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DOES GROWTH & QUALITY OF CAPITAL MARKETS DRIVE FOREIGN CAPITAL ?

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**Does Growth & Quality of Capital Markets drive Foreign Capital?
The case of Cross-border Mergers & Acquisitions
from leading Emerging Economies**

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ABSTRACT

Is there any interrelationship between firm level FDI in the form of cross border Mergers & Acquisitions and capital markets growth and quality? We addressed this question using panel data of cross border M&A for nine emerging economies. Our study period goes from 1987 to 2006. We find that the stock market variables, viz., capitalization and value addition encourage the number of deals and value of cross border Mergers & Acquisitions. However, the association with regulatory and financial reforms is much stronger and robust. We then interact both the stock market variables with financial and regulatory reforms variables only to find much stronger results. The coefficients proved to be higher than other variables, suggesting that higher reforms in capital markets could increase firm level FDI. Moreover, the results are found to be extremely robust when we replace stock market variables with squared values of the same, reiterating the fact that larger is the growth, greater is the inflow of firm level FDI in the form of cross border Mergers & Acquisitions.

KEYWORDS: Financial Markets, Cross border M&A & Emerging Economies.

JEL CODES: E44, M16, O53, O54 & O55

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1. Introduction

To assess whether stock markets are simply known to be mother of all speculative businesses, or whether they are importantly linked to attract firm level FDI in the form of cross-border Mergers & Acquisitions activities, we soothe the existing literature and present new empirical evidence which is absent to date. There is an extensive body of literature which dealt with the relationship between stock market and economic growth and development. Prominent among them are Levine and Zervos (1993; 1996; 1998), Zhu et al. (2004), N'Zue (2006), Kyle (1984), Holmstrom and Tirole (1993), Obstfeld (1994) and Beck and Levine (2002). All these studies are based on cross-country regression models which study the inter-relationship between economic growth and stock market development.

There is also wide range of research related to financial liberalization and financial openness and its implications on economic growth¹. Eichengreen (2001) and Prasad (2003) in fact found that there is no strong evidence to support the fact that financial openness and financial globalization brings higher economic growth. Good amount of large literature on this aspect is penciled down in his research work by Edison (2004). The most recent work on this aspect includes that of Henry (2006) contradicting the findings of Eichengreen (2001) and Prasad (2003) and found that those countries who are engaged in the process of financial liberalization have a temporary increase in investments leading to faster economic growth. There were also studies who dealt with the effect of international financial liberalization on stock market development (Levine and Zervos, 1998). In a new dimension to this research, Gupta and Yuan (2005) investigate the effect of stock market liberalizations on industrial growth. They suggest that both industries that are technologically more dependent on external sources of external finance, and industries that face better growth opportunities, grow significantly faster following liberalization.

However, when liberalization is treated as endogenous then growth opportunities no longer have a significant impact on industrial growth. This suggests that countries may time liberalizations to coincide with better industry growth opportunities. But, there is

¹ For extensive review of literature on financial globalization, see IMF (2007a,b) series of reports: *Global Financial Stability Report & Reaping the Benefits of Financial Globalization*.

another set of group who has focused on the relationship between foreign capital inflows, domestic financial sector² and institutional quality and their effect on economic development and financial stability in the host country (Stiglitz, 1985; Claessens et al., 2002; Alfaro et al., 2005; Chousa et al., 2006). There are few studies which have dealt with other part of foreign capital, institutional investments. Bekaert and Harvey (2001) study the impact of market liberalizations in emerging equity markets on the cost of capital, volatility, beta, and correlation with world market returns and finds that the cost of capital always decreases after capital market liberalization process. Similarly, there are also some studies which have focused on firm level FDI viz., Baker and Foley (2003) show that FDI flows increase sharply with source-country stock market valuations.

Though there is vast literature existing related to stock market growth, financial liberalization and economic growth and FDI, there are seldom studies which have focused on the vital issue of nexus between stock market development and quality to firm level FDI in the form of cross border M&As activities. Though there have been couple of attempts made earlier by Shleifer and Vishny (2001) and Di Giovanni (2005), apart from Pryor (2001) who analyses general trends in cross border mergers & acquisitions world wide, this work differs from the proposition stated in those first two studies. Firstly, the study of Shleifer and Vishny (2001) work is concerned with domestic M&A activities that too related to USA. Secondly, Di Giovanni (2005) is one of the excellent works to date on cross border M&A, but does not specifically deal with quality and growth of stock market and goes much beyond by focusing equally on macro economic and institutional factors. With this backdrop, we attempt to fill this existing gap in the literature in this first study³ we take into consideration nine most emerging economies⁴ to study the interrelationship between the growth and quality of stock market along with financial development with cross border mergers & acquisitions activities in a much

² Vast literature on the role of domestic financial development and its impact on various factors like macroeconomic development, financial stability are presented in the study of Caprio and Honohan (2001).

³ We hope to extend this idea to South-East Asian economies, followed by Latin American economies and East European emerging countries in separate studies and then bring all together compare the regional specific effects.

⁴ At first, we wanted to concentrate on 15 most emerging economies. But when we sat down to construct financial market values, more specifically, stock market variables, we found the data to be absent for most of these emerging economies from 1987. For many, the data began from 1992. Therefore, we were forced to cut short our sample focus to 10. Despite this, we were able to find full data for all variables only for nine economies.

different and broader way. To be more precise, we try to find answers to the questions: Do financially deep stock markets play a significant role in attracting cross border M&As? Are cross border firms acquisitions driven by quality of stock markets? Does domestic financial development matter? Does financial liberalization and capital market regulatory reforms play any role?

To begin with foreign capital, which is on surge in all the emerging economies during post 1990s, is a welcome sign as it not only helps in economic growth and development but also help deepen financial intermediation process which inturn help in attracting higher levels of foreign capital. This can be more encouraging for the firm level FDI in the form of Greenfield investments and/or Cross border M&A which look for acquiring the ownership in a foreign country either in new assets or already existing assets. Our focus in this study is not on Greenfield investments, but solely on cross border M&As activities. The stock markets in emerging economies witnessed the signs of higher growth during the 1990s and 2000 period. Experts opine that this boom is led by the financial market liberalization which created more conducive business environment for firms to operate. This led to the wave of mergers and acquisitions activities at domestic level which kept the market boom throughout the 1990s. The rapid economic growth in these emerging economies in a sense can be witnessed in their surge in stock market activities. According to Morgan Stanley Capital International's emerging market index has leap forged more than five folds in terms of US\$ in comparison to just 70% increase in US's S&P 500. Brazil gained 900% with 12 month forward price earnings ratio of 12.5% standing at the first position followed by Turkey with 600% (11.8%) and Argentina (21%), India (22.6%), China (22.2%) just under 600%, while Mexico (13.3%) South Africa (11.4%) and South Korea (13.2%) gained around 250%⁵. At the same time, we have also seen that the number of cross border mergers and acquisitions deals, both purchases and sales have drastically increased during the later years of 1990s. According to the dataset adapted from UNCTAD, the values of deals announced have increased by almost 20 times from early 1990s to the end of 2006. Furthermore, the number of deals announced in itself has gone up for 5 times during the same point of time. This clearly

⁵ The values in brackets are 12 month forward price earnings ratio. The source of these figures comes from JP Morgan Stanley Capital international's emerging market index published by The Economist in Oct. 2007 issue.

indicates that the value of average deals have substantially increased during post 1990s, which is the period in which most of the emerging economies have adopted financial liberalization. The table 1 show the mean values of both financial market and cross border mergers & acquisitions activities for pre and post financial liberalization period and also for whole study period for all the nine emerging economies.

Table 1: Financial Market Development & Cross border M&A activities

Period	Stock Market Capitalization	Stock Market Value Added	Financial Development	M&A Value	M&A Deals
INDIA					
Study Period (1987 - 2006)	30.11776	32.54178	26.3462	1820.037	77.65
Pre Financial Liberalization	9.59248	5.64158	24.33098	7.64	3
Post Financial Liberalization	36.95952	41.50851	27.01794	2424.169	102.5333
BRAZIL					
Study Period (1987 - 2006)	25.20429	11.88725	2062.063	8789.922	93.65
Pre Financial Liberalization	8.145925	3.38625	26.9435	176.525	11.25
Post Financial Liberalization	29.46888	14.01249	2570.843	10943.27	114.25
MEXICO					
Study Period (1987 - 2006)	24.27225	8.88034	19.14846	4930.335	59.35
Pre Financial Liberalization	5.5809	7.1095	8.9763	27.75	5
Post Financial Liberalization	26.34907	9.0771	20.2787	5475.067	65.38889
SOUTH KOREA					
Study Period (1987 - 2006)	42.92183	97.72597	105.284	3139.715	36.25
Pre Financial Liberalization	36.6961	33.83582	82.4111	239.16	5
Post Financial Liberalization	44.99707	119.0227	112.9083	4106.566	46.66667
CHINA					
Study Period (1987 - 2006)	18.30478	22.10951	99.59309	3532.131	106.4
Pre Financial Liberalization	11.33159	17.59177	93.16257	1266.918	53.46667
Post Financial Liberalization	39.22436	35.66272	118.8846	10327.77	265.2
TURKEY					
Study Period (1987 - 2006)	21.08356	29.49535	16.91913	2106.658	17.05
Pre Financial Liberalization	2.4156	0.122	15.86695	29.7	2
Post Financial Liberalization	23.15778	32.75906	17.03604	2337.431	18.72222
CHILE					
Study Period (1987 - 2006)	75.73114	8.081775	59.20404	2246.146	29.9
Pre Financial Liberalization	34.01954	3.12574	44.37012	213.86	6.8
Post Financial Liberalization	89.635	9.733787	64.14868	2923.574	37.6
ARGENTINA					
Study Period (1987 - 2006)	27.22326	3.35116	16.05123	4365.48	66.7
Pre Financial Liberalization	1.40625	0.34795	12.3727	30.15	2.5
Post Financial Liberalization	30.09181	3.68485	16.45995	4847.183	73.83333
SOUTH AFRICA					
Study Period (1987 - 2006)	143.7789	37.22377	101.6724	4077.516	63.35

Source: Calculated & Compiled by authors with the data collected from WDI & UNCTAD

All the countries have witnessed a tremendous growth in financial market activities during the post liberalization period. For South Africa however, we do not report the difference, because the financial market liberalization period begun way back in 1984. Similarly, even when it comes to clinching number of cross border mergers & acquisition deals and the value of the deals have surged during the post liberalization period. This clearly gives a first hint that indeed financial market liberalization has played a massive role in financial market development leading to financial deepening resulting in increase in cross border mergers & acquisitions activities. This apart, the regulatory reforms introduced by the emerging economies like India, South Africa, and China have also helped in creating better institutional structure there by helping the markets to develop. This is extremely important because, by creating an efficient institutional framework would not only be conducive for the domestic capital markets to grow but also credit and money markets, which inturn help the countries to attract foreign capital and reap the benefits from those investments. Using this backdrop, recent works have concentrated on how these growing capital markets in emerging economies either affect economic development or what are the possible reasons for this surge. Our question differs from this line of studies in that we are most interested in how the growing capital and credit markets and the quality improvement in emerging economies can aid attract cross border mergers & acquisitions, rather than entire foreign capital.

2. Research Design

2.1. Modeling ‘cross-border Mergers & Acquisitions activities’

To investigate the implications of capital market growth and quality on firm level FDI in emerging economies, we start by defining the cross-border M&A activities. Before we do this, it would be imperative to highlight that firm level FDI is of two types. One, investments made by a foreign company in a host country in new assets. This is also in technical terms known as ‘Greenfield investments. Two, investments made by foreign company in host country to acquire pre-existing assets is known as cross-border mergers & acquisition. Our concentration in the present study is on cross-border mergers & acquisition and not on Greenfield investments.

We assume that the cross-border M&A activities is marked by two factors namely, number of cross-border Mergers & Acquisitions deals and amount of investment made, that is value. Thus, we believe that Cross-border Mergers & Acquisitions is f (number of deals and Value of the deals). Based on this, we decided to run two different models relating to one each to see the effects of capital market growth and performance on cross-border M&A activities. We create two main econometric models related to number of deals and value of cross border mergers & acquisitions. We use pooled regression analysis with fixed effects model for both. The fixed effects method is performed in suspicion that there are other factors than those captured in our explanatory variables affecting the inflows of FDI in the form of cross border mergers & acquisitions. Thus, the model for number of deals and value of cross border mergers & acquisitions can be specified in following format:

$$Q_{it} = \alpha + \beta_i + \sum_{i=1}^9 \psi_1 X_{it} + \sum_{i=1}^9 \psi_2 Z_{it} + \varepsilon \quad (1)$$

where, Q is the dependent variable, which includes number of deals and value of cross border M&A activities⁶. X represents a vector of key independent variables set which include capital markets growth and quality variables followed by other control variables Z and ψ_i is the corresponding vectors of coefficients β_i are the fixed effects to be estimated and ε is the error term.

This empirical analysis covers nine leading emerging economies from the period 1987 to 2006. We would have liked to include many other emerging economies into our sample study namely, Slovakia, Czechs Republic, Hungary and Taiwan. However, the lack of data related to capital market and financial variables prevented us to ignore them. The pooled time-series cross-sectional (TCSC) data may exhibit heteroskedasticity and serial correlation problems. While these problems do not bias the estimated coefficients as pooled regression analysis with fixed effects in itself is a more robust method for large sample consisting of cross section and time series data. However, they often tend to cause biased standard errors for coefficients, producing invalid statistical inferences. To deal

⁶ For India and Argentina in 1987, the deals were nil. But the Log does not take zero into consideration and hence we had to introduce 1+deals to consider for Log format.

with these problems, we estimated for all the models the Huber-White robust standard errors clustered over countries. These estimated standard errors are robust to both heteroskedasticity and to a general type of serial correlation within the cross-section unit (Rogers, 1993 and Williams, 2000).

The annual data for the sample from 1987 to 2006 for both number of deals and value of cross border mergers & acquisitions comes from the database on International Finance of United Nations Commission for Trade and Development (UNCTAD) which publishes the time series data on cross border mergers and acquisitions for all countries beginning from 1987. The data for number of deals and value include both purchases and sales for every year. We combine both of them to form one variable each under the head of deals and value of cross border mergers & acquisitions.

2.2. Key Independent Variables

There are two sets of independent variables which are main variables set and another being control variable set. We first construct the set of variables that measure the development and quality of capital markets and they are the main variables of the study. To quantify the terms “development and quality” we introduce eight set of capital market variables. We begin with two important variables namely, stock market capitalization and value added. The stock market capitalization ratio equals the market value of listed shares divided by GDP. We use the market capitalization ratio as one of the measures of stock market development. Many researchers use the market capitalization ratio as an indicator of stock market development under the assumption that stock market size is positively correlated with the ability to mobilize capital and diversify risk. The second variable includes stock market value traded, which equals the ratio of total value of trade on the stock market to GDP. The value traded actually measures the value of the trading taking place in all the firms listed on stock exchanges. Though there are some drawbacks of this ratio, it is a very good measure of the liquidity position of the stock markets. The major advantage of including this ratio in defining stock market development is that it complements the market capitalization ratio (Levine and Zerov, 1998). This is because, although a particular stock market may be very huge, there may be a very little trading. This is quite common in a country like India for example where there are as many as 23

regional stock exchanges and many do not witness trading at all on few days. In this case, going just by market capitalization, one would feel that the market is well developed as the capitalization is huge. But the actual fact remains that there is no trading which has taken place in these markets, which lowers the value added. Thus, this ratio acts as a compliment to market capitalization ratio in providing much more accurate information about a country's stock market. We adapted the data for market capitalization, value added from the financial structure database 2007, which was first developed by Beck et al. (2000) but updating was performed by Beck and Hussainy (2007).

We introduce two dummy variables namely, financial reforms and regulatory reforms. We take the value of “1” for the years post financial liberalization and “0” for the years before the process was started. The data for this was obtained from the study of Gupta and Yuan (2006) who have compiled the dates for most of the developing countries which have gone for financial liberalization process. Similarly, we take the value of “1” for those years in which the country had adopted regulatory reforms and “0” otherwise. One should be careful in spelling out what regulatory reforms exactly mean. For example in India, though there was Capital Control Act which was the binding regulatory law that prevailed before the economic liberalization process began, was scrapped and Security Exchange Board of India (SEBI) was formally set up in 1992 as new capital market regulator. Similarly in the case of South Africa, though the Financial Services Board (FSB) was in existence from 1990, for efficient capital market functioning, the board for the first time created a new law called Securities Services Act in 2004. This data was gathered from the websites of respective stock market regulatory bodies of the nine emerging economies. In the next step, we combine growth of the capital market with quality by interacting both the stock market variables with financial and regulator reforms dummies. This helps us to know whether the performance and growth of the market exclusively during the period of reforms (financial and regulatory) was greater than that of previous years and also their effect on cross border M&A.

Slightly moving away from capital markets to financial markets, we take into account financial development process of a country. The role of financial markets in attracting foreign capital is extremely important. Nakagawa and Psalida (2006) considered large pooled samples for both developing and developed economies to show

that financial development is a very important component to attract foreign capital. Further, highlighting the importance of financial development in Central and Eastern European economies is the study of Hilbers et al. (2005) who find that strong foreign capital inflow has led to rapid explosion of credit market growth. Keeping these studies at the backdrop, we are interested to know whether financial deepening would really help in attracting the cross border mergers & acquisitions into the country or not. There are in fact many indicators which could be taken as proxy for financial development. In fact in the literature, there is no consensus about which variable amongst the following would best represent for financial development process in an economy: Liquid Liabilities of the banking system, Commercial banks to Central Banks Assets Ratio or Private Credit.

Starting with Liquid Liabilities, as argued by many, is the best available proxy for financial development because it includes currency circulation, fixed and savings deposits of banks and financial institutions taken as percentage to GDP. This indicator is primarily advocated by King and Levine (1993) as measuring the overall financial depth of entire financial system. This is precisely why many prominent studies have adopted this method (Goldsmith, 1969; McKinnon, 1973; King & Levine, 1993). The second method includes assets of commercial banks to central banks ratio which measures the degree to which commercial banks allocate society's savings to central bank in an economy. However, Levine et al. (2000) argue that this is not the best method as it does not take into account the quality and quantity of financial services provided by a bank or financial institution.

Finally, private credit to GDP is the ratio of credit extended by commercial banks, financial institutions and non banking finance companies to the private sector divided by GDP. Levine et al. (2000) argue that it is simple measure but improves on other measures of financial development used in the economic literature. The advantage of this variable is it only takes into account the credit given by both banks, financial institutions to the private sector and does not include the credit issued by the government to the public sector enterprises. Thus, based on this argument, we agree with Levine et al (2000) argument that this indicator is much superior to other indicators like credit extended by only banks or by only financial institutions or credit extended to only one particular

section of the society and hence we feel that this indicator better represents financial development process in a country.

Exhibit 1: Summary of Theoretical Expectations

<u>Determinants</u>	<u>Hypothesized Effect on Cross Border M&A Activities</u>
<i>Capital Market Development:</i>	
i. Market Capitalization	Positive
ii. Market Value Added	Positive
iii. Financial Liberalization/reforms	Positive
iv. Regulatory Reforms	Positive
<i>Credit Market Development</i>	
i. Domestic Financial Development	Positive
<i>Capital Market Quality:</i>	
i. Market Capitalization X Financial Reforms	Positive
ii. Market Value Added X Financial Reforms	Positive
iii. Market Capitalization X Regulatory Reforms	Positive
iv. Market Value Added X Regulatory Reforms	Positive
<i>Acceleration of Capital Market Development:</i>	
i. Market Capitalization Squared	Positive
ii. Market Value Added Squared	Positive
iii. Domestic Financial Development Squared	Positive
<i>Control Variables</i>	
i. Lending Rates	Negative
ii. Money Supply	Positive
iii. Capital Account Convertibility	Negative
iv. Track Record of Government	?

**Cross border
M&A:
No. of Deals &
Value**

Turning the focus on other control variables, many studies have advocated the importance of money supply in the economy which has drastic impact on development of financial markets and economic development. Prominent studies like Hussain & Qayyum (2006) support this argument. Thus, we presume that increase in money is positively associated with all the dependent variables. We take ‘broad money’ as percentage to GDP to proxy for money supply. We gathered this data for all emerging economies for the study period from the databases of respective central banks. Like savings, investments are also important component of capital formation in any economy. The investments (local and foreign) are extremely sensitive towards lending rates prevailing in an economy. Higher lending rates discourage investments leading to lower economic growth and development. Thus, we take into account the average lending rates of all economies. The data for this variable was obtained from IMF database. We also introduce capital account convertibility dummy, which takes into account the value “0” for the years in which there was no convertibility on capital account front and “1” otherwise. Higher the restrictions on capital account convertibility acts as disincentive to attract FDI inflows. This is confirmed by the study of Asiedu and Lien (2004). The study also suggests that the impact of capital controls on FDI varies by region and has changed over time. We agree with their view point as many emerging economies like India have made some forward movements to remove some of the restrictions on capital account. Lastly, following the methodology of Joseph P.H et al. (2007) we capture the track record of the governments for all the emerging economies in the sample as an important policy variable. We assume that the poor track record of the government acts as a disincentive to attract FDI. To capture the track record of the government we calculate the standard deviation of GDP growth rate for the past five years. Higher values meaning, higher volatility and poor track record of the government. We believe that a higher value is an indicator towards unstable economic growth which is a resultant of past government policies. We adapted the GDP growth rates for the countries from World Bank’s World Development Indicators 2006.

As noted from exhibit 1 the expected coefficients of variables are expected to be positive because of the buoyant growth and reforms in emerging economies financial

markets. However, there are some coefficients whose signs cannot be expected precisely like the track record of the government because its effect is often dichotomous.

3. Empirical Results & Estimates

This section presents the results of regression estimates in measuring the influence of capital markets and quality of markets to value and deals of cross-border M&A. Each model consists of one standard model followed by other sub models which deals with the interaction affect of capital market variables and regulatory and financial reforms dummies. The last sub-models for all the equations present robustness check by introducing lagged values to all independent variables. The table 2 captures the regression estimates for value of cross-border M&A inflows. The estimates of the regression results for deals of cross-border M&A inflows are presented in table 3. Other important statistics for each model are presented at the end of each table. We also ran the models in Random effects and we find that the results did not vary much either in Fixed or Random effects. All estimations are controlled for Heteroskedasticity.

We begin with model 1 (see table 2) related to relationship between value of cross border Mergers & Acquisitions and capital markets. The most interesting findings include that both the stock market variables. Both are statistically significant at 1% and 5% confidence levels respectively. We find that a 1% increase in stock market capitalization in these economies is leading to 1.6% increase in cross border M&A inflows. Similarly, we find that a 1% increase in market value added is leading to an increase of 0.80% in cross border mergers & acquisitions inflows. We preserve our comments on coefficient values for the discussion later. Despite the coefficient being low, we confirm that market variables indeed matter for attracting firm level FDI inflows into emerging economies.

Table 2: Results of Value of cross-border M&A equation

Dependent Variable: Log(Value of cross-border M&A)

Variables	Standard Model 2	Model 2A	Model 2B	Model 2C	Model 2D #
Stock Market Capitalization	0.0154 * (0.005)	----	----	----	0.0145 * (0.004)
Stock Market Value Added	0.0077 ** (0.003)	----	----	----	0.0082 ** (0.003)

Regulatory Reforms	2.1250 * (0.428)	2.4465 * (0.475)	----	2.5352 * (0.412)	1.9981 * (0.421)
Financial Reforms	2.7009 * (0.508)	----	2.8576 * (0.518)	2.9989 * (0.520)	2.0200 * (0.391)
Financial Development	2.56E-05 ** (1.07E05)	4.80E-05 * (1.12E-05)	2.78E- 05** (1.10E-05)	----	3.93E-05* (9.78E-05)
Lending Rates	-0.0256 + (0.017)	-0.0371 ** (0.017)	-0.0246 + (0.018)	-0.0262 + (0.018)	-0.0189 (0.016)
Capital Account Convertibility	-1.0899 ** (0.451)	-1.4919 * (0.538)	-0.9905 ** (0.450)	1.0703 ** (0.452)	-0.8073 ** (0.422)
Track Record of Government	-0.0022 (0.091)	0.0059 (0.102)	-0.0415 (0.093)	-0.0137 (0.093)	-0.0455 (0.084)
Money Supply	0.0039 (0.011)	0.0192 + (0.013)	0.0130 (0.012)	0.0080 (0.011)	0.0003 (0.008)
Economic Crisis	0.0531 (0.593)	0.3901 (0.671)	-0.1044 (0.578)	0.0883 (0.591)	-0.6955 *** (0.352)
Stock Market Capitalization X Financial Reforms	----	0.0243 * (0.006)	----	----	----
Stock Market Value Added X Financial Reforms	----	0.0086 ** (0.003)	----	----	----
Stock Market Capitalization X Regulatory Reforms	----	----	0.0189 * (0.004)	----	----
Stock Market Value Added X Regulatory Reforms	----	----	0.0120 * (0.004)	----	----
(Stock Market Capitalization) ²	----	----	----	4.74E-05 * (1.64E-05)	----
(Stock Market Value Added) ²	----	----	----	1.32E- *** (9.06E-05)	----
(Financial Development) ²	----	----	----	6.12E-10 ** (2.76E-10)	----
R-squared	0.656835	0.561614	0.639315	0.639148	0.642655
Adjusted R-squared	0.618468	0.515611	0.601465	0.598804	0.600338
Log likelihood	-322.9303	-344.9701	-327.4117	-327.4534	-283.8472
F-statistic	17.12	12.21	16.89	15.84	15.85
Prob(F-statistic)	0.000000	0.000000	0.000000	0.000000	0.000000
Total Observations	180	180	180	180	180

Note: * Significant at 1% confidence level; ** Significant at 5% confidence level; *** Significant at 10% confidence level; + Significant at 15% confidence level. The models are controlled for Heteroskedasticity. White Heteroskedasticity-Consistent Standard Errors are reported in parenthesis. # indicates all independent variables in this model are lagged for one year. The dependent variable is $\log(1 + M \& A \text{ Value})$. The results of Random Effects are provided upon request.

We find that financial and regulatory reforms variables are significant at 1% confidence levels. This means that higher the reforms related to market opening and better access, higher would be the firm level FDI inflows in the form of cross-border mergers and acquisitions. Similarly, more the regulatory reforms and institutionalization, higher the incentives for the cross border M&A inflows. Here, we must note that the

coefficient values of both the reforms variables are much higher than the stock market variables. This shows that mere increase in market values would not be of much use without the much needed reforms process to integrate the local markets with that of global markets. We find these results to be consistent with the results obtained in the literature by Vasconcellos and Kish (1998) and Di Giovanni (2005). However, the former study does not take into account the importance of financial development process in the host country. Thus, we also attach much higher weightage to financial development process in these economies. We find that financial development variable not only is statistically significant at 5% confidence level but its coefficient value is much stronger than that of stock market variables, suggesting that greater financial deepening acts as an incentive for firm level FDI. This also means, higher the financial development better the financial intermediation process and larger the growth of stock market variables. This is extremely important especially for the firms which are engaged in investment projects need to have access to cheaper source of financing. Financially deeper markets provide firms the access to necessary capital to undertake the investment projects which are otherwise very difficult to take up. Thus, a well organized financial sector play a key role in providing the funds for private sector investments in developing economies.

We now consider another financial market variable namely, average lending rates. We find that though the lending rates have declined significantly in the markets like India, China, South Korea and South Africa, the rates are still much higher in Brazil, Turkey and Mexico. Despite this, we have a negative association for lending rates with that of value of cross border M&A across all the models. But, this relationship in almost all models is weak with either 15% confidence level or not significant at all. Meaning, high lending rates is not that important factor for cross border mergers & acquisitions. That is why high lending rate does not prevent cross border mergers & acquisitions activities in Turkey and Brazil.

One of the most important variables which could have larger affect on all forms of FDI is the capital account convertibility. We see that most of the emerging economies (included in this sample) are closed interms of capital account convertibility. Though some progress is made, but is not fully open. There are still lot of restrictions placed in countries like India, China, South Africa, South Korea, and Mexico. Perhaps this is the

reason why we find a strong negative association of capital account convertibility with the value of cross border mergers & acquisitions which is statistically significant at 1% confidence level. The results are consistent with Asiedu and Lien (2004) arguing that capital controls have a strong negative affects of FDI inflows in South East Asia and Latin American countries. The remaining variables, though have expected signs are not statistically significant.

We now turn towards the specification of the empirical models which takes into account the interaction affects. The model 2A presents the interaction affect of financial reforms dummy with stock market capitalization and value added. The results show that both the interactive variables have a positive affect on cross border M&A inflows. They are statistically significant at 1% and 5% confidence level respectively. The absolute values of coefficient for both variables are higher compared to model. The coefficient value of market capitalization variable has gone up from 1.6% to 2.5%, whereas, for value added variable, the same has gone up from 0.8% to 0.9%. This may well suggest the fact the financial reforms had its effect on stock market performance which indeed is affecting the firm level FDI positively. We also find the coefficient values of regulatory reforms dummy and financial development variables going up with statistical significance of 1% confidence level for both. This shows that market performance during the period of financial reforms period has improved. Despite the positive signs, the absolute values of stock market capitalization and value added did not increase by a great extent only proves that mere openness of the markets is not enough, rather the quality of openness would matter. Thus, taking the financial liberalization process successfully would lead to increase in the values of both the variables.

We replace the interactive affect from financial to regulatory reforms dummy. Both capitalization and value added variables are now interacted with regulatory liberalization dummy. The results are repetition of what we saw in the previous models. Both exert positive signs and are highly significant. The interesting aspect of these results is the values of coefficient of both the variables. We find that for both variables the coefficient values are higher compared to the standard model 1. The market capitalization coefficient improved from 1.6% to 1.9%, while the value added has gone up from 0.8% to 1.2%. A closer look at the values suggests that for value added variable,

the coefficient value actually improved over its financial reforms interaction affect. This suggests that indeed investor give regulatory reforms higher importance. This apart, we also find that the coefficient values of both financial reforms and financial development variables have increased and are significant at 1% and 5% confidence levels respectively. Thus, the positive spillover affects of regulatory reforms have a direct impact on the financial reforms process and financial deepening in these economies.

We now come to the model 1C where we replace the market capitalization, value added and financial development variables with their squared values. We find that these variables have a positive significant impact on the cross border M&A inflows. However, the interesting point to be noted is the surge in their coefficient values. There is a drastic improvement in both market variables' values. Market capitalization value has gone up from 1.6% in the standard model 1 to 474% in the model 1C. Similarly, the value added variable increased from 1.6% to 132%, while the financial development variable saw an improvement from 256% to 612%. This suggests that indeed rapid growth of the markets would certainly boost the cross border M&A inflows into emerging economies.

We now move towards our second model whose focus is on number of deals of cross border mergers and acquisitions. Beginning with the standard model 3, we find the results of previous models are reiterated here. The market variables, capitalization and value addition display a strong positive association with number of deals of cross border M&A. However, the coefficient values, like the previous models are very low. We also find that financial development is making a significant impact on number of deals of cross border M&A. This is confirmed by the fact that the coefficient value of this variable is higher than that of market variables. The results of financial and regulatory reforms are consistent with that of the previous models. Both have a very strong positive affect on number of deals of cross border M&A. Infact the impact of both these variables is higher than that of financial development, suggesting that there is a need for further reforming the financial sector and better regulatory compliance with markets.

Table 3: Results of Deals of cross-border M&A equation
 Dependent Variable: Log(Number of Deals of cross-border M&A)

Variables	Standard Model 3	Model 3A	Model 3B	Model 3C	Model 3D #
Stock Market Capitalization	0.0105 * (0.002)	----	----	----	0.0075 ** (0.003)
Stock Market Value Added	0.0028 *** (0.001)	----	----	----	0.0014 (0.001)
Regulatory Reforms	1.2862 * (0.193)	1.4521 * (0.222)	----	1.4940 * (0.191)	1.3398 * (0.201)
Financial Reforms	1.3623 * (0.173)	----	1.4607 * (0.184)	1.5502 * (0.182)	1.1742 * (0.170)
Financial Development	1.17E-05 ** (4.84E-05)	2.29E-05 * (5.66E-05)	1.33E-05 * (5.05E-05)	----	1.49E-05 * (4.56E-05)
Lending Rates	0.0051 (0.006)	-0.0004 (0.007)	0.0048 (0.006)	0.0049 (0.006)	0.0049 (0.006)
Capital Account Convertibility	-0.7335 * (0.162)	-0.9272 * (0.200)	-0.6740 * (0.158)	-0.7264 * (0.166)	-0.6247 * (0.164)
Track Record of Government	-0.0519 + (0.036)	-0.0485 (0.046)	-0.0680 *** (0.037)	-0.0620 *** (0.037)	-0.0642 *** (0.041)
Money Supply	0.0117 * (0.003)	0.0195 * (0.005)	0.0178 * (0.004)	0.0138 * (0.004)	0.0087 *** (0.004)
Economic Crisis	0.1516 (0.213)	0.3178 (0.248)	0.0632 (0.204)	0.1705 (0.231)	0.2649 (0.198)
Stock Market Capitalization X Financial Reforms	----	0.0153 * (0.003)	----	----	----
Stock Market Value Added X Financial Reforms	----	0.0027 *** (0.001)	----	----	----
Stock Market Capitalization X Regulatory Reforms	----	----	0.0124 * (0.002)	----	----
Stock Market Value Added X Regulatory Reforms	----	----	0.0049 ** (0.001)	----	----
(Stock Market Capitalization) ²	----	----	----	3.16E-10** (1.24E-10)	----
(Stock Market Value Added) ²	----	----	----	4.21E-10 (4.82E-10)	----
(Financial Development) ²	----	----	----	2.68E-10 ** (1.28E-10)	----
R-squared	0.797595	0.713697	0.769910	0.776196	0.772171
Adjusted R-squared	0.774966	0.683653	0.745765	0.751175	0.745191
Log likelihood	-160.0162	-191.2263	-171.5541	-169.0610	-141.2709
F-statistic	35.25	23.75	31.89	31.02	28.62
Prob(F-statistic)	0.0000	0.0000	0.0000	0.0000	0.0000
Nobs	180	180	180	180	180

Note: * Significant at 1% confidence level; ** Significant at 5% confidence level; *** Significant at 10% confidence level; + Significant at 15% confidence level. The models are controlled for Heteroskedasticity. White Heteroskedasticity-Consistent Standard Errors are reported in parenthesis. Standard errors are in

parenthesis. # indicates all independent variables in this model are lagged for one year. The dependent variable as $\log(1 + M \& A Deal)$. The results of Random Effects are provided on request.

The rest of the results are again consistent to what we have found in our previous models. We find that capital account convertibility is significant and bear a negative sign and is significant at 1% confidence level. Money supply variable is statistically significant at 5% confidence level and the weak relationship at 15% confidence level is found for track record of the government. This means higher the volatility in the economic growth, lower the attraction for deals of cross border M&A.

We now introduce the two interactive affects for market variables. One with financial reforms dummy and another with regulatory reforms dummy (see models 3a and 3 b) variables are statistically significant and have a positive affect on the deals of cross border M&A. The interesting point to be noted is that when it comes to capitalization, the coefficient values of interactive terms have improved from that of the standard model. However, this is not so in both the cases for value added. We find that for financial reforms interactive affect, the coefficient value remains same as in the case of standard model, whereas, the coefficient value improves when it is interacted with regulatory reforms dummy. Thus, we see that there is an upward movement interms of coefficient values of market variables when interacted with financial and regulatory reforms dummies, which means that higher reforms would improve the growth and quality of markets which inturn would attract number of deals of cross border M&A.

In the penultimate model, we replace the market and financial variables with their squared values. The results portray mixed picture. We find that both market capitalization and financial development are not only positive and statistically significant but also their coefficient values are higher in comparison to any of their previous models. However, value addition variable is not statistically significant though the value of its coefficient in model 3c is significantly higher. This shows once again that greater the development and performance of financial markets, higher would be deals of cross border mergers & acquisitions.

There is an issue related to possible reverse causality between the market and financial variables and the cross border mergers and acquisitions. To make this aspect clear, we have introduced the lagged values for all the independent variables for both

models, number of deals and value of cross border mergers & acquisitions. We have placed the results of both in model 2D and 3D. We find that despite the lagged values for all the independent variables, neither the signs, nor the significance levels of coefficient have changed greatly. However, the interesting finding is that the effect of market variables' on cross border mergers & acquisition is much larger in the one year lagged period. We can see the coefficient values of market variables have surged in the one year lagged period. This confirms two things, one, it again reiterates the fact that the results are indeed truly robust and two, though we find that there is surely an affect of market performance and growth towards cross border mergers & acquisitions, but its affect is larger only a year later.

4. Summary & Conclusion

This paper attempts to determine the growth and quality of capital markets underlying gross cross border M&A flows for the period 1987-2006 for nine leading emerging economies. This is first such attempt to look at the relationship between cross border mergers & acquisitions activities and capital market development by taking into account growth and quality aspects. We coin the term *cross border M&A activities* which is the function of number of deals and value of cross border mergers & acquisitions and test this against the growth variables of markets namely, capitalization, value addition and financial development and quality variables of markets viz., financial and regulatory reforms and interaction of market variables with reforms dummies. We also control for possible bias of reversal causality between cross border mergers & acquisitions and market variables by introducing lagged values for all the independent variables.

The empirical results highlight the importance of both growth and quality of capital markets in emerging economies. We find a strong positive impact of markets on cross border mergers & acquisitions deals and values. The interesting finding is that the quality of markets is said to have a much greater impact than growth. This proves that the more efficient the markets lead to higher cross border mergers & acquisitions. We also find that greater the acceleration of capital markets, higher the effect on cross border mergers and acquisitions deals and values. Furthermore, we also find that money supply and financial openness are also significant variables, though the lending rates and

economic crisis if any, work against cross-border mergers & acquisitions activity, while track record of the government is said to have a positive impact.

We believe that various types of barriers like investment barriers, high corporate rates, administrative barriers, corruption, political and operational risk and wage data also play an important role in firm level FDI decisions. Since the data for all this indicators is not easily available, we retain this issue for the further research.

Overall, the results in this paper should be seen as encouraging sign for the policy makers who are pursuing goals related to development of deeper and sound financial markets as this would have far reaching effects on attracting the direct foreign investments at firm level. Then, further liberalization of financial markets and development of capital markets in emerging economies would act as a greater incentive for the foreign firms which are interested in cross border mergers & acquisitions.

5. References

- Alfaro, Laura, Sebnem Kalemli-Ozcan, & Vadym Volosovych, (2005), “Capital Flows in a Globalised World: The Role of Policies and Institutions,” NBER *Working Paper* No. 11696 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Beck, Thorsten, Asli Demirgüç-Kunt, & Ross Levine, (2000) “A New Database on Financial Development and Structure,” *World Bank Working Paper* No. 2146.
- Beck, T. & R. Levine (2002), “Stock Markets, Banks and Growth: Correlation or Causality”, *World Bank Working Paper*, Washington, D.C, USA
- Beck T & Ed Al-Hussainy (2007) “Financial Structure Dataset”, Revised: Jan 17, 2007, The World Bank/DECRG-FI, Washington, D.C, USA.
- Bekaert, G. and Harvey, C. R., (2000), “Foreign Speculators and Emerging Equity Markets,” *The Journal of Finance*, 55(2), 565-613.
- Di Giovanni, J. (2005), “What Drives Capital Flows? The Case of Cross-Border M&A Activity and Financial Deepening,” *Journal of International Economics*, 65(1), 127-149.
- Elizabeth Asiedu & Donald Lien, (2004) Capital Controls and Foreign Direct Investment, *World Development*, Vol. 32, No. 3, pp. 479–490.
- Eichengreen, Barry J., (2001), “Capital Account Liberalization: What Do Cross-Country Studies Tell Us?” *World Bank Economic Review*, Vol. 15, No. 3, pp. 341–65.
- Fazal Husain & Abdul Qayyum (2006) “Stock Market Liberalizations in the South Asian Region”, PIDE *Working Paper* No. 06.
- Fan, Joseph P. H, Randall M, Lixin C. X, & Bernard Y (2007) “Does Good Government Draw Foreign Capital? Explaining China’s Exceptional FDI Inflow”, *WPS4206*, World Bank.
- Goldsmith, R.W., (1969), “Financial Structure and Development”, Yale University Press, NewHaven, CT, USA.
- Gupta, N. and Yuan, K., (2005), “On Growth Effect of Stock Market Liberalizations,” *circulated paper*: Kelley School of Business at Indiana University & Michigan University.
- Hilbers, P., Otker-Robe, I., Pazarbasioglu, C. and Johnsen, G., (2005), “Assessing & Managing Rapid Credit Growth and the Role of Supervisory and Prudential Policies,” IMF Working Papers 151/05 (Washington: IMF).

Holmstrom, B. & J. Tirole (1993), 'Market Liquidity and Performance Monitoring', *Journal of Political Economy*, Vol. 101, No. 4 (August), pp. 978–709.

Henry, Peter Blair, (2006), "Capital Account Liberalization: Theory, Evidence, and Speculation," NBER *Working Paper* No. 12698 (Cambridge, Massachusetts: National Bureau of Economic Research).

International Monetary Fund (IMF), (2007a), *Global Financial Stability Report*, World Economic and Financial Surveys (Washington, April). Available via the Internet: <http://www.imf.org/External/Pubs/FT/GFSR/2007/01/index.htm>.

———, (2007b), "Reaping the Benefits of Financial Globalization," IMF Discussion Paper. Available in Internet: <http://www.imf.org/external/np/res/docs/2007/0607.htm>.

Kyle, A. (1984), 'Market Structure, Information, Futures Market, & Price Formation', in G.G. Storey, A. Schmitz & A. H. Sarris (eds.), *International Agricultural Trade: Advanced Readings in Price Formation, Market Structure, & Price Instability*, Westview Press, Boulder, CO.

King, R.G., & Levine, R., (1993). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics*, 108, pp. 717-738.

Levine, R. & S. Zervos (1996), 'Stock Market Development and Long Run Growth', *World Bank Economic Review*, Vol. 10, No. 2 (May), pp. 321–39.

Levine, Ross & Zervos, Sara (1998) "Stock Markets, Banks, and Growth," *American Economic Review*, Vol. 88(3), pp. 537-558.

Levine, R., Norman, L. and Beck. T., (2000) "Financial intermediation and growth: Causality and causes", *Journal of Monetary Economics*, 46(1), pp. 31-77

McKinnon, R.I., (1973), "Money and Capital in Economic Development", Brookings Institution, Washington, DC, USA.

Malcolm Baker & C. Fritz Foley (2003), "Multinationals as arbitrageurs: The effect of stock market valuations on foreign direct investment", *Working paper* series, NBER.

Nakagawa, S. and L. Effie Psalida (2007): The Quality of Domestic Financial Markets and Capital Inflows, in *Global Financial Stability Report Financial Market Turbulence: Causes, Consequences, and Policies*, 3rd Chapter, IMF.

N'Zue, Félix Fofana (2006), "Stock Market Development and Economic Growth: Côte d'Ivoire," *African Development Review*, 18(1), 123-143.

Obstfeld, M. (1994), 'Risk Taking, Global Diversification and Growth', *American Economic Review*, Vol. 84, No. 5 (December), pp. 1310–29.

Prasad, Eswar, Kenneth Rogoff, Shang-Jin Wei, & Ayhan Kose, (2003), “Effects of Financial Globalization on Developing Countries: Some Empirical Evidence”, IMF Occasional Paper No. 220 (Washington: International Monetary Fund).

Pineiro Chousa, J. Khan, H., Melikyan, D. N. and Tamazian, A. (2006), “Democracy, Finance and Development,” CIRJE-F-458 Working Paper, Faculty of Economics, University of Tokyo.

Rogers, William H. (1993), “Regression Standard Errors in Clustered Samples.” *Stata Technical Bulletin*, 13:19-23.

Stiglitz, J. (1985), ‘Credit Markets and the Control of Capital’, *Journal of Money, Credit and Banking*, Vol. 17, No. 2 (May), pp. 133–52.

Claessens, S., Klingebiel, D. and Schmukler, S. (2001), “FDI & Stock Market Development: Complements or Substitutes?”, Extension of project “Future of Stock Markets in Emerging Economies: Evolution & Prospects”, World Bank.

Shleifer, Andrei and Robert W. Vishny, (2001) “Stock Market Driven Acquisitions,” NBER *Working Paper* No. 8439.

Vasconcellos, Geraldo M. & Richard J. Kish, (1998) “Cross-Border M&As: European-US Experience,” *Journal of Multinational Financial Management*, 8 (4), 431 {450.

Williams, Rick L. (2000), “A Note on Robust Variance Estimation for Cluster-correlated Data” *Biometrics*, 56:645-46.

World Development Indicators – 2006, World Bank Databank, <http://ddp-ext.worldbank.org/WDI>

Zhu, A., Ash, M. and Pollin, R. (2002), “Stock Market Liquidity and Economic Growth: a Critical Appraisal of the Levine/Zervos Model,” *International Review of Applied Economics*, 18(1), 1-8.

“FDI online Statistics”, UNCTAD website
(<http://stats.unctad.org/FDI/TableViewer/tableView.aspx?ReportId=334>)