.0920503)***	0.18678612
CRD PVT/GDP	0.0238782	(0.0134141)*	0.00889314	0.014012	(0.0089861)*	0.00950823
D1	-1.047587	(1.40507)	-0.3901607	-2.691039	(1.107864)*	-1.5888034
D2	-1.478351	(0.8731415)*	-0.5505934	-1.300999	(0.5670014)*	-0.83699914
D3	-0.8844742	(0.773382)	-0.3294114	0.3463828	(0.8118555)	0.23683065
D4	0.8102689	(1.062674)	0.30177455	-0.5684351	(0.9870494)	-0.27520703

***, **,* indicates rejection of null (coefficient=0) at 1%, 5%, 10% significance levels, respectively.

The values in the parentheses are the standard errors

The results of the Panel Logit in table 2 shows that the economic freedom in total does not impact the occurrence of the crises in Regression 1. But when the individual components of the economic freedom index were evaluated in regression 2, the legal structure and the security of property rights and the regulation of credit & business shows a negative and a significant impact over the occurrence of the banking crises. In regression 2 among the control variables GDP growth has a negative effect and broad money and credit to the private sector has a positive and significant influence over the happening of the crises in the banking sector.

iii Financial Liberalization, Economic Freedom and the Banking Crises

In table III the third set of regression we tried to analyse the total financial liberalization and economic freedom variable as the predictors of crises. In regression 1 the total of the financial reform and the economic freedom index is examined and in regression 2 we regress the banking crises on all the components of financial reform variable and the economic freedom variable along with the control variables.

Hypothesis: Ho: There is no impact of financial reforms and economic freedom over the occurrence of the banking crises.

These significant variables show the occurrence of the crises in different situations. More liberalized and less developed nations increases the chances of occurrence of the crises. Among the Components of the Economic freedom index the LSPR and the Regulation of the credit & business has a highly negative significance over the chances of the banking crises.

Table 3 : Effect of Financial Reforms and Economic Freedom on the Banking Crises.

Independent Variables	Regression 1			Regression 2		
	Coefficient	Standard Error	Marginal Effects	Coefficient	Standard Error	Marginal Effects
Economic Freedom of the World:						
SOG				0.1537002	(0.5769529)	0.10699077
LSPR				-1.231176	(0.3749826)***	-0.59847339
SM				0.2802465	(0.2421652)	0.13229075
FTI				-0.0198573	(0.4571778)	-0.03071669
REG				-1.979877	(0.7037866)***	-1.0470095
Economic Freedom Index Value	-0.3490052	(0.6080638)	-0.1299504			
Financial Liberalization:						
CRT CO				-0.2253744	(0.4527011)	-0.13859395
INT CO				-0.8495667	(0.3415671)***	-0.42385076
BAN EN				1.802497	(0.691127)***	0.86860251
PVT				-1.325962	(0.3694263)***	-0.7093827
SUP CO				-0.4969663	(0.7417986)	-0.19461276
CAC CO				-0.6212506	(0.4490439)*	-0.28341155
SCR MA				1.166949	(0.7635296)*	0.61626519
LIB (Financial Reform)	-0.757842	(2.666554)	-0.28217881			
Independent Control Variables						
GDP GROW	-0.2758259	(0.0835319)***	-0.10270245	-0.1652213	(0.0752561)**	-0.08886389
TOT	2.02e-14	(1.05e-14)**	7.507e-15	1.39e-14	(8.69e-15)*	7.261e-15
RE INT	0.0040196	(0.0570047)	0.02776873	0.0597085	(0.0500092)	0.02776873
REER	-0.0029083	(0.008575)	0.01056627	0.019252	(0.0102202)*	0.01056627
INF CP	-0.0948567	(0.0531067)*	-0.01609958	-0.0255129	(0.0484115)	-0.01609958
M2/TR	0.4762616	(0.1449541)***	0.3003924	0.5586986	(0.1535446)***	0.3003924
CRD PVT/GDP	0.023469	(0.0134722)*	-0.00942263	-0.0166639	(0.0166531)	-0.00942263
D1	-1.883017	(1.336684)	-5.2223469	-10.1582	(2.494574)***	-5.2223469
D2	-2.281454	(1.173319)**	-2.5877932	-5.033878	(1.315798)***	-2.5877932
D3	-1.717302	(1.292713)	1.9365201	3.741489	(1.384953)***	1.9365201
D4	-0.8855463	(1.092582)	-1.8394026	-3.731314	(1.686516)**	-1.8394026

***, **,* indicates rejection of null (coefficient=0) at 1%, 5%, 10% significance levels, respectively. The values in the parentheses are the standard errors.

Among the Variables of the financial reform index the interest rate controls, privatization and capital controls have a negative significance of the chances of happening of the banking crises and the restrictions over the banking entry and the security market controls have a significant positive influence over the probability of banking crises. In this regression all the nation dummies are significant, but for Indonesia, Korea and Philippines shows a negative sign whereas for Malaysia shows a positive sign with the manifestation of crises. Among the control variables the GDP growth has a negative influence and REER and the broad money has a positive influence on the happening of the crises. But the results doesn't support the hypothesis, the signs of the variables are as per the previous studies that if the liberalization is more and the economic freedom is less the chances of crises increases.

CONCLUSIONS

In this paper, we examine the effect financial liberalization on the likelihood of banking crises. For the purpose we had regressed the different dimensions of financial reforms and the economic freedom on the odds of banking crises. We find that if financial liberalization is undertaken in the weak institutional environment and lack of economic freedom, the likelihood of banking crises augment. We also found that stronger GDP Growth rate reduces the probability of banking crises whereas the credit to private sector increases the same. The paper supports for the gradual approach towards the liberalization, as various previous studies also found that more liberalized and repressed financial system has a greater chances of occurrence of the banking crises. The results in the paper shows that in case of

financial reforms the privatization and the openness of the banking sector i.e. lack of entry barriers are highly significant variables along with the freedom to international capital flows. The Economic freedom variables shows the negative sign and a significant impact on the nations. The direction of the all above mentioned variables are in line with the previous studies and the A5 suffered with the crises as these are the open economies who ultimately reversed the liberalization process in certain sectors.

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Appendix I Banking Crises Episodes

Indonesia	1992,1994, 1997-2002
Korea	1983, 1985-1988, 1997-2002
Malaysia	1985-1988, 1997-2001
Philippines	1981-1987, 1997-2001
Thailand	1980-1987, 1996-2001

Source: (Reinhart & Rogoff, 2009)

Appendix II Data Sources for Variables Included in the Logit Regression

Variable Name	Description	Expected Sign	Source
Dependent Variable			
BANK CR	Banking Crisis		(Reinhart & Rogoff, 2008b)
Independent Variables			
LIB	Liberalization(Financial Reform)	+/-	(Abiad et al., 2008)
CRT CO	Credit Controls	+/-	(Abiad et al., 2008)
INT CO	Interest Rate Controls	+/-	(Abiad et al., 2008)
BAN EN	Banking Entry	+/-	(Abiad et al., 2008)
PVT	Privatization	+/-	(Abiad et al., 2008)
SUP CO	Supervisory Control	+/-	(Abiad et al., 2008)
CAC CO	Capital Controls	+/-	(Abiad et al., 2008)
SCR MA	Securities Market	+/-	(Abiad et al., 2008)
SOG	Size of Government	+/-	(James et al., 2014)
LSPR	Legal Structure and security of property Rights	+/-	(Gwartney, Lawson, & Hall, 2015)
SM	Access to Sound Money	+/-	(Gwartney et al., 2015)
FTI	Freedom to trade internationally	+/-	(Gwartney et al., 2015)
REG	Regulation of Credit and Business	+/-	(Gwartney et al., 2015)
INDEPENDENT CONTROL VARIABLES (Asli Demirguc-Kunt & Detragiache, 1998)			
GDP GROW	Rate of Growth of Real GDP	-	World economic outlook, IFS*, IMF**
TOT	Change in Terms of Trade	+/-	World economic outlook, IFS, IMF
RE INT	Nominal Interest rate Adjusted for Inflation	+	World economic outlook, IFS, IMF
REER	Inflation Adjusted Exchange Rate	+	World economic outlook, IFS, IMF
INF CP	Inflation, GDP deflator (annual %)/NY.GDP.DEFL.KD.ZG	+	World economic outlook, IFS, IMF
M2/TR	Money and quasi money (M2) to total reserves ratio	+/-	World economic outlook, IFS, IMF
NPA/GL	Bank nonperforming loans to total gross loans (%)/FB.AST.NPER.ZS	+	World Bank, BIS***
CRD PVT/GDP	Domestic credit to private sector (% of GDP)/FS.AST.PRVT.GD.ZS	+/-	World Bank, BIS

*IFS: International Financial Statistics, **IMF: International Monetary Fund, **BIS: Bank for International Settlements