SECTORAL IMPACTS OF FINANCIAL LIBERALIZATION IN DEVELOPING COUNTRIES AND EMERGING MARKETS

A THESIS PRESENTED

BY

SAMIR GADIO

BS, RUSSIAN PEOPLES' FRIENDSHIP UNIVERSITY, 2001

MA, FORDHAM UNIVERSITY, 2002

DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

IN THE DEPARTMENT OF ECONOMICS

AT FORDHAM UNIVERSITY

NEW YORK

APRIL, 2006

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Date April 18, 2006

This dissertation prepared under my direction by:

Samir Gadio

entitled "Sectoral Impacts of Financial Liberalization in Developing Countries and Emerging Markets"

Has been accepted in partial fulfillment of the requirements for the Degree of

Doctor of Philosophy

in the Department of

ECONOMICS

MENTOR

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ACKNOWLEDGMENTS

My interest in topics related to financial liberalization began when I took stabilization policy during my first semester at Fordham University, and deepened throughout my entire coursework. I eventually decided to write my doctoral dissertation on the sectoral interaction between finance and growth, and was strongly supported during this process by my mentor Prof. Darryl McLeod. He provided me with an excellent theoretical and technical training, and spent so much of his valuable time reviewing my progress over time. I thank you.

I was also lucky to benefit from the suggestions and comments of the reviewers of my dissertation, Prof. Derrick Reagle and Prof. Dominick Salvatore. Thank you so much.

Of course, I owe a lot to the faculty of the economics department, Angela Bates and Lydia Ocasio, and the GSAS, whom have helped me make through my dream of obtaining a PhD in Economics in one the best schools in the USA.

A special thanks to the AFDB professionals in Tunis from whom I received so much encouragement during this period. More precisely, I thank Jay Gandhi, Dr. Obadiah Mailafia, Dr. Caleb Fundanga and late Dr. Hussain Muhammed for their advice and support.

Lastly, I would like to thank my brother, Nicolas Gadio, and my parents, Elena and Ismail Gadio, for their love, patience and understanding.

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I.INTRODUCTION

The relationship between finance and growth has become a topic of intense research and passionate debate over the last two decades. In a globalizing world, restrictions on capital flows are lifted and financial markets liberalized; in turn, this leads to financial deepening of the overall economic structure. There is now a wide consensus that capital inflows influence GDP growth, especially sectoral growth of traded and non-traded goods sectors, when financial deregulation follows trade liberalization. Financial liberalization also increases investment in financially constrained sectors, but implicitly leads to financial fragility because of risk taking by non-traded goods sectors. Consequently, in economies that attract risky capital flows, the limit of credit distribution will be skewed as credit crunches are likely to be rare but of significant magnitude when they occur. The ratio of traded and non traded goods should be negatively related to financial opening and positively associated with credit crunches. Crises are considered to be the price to pay in order to undertake necessary reforms regarding the term structure of risky lending, and are expected to lead to a smoother long run equilibrium path. This dissertation involves investigating the specific channels through which financial liberalization influences economic development and, more precisely, considers and tests several hypotheses regarding the sectoral impacts of financial opening, including the effects of credit and banking crises.

A literature review briefly discusses the controversy over the causality between finance and development in Part II. Then this survey is extended to recent publications related to financial opening in the framework of sectoral growth. Most studies underlined

in this part focus on the switching of resources from inefficient to modern sectors of the economy (Gounrichas and Jeanne, 2002), development of industries dependent on external financing(Rajan and Zingales, 1998), and boom of non-traded goods sectors such as construction and services in financially open countries(Tornell, Westermann, and Martinez, 2004).

Section III introduces a model of capital flows and growth with traded and non traded investment goods, which is an extension of the initial Warner (2003) model of imported and domestic investment goods. More precisely, the model argues that non-FDI capital flows can influence sectoral growth through three channels: an expansion of domestic credit, lower price of imported investment goods and relaxation of domestic credit constraints on non traded investment goods. The framework of this study assumes that investment takes place using fixed proportions of investment goods and that the cost of capital depends on the mix of formal and informal market lending.

Data description for the 100 countries of the sample, including developing nations and emerging markets for the period 1980-2003, is provided in part IV. The primary data sources are the United Nations statistical database of sectoral breakdowns of GDP as well as the World Development Indicators (WDI) and Growth Development Finance (GDF) compilations which are available online. Financial variables such as capital flows and components of long term debt flows are extracted from these databases. Several indexes of exchange rate regimes, trade and financial liberalization over time such as the Reinhart and Rogoff(2002), Sachs-Warner (2000), WTM (2004), Dermicuk-Kant (1998) and Shambaugh(2005) tables are extensively used in this dissertation. The years of credit and

banking crises are originated from previous studies of sectoral effects of financial opening (Braun, 2003).

The empirical approach used in this dissertation is thoroughfully discussed in part V and provides a description of the various regression techniques employed. Most of the econometric results are obtained with the use of ordinary least squares with fixed effects, seemingly unrelated regressions, difference-in-difference technique and general method of moments approach. The SUR method is particularly useful to achieve our purpose as shares of sectoral GDP tend to move simultaneously when the independent variable fluctuates and a system of regressions is the best way to capture this effect. Also, this technique can be extended to evaluate the statistical difference of various regression coefficients which appear insignificant at first. The difference-in-difference technique has become increasingly popular in time series analysis, with significant application to sectoral related studies (Braun, 2003; Rajan and Subramanian, 2005) and has the advantage of overcoming the fixed effects bias of the conventional OLS regressions. Finally, the general method of moments is the most efficient approach applied in this study and allows us to perform extensive econometric tests with the use of instrumental variables, such as the real interest rate in the United States or total capital flows divided by total gross domestic product in PPP terms summed for all countries of the sample. The validity of the instruments and their uncorrelation with the sets of residuals is confirmed by the p-values of Sargan tests described in the empirical part.

The results of empirical investigations related to sectoral effects of financial liberalization are summarized in part VI. First, the driving forces of non-FDI capital flows used in subsequent sections are defined as being publicly guaranteed private

lending in most closed and developing countries, and private non-guaranteed debt and equity in open countries with more sophisticated financial markets. The next section highlights that non-FDI financial flows have a robust positive effect on non-traded goods sectors such as construction and services, and that the magnitude of this effect increases in the post liberalization period. The following topics focus on indirect linkages between non-FDI capital inflows and sectoral growth through various transmission mechanisms such as domestic credit to private sector and by banks only, real exchange rate appreciation and investment. These three channels turn out to be strongly sensitive to financial non-FDI capital and substantially impact the development of non-traded goods sectors, in particular in countries with open capital accounts. The empirical tests conducted on market capitalization and stock exchange turnover provide no clear evidence of non-traded goods sector growth, although it appears that manufacturing which is itself a non-homogeneous sector is responsive to these variables. Finally, the last section provides robust insights that non-traded goods sectors tend to be wiped out by credit crunches and banking crises; also there is indication that the speed of adjustment of non tradable sectors to exchange rate volatility is much slower than for tradable sectors.

II. LITERATURE REVIEW

As Levine (2004) emphasizes in his excellent survey, the relationship between economic growth and financial development is an old and recurring controversy. In fact, already in 1873, Bagehot pointed out the easiness for English entrepreneurs to borrow on financial markets for long-term investments and how this played a tremendous influence on the implementation of new technologies.

There are two opposite or at least alternative approaches: on one hand, some will argue that economic growth leads to more developed financial markets, in other words financial markets appear when they are needed. For instance, Joan Robinson (1952) suggested that "where enterprise leads, finance follows".

Most economists focus on the fundamental role of financial deepening as a determinant of economic growth, in other words on the assumption that financial development leads to economic growth. Keynesianism establishes a strong correlation between the level of financial development and the real economy, and argues that financial systems are by definition unstable and can initiate economic downturns as well as amplify effects of nonfinancial crises.

Goldsmith realized the earliest "modern" examination of this relationship in 1969. He tried to assess three main issues: 1-) the extent of change of the financial structure as the economy develops, the casual influence of finance on economic growth and whether the mixture of markets and intermediaries does influence economic development. By using a panel of 35 countries, he found that, in general, financial and economic developments appear simultaneously. More importantly, he was able to show that the

growth ratio of output financed by the banking system and national output increases as countries become richer, and that the growth ratio of output of non banking financial intermediaries over output financed by the banking sector also increases as countries develop. But he obtained a less positive result in assessing the casual interaction between financial development and economic growth, and was also unable to provide significant econometric results with respect to the relationship between economic growth and the mixture of financial markets and market intermediaries. His results have been limited due to the low number of cross-country regressions.

In recent years, a wide consensus has been established among economists and policy makers regarding the impact of finance on growth. Financial development is said to have a positive and monotonic effect on growth as illustrated in a series of empirical articles by King and Levine (1993). They claim: "Our findings suggest the government policies toward financial systems may have an important causal effect on long-run growth". Given this consensus, the approach of this study is that sectoral changes is the channel trough which finance can help achieve higher long run growth.

Three major publications on the impact of financial liberalization on sectoral growth have particularly attracted our attention. Gounrinchas and Jeanne (2002) claim that financial liberalization eases growth constraints for firms of the efficient sector, switching resources from non-efficient to modern sectors. Rajan and Zingales(1998) point out that liberalization primarily affects industries that are more heavily dependent on external versus internal finance for expansion, and through this channel, leads to higher long run growth. Within the framework of traded and non traded goods, Tornell, Westermann and Martinez (2004) argue that financial liberalization follows trade

liberalization and benefits producers of non-traded goods as their constraints on domestic credit are lifted comparatively to producers of traded goods producers who already have access to foreign capital markets. As a result, they suggest that non-FDI capital inflows should lead to less appreciation of the real exchange rate and lower inflationary pressures. This third approach converges in many aspects to the conclusions drawn from this study.

2.1. Financial Discipline and Modern Sector Investment

Gourinchas and Jeanne (2002) present a model in which an open capital account may encourage investment in high fixed cost (modern) industry because it signals a stronger commitment by the government to a better investment climate. One empirical implication of their model is that financial liberalization should lead to more investment in capital intensive modern sectors.

Pierre Olivier Gourinchas and Olivier Jeanne suggest that most of the inequality between nations is due to differences in Total Factor Productivity and not factor endowments; hence capital account liberalization can only reduce differences in output per capita by significantly reducing differences in TFP. This means, as it was also suggested by Quintin and Amaral(2004) that countries that have a poorly developed financial intermediation tend to have lower rates of Total Factor Productivity and be poorer. They present a very original model of a nexus between capital account liberalization, the respect of property rights and economic development (in which TFP plays a relatively important role). They use the scenario of a three time period model with two different types of technology for the given country: an efficient technology and an

inefficient technology where the Total Factor Productivity is higher in the country with efficient technology ($A_E > A_I$).

The two production functions are Cobb Douglas of the form:

$$Y = A_E K^{\alpha} L^{1-\alpha},$$
$$Y = A_I K^{\alpha} L^{1-\alpha}. \tag{2.1}$$

Other assumptions are: both technologies have the same factor elasticities, capital income can be taxed in the efficient sector but not in the inefficient sector, the country is populated by capitalists and workers like in the Diamond Model, capitalists choose to specialize into one of the sectors at period 0 while workers are endowed with one unit of labor at period 1 and 2. Capital income is taxed in periods 1 and 2 and redistributed to workers while capital account can be closed or open. In closed countries, capital cannot cross the boarders, if opened $R^{*} = R$ and capital can be rented from abroad freely. In the case of financial autarky, the capital account is closed in periods 0 and 1. Thus the output efficiency depends completely on technology at period 0. In t=1 and 2,

$$L_E = ((1-\alpha)\frac{A_E}{\omega})^{\frac{1}{\alpha}} K_E. \tag{2.2}$$

$$L_I = ((1-\alpha)\frac{A_I}{\omega})^{\frac{1}{\alpha}} K_I. \tag{2.3}$$

$$L_E + L_I = L. \tag{2.4}$$

$$W = (1-\alpha) L^{-\alpha} (A E_E^{\frac{1}{\alpha}} K_E + A_I^{\frac{1}{\alpha}} K_I) \alpha. \tag{2.5}$$

The sector "s" equals the sum of the efficient and the inefficient(modern and traditional) sectors and its return per unit of capital is given as the maximization of:

$A_s k^{\alpha} l^{1-\alpha} - wl) = k A_s^{1/\alpha} w^{\frac{-1/\alpha}{\alpha}} k$ where $k = \alpha(1-\alpha)^{\frac{1-\alpha}{\alpha}}$ and the gross rental price of capital $R_s = k A_s^{\frac{1}{\alpha}} w^{\frac{-1-\alpha}{\alpha}}$. Given the fact that government imposes a tax τ in the efficient formal sector and not taxes in the inefficient and informal sector, investment goes to the formal sector only and only if $(1-\tau_1) R_E + (1-\tau_2) R_E > 2 R_i$. We can simply assume τ' as the average rate of tax over the lifetime of K and then get:

$$\tau < \tau' = 1 - \left(\frac{A_i}{A_e}\right)\left(\frac{1}{\alpha}\right). \tag{2.6}$$

The outcome in financial autarky is that beyond a certain threshold, it does not longer matter for capitalists to invest in the formal sector whatever the level of efficiency and TFP growth. The higher is the efficiency in the sector with a high Total Factor Productivity in comparison with the inefficient sector, the higher is the tax rate to discourage entrepreneurs to invest in the formal sector.

In the case of capital mobility, we assume that the capital account is opened in period 1, but closed in period 0. Although the tax rate τ_2 is still predetermined in the previous period it is not longer the case for the capital stock because at period 1 there is an arbitrage between domestic and international capital flows. From the basic assumptions of the model, this means that:

$$(1-\tau_2) R_2 = R^*,$$

$$R_2 = k A_e^{\frac{1}{\alpha}} w_2^{\frac{-1-\alpha}{\alpha}}. \tag{2.7}$$

If capitalists do not invest in the informal sector, the real wage in the second period is:

$$w_2 = (1 - \alpha) A_e \left(\frac{K_2}{L} \right)^{\alpha}. \tag{2.8}$$

Since the government taxes consumption of workers at period 2 to maximize consumption at period 2:

$$C_2^{\omega} = \left(\frac{A_e K_2{}^{\alpha} L^{1-\alpha} - R^* K_2}{L} \right). \tag{2.9}$$

So when the capital account is opened in period 1 and closed in period 0, capital is still taxed in period 1 and capitalists receive a return per unit of capital in the following period. The incentive to invest in the formal sector is now:

$$\left(\frac{(1 - \tau_1) R_E + r^*}{2R_E} \right) = \left(\frac{\tau' + (R^* - R_E)}{2R_E} \right). \tag{2.10}$$

When there is scarcity of K ($R^* < R_E$), the tax rate will be lower than under financial autarky; when autarky is an obstacle to the high TFP sector development ($\tau' = \frac{1}{2}$), then account liberalization in period 1 is Pareto- efficient in the sense that the working class gets higher incomes while the income of the capitalists remains at the autarkic level (no one wins at the expense of the other). In other words, under capital account liberalization, when property rights are respected and government regulation low (lower taxes), the economy faces a switch of resources from the inefficient to the modern sector.

2.2. External versus internal dependence for financing

Rajan and Zingales(1998) use disaggregated data at the industry level(not at the firm level) to show that those industries that are more dependant on external finance have relatively higher countrywide growth rates when financial markets are relatively developed. The model estimated is estimated for the 1980-1990 period is:

$$Growth_{j,k} = c + \beta_{1\ldots m} * Country\ Indicators + \beta_{m+1\ldots n} * Industry\ Indicators$$
$$+\beta_{n+1} * (Industry\ j's\ share\ of\ manufacturing\ in\ country\ k\ in\ 1980)$$
$$+\beta_{n+2} * (External\ Dependence\ of\ industry\ j * Financial\ Development\ of\ country) + \varepsilon_{j,k}. \quad (2.11)$$

Real growth of value added in industry j in country k depends on country and industry indicators as a share of manufacturing output, as well as on industry external dependence and aggregate financial development. They use the initial scale and the gestation period of US firms as a proxy for external dependence and imply that the dependence of American firms on external finance is a good parameter for the demand for external funds in other countries. Measures used to evaluate financial development are:

1- The capitalization ratio that is assumed to be the ratio of domestic credit to the private sector to GDP.

2- Accounting standards (in percent), which represent the possibility for obtaining finance versus the actual finance accumulated.

Rajan and Zingales find out that financial development substantially reduces the cost of external capital to dependent firms and leads to higher economic growth. This is

particularly true when these firms are the sources of new ideas, which enhance innovation, and the implementation of new technologies. Braun (2003) proposes an extension of the model that tests the impact of financial crises on externally dependent industries. Particularly, his study comes to the conclusion that dependent industries for external financing are the hardest hit during recessions and that the differential growth across industries is likely to be higher in imperfect financial markets. Moreover, capital intensive industries are expected to suffer more in countries with poor financial contractibility and particularly, when crises are associated with credit crunches.

2.3. Domestic credit constraints and long run growth

The claim made by Tornell, Westermann and Martinez is that financial liberalization leads to higher real GDP growth even if countries experience crises due to risky international flows and financial fragility. Paradoxically, the same forces that lead to faster growth lead to higher financial fragility. In fact they suggest that those countries, which previously faced financial and economic crashes, are likely to grow faster in the long-run. The reason is that they tend to be more careful in their expansion of domestic credit and its allocation after a crisis; this explains why real GDP growth is positively correlated with negative skewness of domestic credit.

However, this does not imply that Foreign Direct Investments are a substitute for risky bank loans, which lead to higher growth by easing domestic credit constraints for firms of the Non-Traded sector. The reality is that the tradable sector can overcome credit

constraints by accessing capital international markets while the non-traded goods sector cannot and must rely on domestic bank credit when finance is not liberalized.

Non tradable firms face two major credit imperfections: contract enforceability and a low level of bailout when financial markets are not liberalized. Contract enforceability is an issue for lenders because the ability of the NT sector to repay their debt in foreign currency is uncertain. At the same time, a bailout to lenders by intermediary banks is unlikely to occur if only a few borrowers default. Such an assumption makes optimal for the non traded goods sectors to denominate debt in foreign currency and run the risk of going bankrupt as a group so that a bailout can happen. This in turn discourages banks to finance the needs of the non-traded goods sectors in order to avoid self-fulfilling crises.

The sequencing of economic deregulation implies that trade liberalization is in most cases liberalized before financial markets. When trade is liberalized, the tradable sector grows faster because it gets access to new markets overseas and the traded to non-traded ratio increases; however, once capital account is liberalized, there is more access to credit for non-tradable firms, which start growing faster while the traded/non traded output ratio declines. Because the non traded goods sectors grow, the traded goods sectors will also expand significantly by getting abundant and cheap resources.

However, financial fragility is amplified because non-traded goods sector take on credit risk in the form of currency denominated debt (currency mismatch) as they have access to new sources of finance. If a crisis occurs following a large devaluation, the non tradable firms are more likely to be wiped because they have to repay the contracted loans in foreign currency. Therefore, following a crisis, the non-traded goods sectors

output falls sharply; on the contrary, the traded goods sectors can recover fast enough due to their new competitiveness. In other words, before a crisis, the real exchange rate will appreciate because of massive capital inflows and sharply depreciate during the crisis itself as the traded/non traded ratio jumps up.

The empirical evidence presented by the TWM paper shows that financial deepening has generally followed financial liberalization but this process has in most cases not been smooth. Crises are a price to pay to achieve growth, as governments are likely to implement judicial, prudential and institutional reforms to avoid a repetition of crashes in the long run.

In the model, the relative price of non traded goods, or 1/RER is described as:

$$p_t = \frac{p_t^N}{p_t^T}. \tag{2.12}$$

Tradable goods are produced by using a non-tradable input $y_t = a_t d_t^{\alpha}$ so that the aggregate T sector demand is:

$$d(p_t) = \left(\frac{\alpha a_t}{p_t}\right)^{\frac{1}{1-\alpha}}. \tag{2.13}$$

A firm's budget constraint in terms of traded goods will be:

$$p_t I_t = w_t + B_t. \tag{2.14}$$

where I_t represents the input of N goods, w_t the firm's cash flow and B_t its debt.

TWM describe the real exchange rate as being the NT market clearing equation:

$$d_t(p_t) + I_t(p_t) = q_t(I_{t-1}). \tag{2.15}$$

q_t is the quantity produced of NT goods.

The exchange rate variability is the only source of risk at this stage for the traditional sector. There are two equilibriums: a high value of p_{t+1} indicates solvency and low value insolvency. In a non-liberalized economy, the investment share $\phi_t = \phi^s$ and is constant, which implies that GDP and traded goods sectors grow at equal rates.

$$1 + \gamma^{NL} = \frac{GDP_t}{GDP_{t-1}} = \frac{y_t}{y_{t-1}} = (\vartheta\phi^s)^\alpha. \tag{2.16}$$

TWM set α which is the technology coefficient in the traded goods sector equal to 1. So a growth in non tradable sectors and even tradable sectors (which need cheap inputs) is only possible for high values for non traded goods-sector productivity ϑ and non traded goods-investment share ϕ^s. Credit to non-traded firms grows if $(\vartheta\phi^s)^\alpha > 1$ for non-financially liberalized economies. A country that liberalizes its financial markets will be on a lucky path if $\phi^l > \phi^s$. As long as there is no crisis (lucky path), firms can borrow and invest more. As a result growth will be higher when:

$$\phi^l > \phi^s,$$

$$(\vartheta^L\phi)^\alpha > (\vartheta^s\phi)^\alpha. \tag{2.17}$$

However, $1+\gamma^L > 1+\gamma^{NL}$ does not imply per se that financial liberalization leads to growth as there is a possibility of a crisis or non-lucky path (probability $(1-u)$). Indeed, if a post liberalization crisis occurs, investment may decrease in such a way that $\phi^l > \phi^c\,(crisis)$ and $\phi^s > \phi^c$. WTM incorporate the probability of several financial crises to compute the long run GDP growth:

$$E\,(1+\gamma^{LE}) = (1+\gamma^L)^\omega\,(1+\gamma^L)^{1-\omega} = \vartheta^\alpha(\phi^l\phi^c)^{\alpha\frac{1-\omega}{2}}. \tag{2.18}$$

where ω is the share of time that a crisis does not occur in an economy in the long run. It is assumed to be equal to:

$$\omega = \frac{u}{2-u}. \tag{2.19}$$

The inverse of the real exchange rate, in the framework of asymmetries, is:

$$\frac{N^t}{T^t} = \frac{q_t p_t}{y^t} = \frac{q_t p_t}{\frac{1-\phi_t}{\alpha} q_t p_t} = \frac{\alpha}{1-\phi_t}. \tag{2.20}$$

In the previous equation, ϕ_t is the share of output by the non traded goods sectors; when financial liberalization occurs ϕ_t expands. However, if there is a crisis, because of the debt structure currency mismatch, the non-traded goods sectors will be wiped out, and the share of investment ϕ_t will collapse and take a long period to recover.

IIII. THE DATA

This part provides insights regarding the nature of the country sample used by this dissertation as well as the source of various databases that are relevant to sectoral economics. Data sources of sectoral breakdowns of GDP, capital and debt flows, domestic credit, aggregate investment and the real exchange rate measures are provided. Also, indexes of financial liberalization and openness, and binary tables representing banking crises and credit crunches, are discussed in the following sections.

3.1 Sample countries

This dissertation tests sectoral impacts of financial liberalization with the use of a sample including 100 developing countries and emerging markets located in Africa, Latina America, Asia and Eastern Europe. The following is a detailed list of countries covered: Algeria, Angola, Argentina, Bangladesh, Belize, Benin, Bhutan, Bolivia, Botswana, Brazil, Bulgaria, Burkina, Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Czech Republic, Chad, Chile, China, Colombia, Comoros, Congo, Costa Rica, Cote d'Ivoire, Djibouti, Dominica, Dominican Republic, Ecuador, El Salvador, Equatorial Guinea, Egypt, Ethiopia, Fiji, Gabon, Gambia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, India, Indonesia, Jamaica, Kenya, Kiribati, Korea, Lao PDR, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Nigeria, Pakistan, Panama, Peru, Papua New Guinea, Poland, Paraguay, Philippines, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Senegal,

Seychelles, Sierra Leone, South Africa, Sri Lanka, Sudan, Suriname, Slovak Republic, Swaziland, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Ukraine, Uganda, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe. Overall, there are 47 African, 18 Asian, 23 Latin American and 10 Eastern and Central European countries. The sample contains 29 emerging markets and 71 developing countries and covers the period 1980-2003 during which most nations have initialized structural reforms and financial liberalization.

3.2 Sectoral data

The United Nations statistical division provides a database of sectoral breakdowns of gross domestic product for the period assessed by this dissertation. More precisely, the UN table includes percentage shares of GDP for six sectors that are agriculture, hunting and fishery(traded), construction(non-traded), wholesale, retail and restaurants(non-traded), services, transportation and communication(non-traded), manufacturing(traded) and mining and utilities(non-traded). The World Development Indicators (online version, 2006) statistical compilation also contains a measure of government final consumption expenditure, which represents a proxy for the government sector as suggested by previous sectoral related studies (Warnock, 2000).

3.3. Capital and debt flows

In order to assess the impact of financial liberalization on sectoral shares of GDP, this thesis has extensively made use of the flows, and sometimes stocks, composing the capital account that are available from the online version of the World Development

Indicators. The WDI has accurate time series for variables such as net and gross private capital flows, net and gross foreign direct investments and aid as percent of GDP. Our measure of non-FDI net capital flows is obtained by dividing net private capital flows by the gross domestic product in $US, a variable provided by the same source, and netting the difference between the latter and net foreign direct investments.

Besides the WDI, the Growth Development Finance (GDF) statistical database, also maintained by the World Bank, includes detailed measures of short term and long term debt that are important in determining the drivers of our net non-FDI capital flows. In particular, the GDF disaggregates long term debt flows into private non-guaranteed and public and publicly guaranteed debt; the former is then fragmented into bonds and loans by commercial banks, and the latter into lending by official creditors(multilateral and bilateral) and publicly guaranteed private lending(bonds and banks). The GDF also contains $US equity flows for selected countries, a relevant variable for analyzing the impact of financial opening on the emerging markets of our sample.

3.4. Indexes of openness and financial liberalization

Comparing how different sectors of the economy have evolved before and after financial liberalization has been possible thanks to several indexes of openness, exchange rate regimes, capital account controls and financial liberalization. The Sachs-Warner (2000) binary index of openness is certainly the most known attempt to classify a large group of nations into closed and open countries. Closed countries are assigned a "0" while countries considered as open to trade and financially integrated to the world economy are awarded a "1".

Rienhart and Rogoff (2002) have published a classification of de facto and de jure exchange rate regimes, which this study has employed in order to divide our sample into countries with fixed or floating exchange rates. There is also a significant database of capital account liberalization by Shambaugh (2005); countries that have capital controls and open capital accounts are respectively awarded "0" and "1". Finally, Westermann, Tornell and Martinez (2004) established an index of trade and financial liberalization based on the same binary principle for closeness and openness.

3.5. Transmission mechanism and real exchange rate related data

This study will demonstrate that there is evidence of direct and indirect linkages between financial liberalization and sectoral growth. Regarding the latter, non-FDI capital flows can impact the relative change in traded and non-traded goods through domestic credit, aggregate investment or the real exchange rate. The data for credit and investment are easy obtainable from the World Development Indicators; in fact there are even three types of domestic credit provided: aggregate net domestic credit, net domestic credit to private sector and domestic credit by banks only as % of GDP.

Although the real exchange rate variable is available from the same sources, we computed our own measure of the RER as the following:

$$\text{RER}= \frac{p^T}{p^N} = \frac{eP^*}{P} = \frac{NominalXR \times US\ Wholesale\ Prices}{Domestic\ Consumer\ Prices}. \qquad (3.1)$$

where the time series for nominal exchange rates "e", US wholesale prices and domestic inflation (CPI) are all extracted from the World Outlook Economic(WEO) database, sponsorded by the International Monetary Fund(IMF).

The Law of One Price states that foreign prices and domestic prices, in other words, the price of foreign goods in domestic currency and the price of domestic goods in domestic currency should converge in the long run. This implies that the real exchange rate should be stationary and converge to 1 in the long term equilibrium. However, in the 1980s, many of our countries showed inconsistent patterns with respect to this theory and experience x-fold jumps in their real exchange rates. To control these high rates of volatility, a black market exchange rate has been computed and used to adjust the RER values until 1992. The measure of black market premium is obtained by combining the databases from the Word's Currency Yearbook(for 1985;1990-93), "Global Trends in real exchange rates" by Adrian Wood(1960-84), World Bank Discussion Paper n.35(1988) and the Global Development Finance & World Development Indicators(1996-97).

X which the black market premium is computed as the following ratio:

$$X = \left(\frac{Parallel\ XR}{Official\ XR - 1} \right) = \left(\frac{e}{\bar{e} - 1} \right),$$

$$e = X\left(\bar{e} - 1 \right). \tag{3.2}$$

Some countries (Nigeria, Kenya, Uganda, Zambia, etc.) still experience strong yearly fluctuations in their real exchange rates in the post 1992 period. In this case, the IMF country publications and working papers provide estimations of the parallel exchange rate, which have been used to smooth the RER computed above.

The Growth Development Finance (GDF) database also exhibits a measure of real exchange rate overvaluation for most countries included in our sample, which is helpful in proving that the real exchange rate in financially liberalized countries appreciates less

than in trade liberalized countries only. The Shanbaugh tables (2005) also include a measure of volatility of the real exchange rate, defined as the monthly deviations from the average real exchange rate.

3.6. Instrumental variables in GMM equations

The GMM equations testing the impact of financial liberalization on sectoral growth use instruments that are defined as total capital flows divided by total gross domestic product in PPP terms summed for all countries. As a result, we have a distinct instrument for foreign direct investment, aid, short term debt and non-FDI capital flows. The second type of instrumental variable employed by our GMM regressions of sectoral shares on domestic credit is the interest rate in the USA, also provided by the WDI.

3.7. Indexes of credit crunches and banking crises

The last topic of this dissertation covers the impact of credit crunches and banking crises on traded and non-traded goods sectors. The identification of credit crunches for a large group of developing nations and emerging markets is presented by Braun (2003) while years and magnitudes of banking crises can be extracted from the Demirguc-Kunt(1998) tables, which have recently been updated by the World Bank. This thesis has transformed these sources into binary tables of non-crisis ("0") and crisis ("1") years.

3.8. Other relevant data

Other relevant variables, such as market capitalization of listed companies, value of stock traded, M2 as % of GDP, real interest rates and real $US PPP GDP per capita are mostly obtained from the World Development Indicators (WDI) database.

IV. CAPITAL FLOWS AND GROWTH WITH TRADED AND NONTRADED INVESTMENT GOODS

Non-FDI financial inflows can influence the economy via three channels: an expansion of domestic credit, lower price of imported investment goods and relaxation of domestic credit constraints on non traded investment goods. The following model closely follows that of Warner (2003) but is basically a standard q-theory model with imported investment goods. Investment takes place using fixed proportions of investment goods. The cost of capital depends on the mix of formal and informal or curb market lending at rates r_d and r_c where $r_d < r_c$ such that,

$$r = \lambda r^d + (1- \lambda)r^c. \tag{4.1}$$

Investment is a mix of imported and domestic investment goods, k^f and k^d used in fixed proportions assumed to be θ. Here we assume k^d consists mainly of construction goods, which are generally non traded but can only be incompletely financed in domestic markets (perhaps due to high costs of foreclosure, low costs of bankruptcy or a lack of credit monitoring). The costs of a composite investment good is therefore determined by

$$k = \min[\theta k^f, k^d]. \tag{4.2}$$

where the cost of domestic financial goods p^d and $p = ep^*/p^d$ (in other words p is the real exchange rate). Setting $p^d = 1$ the price of investment goods is $1 + \theta p$. Assuming quadratic adjustment costs,

$$C(I) = \frac{I^2}{2}. \tag{4.3}$$

Interest rates are determined in the money market where money demand depends on income and interest rates,

$$M^d = f(v(r_d), Y) \tag{4.4}$$

$$M^s = eR + DC \tag{4.5}$$

where e is nominal exchange rate, R is foreign reserves and DC is domestic credit. Equation (4.6) can used to solve for the domestic interest rate.

$$r^d = f(R, DC, Y) \tag{4.6}$$

$r^c = (1+b)r^d$ where b is extra cost of monitoring debt incurred by informal creditors.

Hence non-FDI capital inflows can influence domestic via three channels. One is the direct effect on credit for non traded investment goods, that is λ increases. The 2nd channel is the effect on the real exchange rate p, while a third potential impact is via expansion of the domestic money M^s which can take place directly via an increase in foreign reserves R and indirectly via an expansion of domestic credit (short term bank to bank lending). In light of the above, the representative firm maximizes expected profits using the Hamiltonian:

$$\max \int_o^\infty e^{-rs}\left[Ak - (\theta p + 1)\frac{I^2}{2}\right]ds + q(I - \delta K). \tag{4.7}$$

where A is the overall productivity of composite capital goods, θ the units of foreign capital goods purchased by the firm δ the rate of depreciation of capital. From equation can we obtain:

$$\dot{q} - (r + \delta)q = -A. \tag{4.8}$$

and

$$I = \frac{q}{(\theta p + 1)}. \tag{4.9}$$

By integrating we obtain:

$$q = \frac{A}{r + \delta}. \tag{4.10}$$

And as a result:

$$I = \frac{A}{(\theta p + 1)(r + \delta)}. \tag{4.11}$$

From the production function $y = Ak$, $g = \frac{\dot{A}}{A} + \frac{\dot{K}}{K}$ where growth depends on productivity growth (technological progress) and capital accumulation. The model eliminates the technological progress component:

$$g = \frac{\dot{K}}{K}. \tag{4.12}$$

Growth in the capital stock comes from the accumulation equation:

$$\dot{k} = I - \delta k. \tag{4.13}$$

And growth in the capital stock is given by:

$$\frac{\dot{k}}{k} = \frac{I}{k} - \delta. \tag{4.14}$$

The path of the capital stock over time is:

$$k(t) = k(t_o)e^{-\delta(t-t_o)} + \frac{I}{\delta}(1 - e^{-\delta(t-t_o)}). \tag{4.15}$$

We know that output is:

$$y(t) = Ak(t). \tag{4.16}$$

And the path for output is:

$$y(t) = Ak(t_o)e^{-\delta(t-t_o)} + \frac{A^2}{(\theta p+1)\delta(r+\delta)}(1-e^{-\delta(t-t_o)}). \tag{4.17}$$

After differentiating with respect to time, growth is given by:

$$g = \frac{A}{k(t)(\theta p+1)(r+\delta)} - \delta. \tag{4.18}$$

This implies that growth and the level of income depend negatively on the price of imported goods and trade protection. Also, growth will decline as the capital stock increases, which implies the existence of a steady state where new investment equals the depreciation of the capital stock so that real output stops growing. This model may be best applied to developing countries, far from being technologically advanced, and which are sensitive to the transitional dynamics to the steady state.

The model can be extended to evaluate the impact of trade policies (tariffs, quotas and black market premiums) on growth and the level of income. The term R (aggregate reserves) can be defined as $R = \frac{1}{\theta p+1}$ and stands for the ratio of the price of the domestic good to the price of composite capital good.

Also,

$$R = \frac{1}{\theta(1+\iota)p[\delta E^0 + (1-\delta)E^B]+1}. \tag{4.19}$$

Equation 4.19. implies that firms import a fraction δ at the official rate and (1- δ) at the market rate. *P* represents the foreign currency cost of a unit of the imported capital

good. $E^{B\ is}$ the black market exchange rate and E^{O} the official exchange rate and ι the tariff on imported goods; therefore the economy is in a case of dual exchange rates.

R can be rewritten as:

$$R = \frac{1/E^{0}}{\theta(1+\iota)p[\delta+(1+BMP)E^{B}]+1/E^{0}}. \tag{4.20}$$

where BMP stands for black market premium, that is the ratio of the black market over official exchange rate. If δ tends to 0, the black market premium acts exactly like a tariff; on the contrary if it is equal to 1, the black market premium has nothing to do with growth.

V. ECONOMETRIC METHODOLOGY

This part describes the four regressions techniques employed in the empirical investigations of the sectoral effects of financial liberalization. First, the basic ordinary least squares approach is described; then the theoretical background of seemingly unrelated regressions is discussed; in fact the latter are very appropriate to assess how all shares of GDP change at once as the independent variable fluctuates. The third approach used in this dissertation is the increasingly popular difference-in-difference method that regresses the change in the dependent variable on the change in the independent variable. Finally, the difference dynamic panel data (DPD) used for the evaluation of the GMM equations in part VI is presented, in addition to some notes about the theory behind of the Sargan test of over identification of instrumental variables.

5.1. Ordinary Least Square (OLS)

The ordinary least square, sometimes called the "classical estimation model" is the basic and less sophisticated type of regression of the form:

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i. \tag{5.1}$$

where $\beta 0$ and β_1 are the population parameters of interest and ε_i the error term. The model is an optimization technique attempting to create a function that approximates the data and minimizes the sum of the squares of the residuals between observations generated by the function and actual observations. In other words:

$$\hat{Y}_i = \hat{\beta}_0 + \hat{\beta}_1 X_i + \varepsilon_i. \tag{5.2}$$

$$Y_i - \hat{Y}_i = e_i. \tag{5.3}$$

The OLS estimators can also be defined as:

$$\hat{\beta}_0 = \overline{Y} - \hat{\beta}_1 \overline{X}_i. \tag{5.4}$$

$$\hat{\beta}_1 = \frac{\Sigma(Xi-\overline{X})(Yi-\overline{Y})}{\Sigma(Xi-\overline{X})^2}. \tag{5.5}$$

Equations 5.4 and 5.5 are linear functions of the actual random variables X and Y which exhibit five fundamental properties. First, the regression lined obtained by the OLS estimators passes through the mean of the observed values; secondly, the mean of the predicted dependent variable will be equal to the mean of the observed dependent variable; the sum of the deviations from the mean of the residuals will be equal to zero; the correlation between the residuals and the predicted values of the dependent variable will be equal to zero; finally, the correlation between the residuals and the observed values of the independent variable will be equal to zero. Note that the estimator is frequently described in the matrix form of the estimated variance of the parameters as $\beta = (X'X)^{-1} X' y$. Regressions with the use of ordinary least squares have several shortcomings, in terms of efficiency, and are likely to exhibit signs of heteroskedascity amd multicollinearity(high R^2 and high t- statistics). For these reasons, it is very useful to explore more advanced regression techniques such as SUR, difference-in-difference or GMM (General Method of Moments).

5.2. Seemingly Unrelated Regressions (SUR)

The purpose of this research study is to assess how different shares of gross domestic product react simultaneously when financial liberalization occurs. Therefore, a

system of simultaneous regressions and more particularly, a system of seemingly unrelated regressions (SUR) is a very appropriate approach to assess sectoral effects of financial opening. The basic SUR model (Greene, 2002) is of the form:

$$\begin{aligned} y_1 &= X_1\beta_1 + \varepsilon_1; \\ y_2 &= X_2\beta_2 + \varepsilon_2; \\ &\vdots \\ yn &= X_n\beta_n + \varepsilon_n; \end{aligned} \tag{5.6}$$

The matrix representation is of the form:

$$\begin{pmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{pmatrix}_{nT\times 1} = \begin{pmatrix} X_1 & 0_{T\times k_2} & \cdots & 0_{T\times k_n} \\ 0_{T\times k_1} & X_2 & \cdots & 0_{T\times k_n} \\ \vdots & \vdots & & \vdots \\ 0_{T\times k_1} & 0_{T\times k_2} & \cdots & X_n \end{pmatrix}_{nT\times k_*} \begin{pmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_n \end{pmatrix}_{k_*\times 1} + \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_n \end{pmatrix}_{nT\times 1}, \tag{5.7}$$

where $k_* = \Sigma_i k_i$.

Fundamentals assumptions of the model suggest that the errors terms are normally distributed and that $\text{cov}(\varepsilon_{it},\varepsilon_{js}) = E(\varepsilon_{it}\varepsilon_{js}) = 0$ for any $t \neq s$. The covariance of the error term at time i and j is $\text{cov}(\varepsilon_{it},\varepsilon_{jt}) = E(\varepsilon_{it}\varepsilon_{jt}) = \sigma_{ij}$ for any t, i and j. $\rightarrow$ $\text{cov}(\varepsilon_{it},\varepsilon_{it}) = \text{var}(\varepsilon_{it}) = \sigma_{ii}$ where σ_{ij} is a non zero term that implies the possibility for a macro shock to impact all values of y_{it}. The expected value of the product of the error term at time I and the transposed error term at time j is:

$$E(\varepsilon_i \varepsilon_j') = E\left[\begin{pmatrix}\varepsilon_{i1}\\ \varepsilon_{i2}\\ \vdots\\ \varepsilon_{iT}\end{pmatrix}\begin{pmatrix}\varepsilon_{j1} & \varepsilon_{j2} & \cdots & \varepsilon_{jT}\end{pmatrix}\right] = E\begin{pmatrix}\varepsilon_{i1}\varepsilon_{j1} & \varepsilon_{i1}\varepsilon_{j2} & \cdots & \varepsilon_{i1}\varepsilon_{jT}\\ \varepsilon_{i2}\varepsilon_{j1} & \varepsilon_{i2}\varepsilon_{j2} & \cdots & \varepsilon_{i2}\varepsilon_{jT}\\ \vdots & \vdots & & \vdots\\ \varepsilon_{iT}\varepsilon_{j1} & \varepsilon_{iT}\varepsilon_{j2} & \cdots & \varepsilon_{iT}\varepsilon_{jT}\end{pmatrix} \quad (5.8)$$

$$= \begin{bmatrix}\sigma_{ij} & 0 & \cdots & 0\\ 0 & \sigma_{ij} & \cdots & 0\\ \vdots & \vdots & & \vdots\\ 0 & 0 & \cdots & \sigma_{ij}\end{bmatrix} = \sigma_{ij} I_T$$

Our basic regressions will be of an identical type, with the y_{it}.values representing the seven shares breakdowns of GDP(agriculture, construction, wholesale and retail, services, manufacturing, mining and government) over time, and the X our independent variables(credit, flows or others).

5.3. Difference in difference regressions

The difference-in-difference approach was first popularized by Card and Kruger in 1994 in their study of the fast-food industry in New Jersey and Pennsylvania, more precisely of the response of the low-wage labor markets to an increase in the minimum wage in a non time series environment. Changes in average full time employment per store before and after wage rise are regressed on wages and imply that employment has not increased as a result of higher pay. Recently this approach has been used in various fields of economic research with the use of time series data, for instance in health economics (Chay and Greystone, 2003) or aid and growth related studies (Rajan and Subramanian, 2005). The latter exploits within-country differential effects and differences between labor-intensive industries and non-labor intensive industries, and

analyzes the effect of aid by regressing the difference in average growth in annual value added on the ratio of aid to GDP.

The main advantage of the difference-in-difference approach is to control for fixed effects, at the country or industry level, and reduce the importance of issues related to variable biases and model specifications. Specifically, our basic regressions of the differences in shares of nominal GDP on difference in domestic credit, foreign direct investments, aid, different types of debt and constant US$ GDP PPP take the following format:

$$\partial(GDP_I) = \alpha + \partial(\beta_1 DC) + \partial(\beta_2 FDI) + \partial(\beta_3 FF) + \partial(\beta_4 AID) + \partial(\beta_5 AID) + \partial(\beta_6 RGDP) + \varepsilon$$

in which $\partial(GDP_I)$ represents the changes in shares of GDP, $\partial(\beta_1 DC)$ the changes in domestic credit and the following coefficients the changes in various components of the capital account while ε represents the error term.

5.4. Dynamic panel General Method of Moment (GMM)

The accrued availability in large macroeconomic time series for panels of countries in recent years has revitalized interest in estimating dynamic models with panel data. For instance, the identification of country-specific effects controlling for missing variables and the amendment of inconsistency caused by endogeneity in both cross-sectional and static panels, makes easier the estimation of common relationships across countries. In this study, we follow the dynamic panel data approach suggested by Arellano and Bond (1991).

One of the instruments considered in the dynamic wizard panel is the ratio of total capital flows for a particular component of the capital account (FDI, financial flows, aid and debt) over total GDP PPP for all the countries comprised in the sample. We also use

interest rates in the United States as an instrumental variable for domestic credit to private sector in further tests. The validity of our results obtained with the use of the general method of moments are subject to the confirmation of the null hypothesis of overidentifying restrictions, also commonly called the Sargan test(1964). The later is a test of the validity of the instrumental variables which should be uncorrelated to a defined set of residuals. The standard formula of the test is:

$$S = \Delta\hat{v}' Z \left(\sum_{i-1}^{N} Z_i' \Delta\hat{v}_i \Delta\hat{v}_i' Z_i \right)^{-1} Z' \Delta\hat{v} \sim \chi^2_{p-k} \tag{5.9}$$

VI. PANEL DATA ESTIMATES OF SECTORAL GROWTH

This part presents the empirical results of various econometric tests of the relationship between financial liberalization and sectoral growth which are related to the model of capital flows and growth with traded and non traded investment goods introduced in Part IV. The first section defines publicly guaranteed private lending and private non-guaranteed debt as the driving forces of non-FDI net capital flows which are assumed to be a proxy for financial depth in most subsequent analyses. After this definition exercise, section 6.2. assesses the direct impact of non-FDI financial flows on sectoral shares and identifies the strong sensitivity of non-traded goods sectors to financial opening. Sections 6.3. and 6.4. demonstrate that financial liberalization leads to booms in credit expansion and relatively weaker appreciation of the real exchange rate which strongly benefits non-traded goods sectors such as construction and services. Section 6.5 advocates that an increase in aggregate investment in open economies is correlated with a rise in capital inflows and is most likely to expand the construction sector. There is little evidence of the impact of market capitalization of listed companies on non-tradable sectors of the economy as presented in section 6.6.; however, manufacturing exhibits significant sensitivity to stock exchange development although this sector is not homogeneous and must be fragmented into financially external dependent and labor intensive industries. Finally, in section 6.7., proof is provided that credit crunches and banking crises hit especially hard non-traded goods sectors, which show signs of slower adjustment and recovery over time than traded goods sectors.

6.1. Driving forces of non-FDI financial flows

This section attempts to define the non-FDI financial inflows that are extensively used in the topics that follow. The net non-FDI flows are computed as the difference between net total private capital flows and net total foreign direct investments, both provided by the World Development Indicators (WDI, 2005). The interesting issue is to determine the forces that are driving these flows for different types of countries and periods. Table 6.1.1 suggests that the factors that have a strong monotonic effect and

Table 6.1.1: Sources of non-FDI Financial Flows

Dependent variable: Non-FDI flows*(1)*	Non-FDI Flows Diff in diff/ALL *(2)*	Non-FDI Flows OLS/ALL *(3)*	Non-FDI Flows Diff in diff/ DEV*(4)*	Non-FDI Flows Diff in diff/ EM*(5)*
Before financial liberalization				
Official creditors-publicly guaranteed*(6)*	0.35**	0.24*	0.35**	0.33
	(0.04)	*(0.13)*	*(0.04)*	*(0.96)*
Private creditors-publicly guaranteed	0.15**	0.86	0.14**	0.13
	(0.04)	*(0.63)*	*(0.04)*	*(0.61)*
Observations	556	812	271	277
Cross-sections	78	84	48	28
R-Square	0.11	0.36	0.14	0.05
After financial liberalization				
Official creditors-publicly guaranteed	0.38**	0.21*	0.38**	-0.83
	(0.06)	*(0.12)*	*(0.07)*	*(0.66)*
Private creditors-publicly guaranteed	0.88**	0.12**	0.89**	-0.40
	(0.40)	*(0.05)*	*(0.42)*	*(0.54)*
Private creditors-private non-guaranteed	-0.07	-0.05	-0.08	0.42**
	(0.24)	*(0.15)*	*(0.25)*	*(0.16)*
Observations	299	452	150	145
Cross-sections	53	62	32	20
R-Square	0.25	0.40	0.30	0.15

** and *: significant at the 5 and 10% levels
(1) The difference between net private capital flows and net foreign direct investments.
(2) Difference-in-difference regression.
(3) Ordinary least squares regression with fixed effect.
(4) Difference-in-difference regression for developing countries.
(5) Difference-in-difference regression for emerging markets.
(6) All types of debt are as % of $ US GDP.

influence on non-FDI flows differ whether the analysis covers emerging markets or developing countries, or countries that have liberalized their financial system or not. The non-FDI flows are first regressed on the components of net flows of debt, as defined in the Growth Development Finance (2006). We know that these flows are not likely to be influenced by aid, which is a different component of the capital account and that has steadily declined during the last decade; also, by definition it is different from foreign direct investments. The discussion of the effect of equity is discussed in the next table, leaving us with private lending as an influential driver of non-FDI flows. The GDF divides private lending into short term debt which effect is also studied in table 6.1.2. and flows on long term debt. The latter is fragmented into public and publicly guaranteed debt and non-private guaranteed debt. Public and publicly guaranteed debt is comprised of loans provided by official creditors (multilateral and bilateral) and private creditors which take either the form of bonds or commercial banks loans. Private non-guaranteed debt usually takes the form of private obligations (bonds) or loans originated by private banks.

The results of our econometric tests show that in countries which have not undertaken financial liberalization, non-FDI capital flows are strongly correlated to public and publicly guaranteed debt; more precisely the difference-in-difference, and partially, OLS methods illustrate that financial flows other than direct investments are strongly influenced by official guaranteed public debt, and to a lesser extent by guaranteed public debt originated from private creditors. This pattern is not surprising

since the sample of countries covered in this study contains an important share of developing nations, which are and have always been dependent on multilateral bailing out by the IMF, World Bank and other international development banks as well as capital provided on a bilateral basis from institutions such as the European Union or former colonial powers. As for private lending in closed countries, the results point out that private creditors are not likely to lend to non-liberalized nations unless there is a clear bail out guarantee by their own government or other international financial organizations(Club of Paris for instance). Further investigations support that private lending backed by official bail out is more likely to take the form of obligations rather than direct commercial banking loans. Moreover, the estimates strongly suggest that closed developing countries are more likely to exhibit such a structure of financial non-FDI capital inflows than emerging markets, the coefficients for the latter group being insignificant.

After financial liberalization is undertaken and capital account controls lifted, the regression output suggest that somewhat similar forces drive non-FDI flows in developing countries, and the coefficient for private creditors(public and publicly guaranteed debt) is now significant with both the difference-in-difference and ordinary least squares techniques. Emerging markets attract a completely distinct category of financial inflows as documented by the same table: the coefficient of private non-guaranteed debt is significant in the post liberalization period while the coefficients for both segments of public and publicly guaranteed debt are not. In other words, emerging markets have more sophisticated financial systems and higher risky investment potentials which cause them to attract non-guaranteed private lending.

An alternative method to define our non-FDI capital flows identified in table 6.1.2. is to regress the later on all types of portfolio investment and debt at once. The approach implemented in this table is to consider equity investment, bond flows, and other forms of long term of debt as well as short term debt as independent variables. The advantage is obviously the illustration of the strong influence of equity and bond instruments on non-FDI capital flows. The disadvantages are that this relationship does not distinguish the either private or publicly guaranteed format of the bond flows and that the sample is controlled by emerging market countries. In fact, it turns out that countries that have been able to attract bond and equity flows are in 90% emerging markets which are already financially open. The relatively low significance level of long term debt other than bonds, driven by publicly guaranteed debt by private creditors, illustrates the low number of developing countries in this regression.

Table 6.1.2: Sources of non-FDI Capital Flows(Equity and Debt)

Dependent variable: Non-FDI flows*(1)*	Non-FDI Flows Diff in diff/ALL *(2)*	Non-FDI Flows OLS/ALL *(3)*	Non-FDI Flows Diff in diff/ EM*(4)*	Non-FDI Flows Diff in diff/ Open*(5)*
Equity*(6)*	0.11**	0.29**	0.64**	0.67**
	(0.01)	*(0.04)*	*(0.05)*	*(0.06)*
Bonds- PPG and PNG	0.11**	0.27**	0.10**	0.99**
	(0.01)	*(0.04)*	*(0.02)*	*(0.20)*
Other forms of long term debt	0.48**	-0.19	-0.22	-0.21
	(0.28)	*(0.39)*	*(0.16)*	*(0.18)*
Short term debt	-0.10**	0.47	-0.10	-0.95
	(0.04)	*(0.63)*	*(0.09)*	*(0.89)*
Observations	248	224	258	226
Cross-sections	30	32	26	28
R-Square	0.64	0.32	0.42	0.42

** and *: significant at the 5 and 10% levels
(1) The difference between net private capital flows and net foreign direct investments.
(2) Difference-in-difference regression.
(3) Ordinary least squares regression with fixed effect.
(4) Difference-in-difference regression for emerging markets.
(5) Difference-in-difference regression for open countries (Sachs-Warner index).
(6) Equity and debt are flows as % of $US GDP; bonds are both issued by private non-guaranteed and public & publicly guaranteed sources.

There is also evidence that short term debt is negatively correlated or not even correlated at all with our financial non-FDI flows, and should be analyzed as a separate variable in further sections. The strong R square of the difference-in-difference regression (0.62) comforts the robustness of the impact of bonds and equity on non-FDI capital flows. This confirms that emerging markets primarily attract risky financial flows as exhibited in table 6.1.1. since equity investment is the most intrinsic type of non-guaranteed private capital flows. Following these fundamental definitions of the driving forces of non-FDI financial flows, we now examine the relationship between financial liberalization and sectoral growth of traded and non-traded goods sectors.

6.2. Financial liberalization and sectoral growth

Capital flows exert one of the most relevant impacts on sectoral growth in both financially closed and opened economies. Consequently, it is of high interest to determine the detailed relationships between various types of flows that constitute the capital account (FDI, non-FDI financial flows, debt and aid) and breakdowns of gross domestic product before and after financial liberalization.

The robustness check tables suggest that in financially closed economies, an improvement in the rate of technological progress (FDI) is associated with a decline of the agricultural output as documented by the OLS, SUR and GMM estimations in appendix table 9.1. Theoretically, expenditures should tend to switch from agriculture to the modern sectors of the economy when per capita income rises since income elasticity of food is less than one. The relative decline in the price of food diminishes returns to factors in agriculture and leads to a switch of labor and output to other sectors (Engel).

Such findings lay in the framework of the Jeanne and Gourinchas(2002) study which highlights that in the post liberalization period, productive imported technologies and know-how cause a switch of the working force and output from the old inefficient(agriculture) to the modern efficient sectors and improve domestic allocative efficiency. Furthermore, capital account opening favors economic reforms and investment friendly property rights, which eventually undermine unproductive activities such as rent-seeking in the primary sector.

Surprisingly, our results with the use of seemingly unrelated regressions clearly emphasize a negative relationship between foreign direct investments and the manufacturing sector while advocating a positive correlation with mining and utilities (confirmed by difference-in-difference and GMM in appendix tables 9.6 and 9.7). Such results might be surprising at first glance but the country sample of our study is a source of explanation for such a paradox. Indeed, recent studies have shown that in most African countries, and to a lesser extent in Latin America, which represent about half of the total country sample, FDI tend to flow into a handful of economies rich in oil and mineral resources, with a stronger effect in the period following structural and market reforms. For example, South Africa, Nigeria, Angola and Equatorial Guinea were the recipient of more than 75% of total foreign direct investment to Africa in energy related projects in recent years (Morisset, 2000).

There is also a robust positive relationship between financial flows other than foreign direct investments, and construction and services which are often described as the most intrinsic non-traded good sectors of the economy. This correlation becomes much stronger for the sample of countries that are considered financially open according to the

Sachs-Warner, WTM and Shambaugh indexes of openness. The regression coefficients for non-traded goods sectors are consistently significant with OLS, SUR, difference-in-difference and GMM estimations reported in tables 6.2.1, 6.2.2 and appendix tables 9.2 and 9.4; the fair p-value of our Sargan tests, which oscillate in the range of 0.5-0.65 confirms the over identification null hypothesis and imply that our instruments are uncorrelated with the residual sets.

These findings are consistent with the postulate of the Tornell, Westermann and Martinez model (2004) which insists on the fact that most firms in the non tradable sectors primarily rely on non-FDI financial flows to expand. In emerging markets, these flows are likely to take the form of risky lending by private creditors. In other words, as suggested by our results, when financial liberalization occurs and financial capital flows in, credit constraints on non-traded goods sectors are expected to be eased and lead to a faster growth path. However, the instrumental variables used in the general method of moments, which are the total flows divided by total gross domestic product in PPP terms for all countries, indicate a negative connection between financial non-FDI flows and the wholesale and retail sector documented in appendix table 9.3, a clear sign that the latter is influenced by rising interest rates once the economy starts attracting foreign financial capital.

The results regarding wholesale obtained with the SUR method differ from the GMM estimates. When coefficient restrictions are imposed in seemingly unrelated regressions, there is strong evidence that that an improvement in financial non-FDI flows also boosts wholesale, retail and restaurants, and that the coefficient of the latter is not statistically different from the construction sector. However, the Wald restriction tests

strongly suggest that traded goods sectors such as agriculture, manufacturing and mining, as well as traded and non-traded goods sectors, are all statistically different from each other.

Table 6.2.1: Sectoral Effects of FDI, Financial Flows, Debt and Aid (Seemingly Unrelated Regressions)

Dependent variable:AHF Share of GDP	*(1)*	CON	WRR	STC	MAN	MIU	GOV
Before financial liberalization*(2)*							
Foreign direct investments*(3)*	0.07	0.33	-0.68	-0.84*	-0.31	0.3	0.12**
	(0.51)	*(0.71)*	*(0.59)*	*(0.51)*	*(0.58)*	*(0.25)*	*(0.06)*
Aid	-0.07	0.19	0.18	0.14	-0.45	0.11	0.49
	(0.31)	*(0.73)*	*(0.62)*	*(0.52)*	*(0.60)*	*(0.12)*	*(0.67)*
Short term debt	-0.65**	0.28**	-0.09	0.09	0.69*	-0.16	0.25
	(0.04)	*(0.09)*	*(0.37)*	*(0.22)*	*(0.37)*	*(0.11)*	*(0.38)*
Lagged dependent variable	0.102**	0.107**	0.101**	0.102**	0.951**	0.113**	0.921**
	(0.010)	*(0.006)*	*(0.005)*	*(0.005)*	*(0.055)*	*(0.017)*	*(0.056)*
Observations	1692	1685	1691	1692	1690	1417	1658
R-Square	0.23	0.15	0.17	0.23	0.16	0.03	0.14
After financial liberalization							
Foreign direct investments	-0.15*	0.12	-0.14	-0.12	-0.19**	0.43*	-0.04
	(0.08)	*(0.12)*	*(0.09)*	*(0.08)*	*(0.09)*	*(0.25)*	*(0.98)*
Aid	0.16	0.21	0.71	-0.08	-0.11**	-0.02	-0.24
	(0.47)	*(0.67)*	*(0.59)*	*(0.48)*	*(0.06)*	*(0.17)*	*(0.59)*
Financial non-FDI flows	-0.24**	0.46**	0.12	-0.08	0.001	0.12	0.19
	(0.13)	*(0.12)*	*(0.14)*	*(0.12)*	*(0.145)*	*(0.39)*	*(0.15)*
Short term debt	-0.43	0.31**	-0.07	0.14	0.63	-0.24**	0.13
	(0.34)	*(0.09)*	*(0.39)*	*(0.32)*	*(0.39)*	*(0.11)*	*(0.39)*
Lagged dependent variable	0.105**	0.109**	0.102**	0.965**	0.967**	0.122**	0.928**
	(0.005)	*(0.006)*	*(0.005)*	*(0.045)*	*(0.054)*	*(0.017)*	*(0.056)*
Observations	1563	1556	1562	1563	1560	1349	1530
R-Square	0.24	0.17	0.18	0.23	0.17	0.04	0.15

** and *: significant at the 5 and 10% level.
(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2)Seemingly unrelated regressions; all shares are regressed on capital flows in a system of equations.
(3)All capital flows are % of $ GDP.

In the post liberalization period, capital non-FDI flows are also inclined to strengthen agriculture, hunting and fishery as demonstrated by GMM estimation in appendix 9.1. However, such results are not confirmed by the SUR and difference-in-difference approaches. Finally, for open economies, financial non-FDI flows have a positive and consistent effect on the government sector which is correlated to the growth of other sectors. As non-traded goods sectors grow, taxation revenues increase which in

turn favor higher rates of government final expenditure as percent of gross domestic product.

Table 6.2.2: Sectoral Effects of FDI, Financial flows, Aid and Short Term Debt (difference-in-difference method) in financially open economies

Dependent variable: share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Flows							
Foreign direct investments*(2)*	0.38	0.001	-0.19	0.48	-0.02	-0.05	0.52**
	(0.24)	*(0.65)*	*(0.83)*	*(0.84)*	*(0.14)*	*(0.14)*	*(0.18)*
Aid	-0.24	-0.16	0.23	-0.47	-0.24**	0.31	-0.24**
	(0.21)	*(0.41)*	*(0.58)*	*(0.53)*	*(0.07)*	*(0.27)*	*(0.11)*
Non-FDI Financial flows	-0.38**	0.30**	-0.17	0.29**	-0.11	-0.16	0.60**
	(0.21)	*(0.08)*	*(0.18)*	*(0.10)*	*(0.10)*	*(0.27)*	*(0.20)*
Short term debt	-0.12	0.18**	0.97	0.40	0.16	-0.45**	0.27**
	(0.18)	*(0.18)*	*(0.10)*	*(0.58)*	*(0.93)*	*(0.14)*	*(0.12)*
Observations	1582	1582	1738	1582	1578	1730	1547
Cross sections	88	88	94	88	88	93	85
R-Squares	0.05	0.06	0.03	0.04	0.05	0.03	0.04

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) All flows are in % of US$ GDP.

Sectoral growth of non-traded goods sectors in emerging markets is essentially dependent on risky flows, which are considered to be volatile and unstable. Another source of risky non-FDI capital flow is short term debt which has the particularity of exacerbating currency and term mistmatches of the borrowing architecture. We find that the correlation between short term debt and the construction sector to be relatively much stronger when finance is deregulated. However, not all non-traded goods sectors benefit from this type of flows as suggested by the negative GMM coefficient for services, transportation and communication which may rely on more long term sources of financing. The government sector also substantially benefits from short term debt because countries that have implemented market and structural ratings are more likely to have higher credit ratings and be able to borrow or issue short term obligations at lower cost. As for traded-goods sectors, mining and utilities which require extensive initial and fixed investment responds negatively to short term debt.

There is ambiguity about the impact of foreign aid when the economy is closed while there is strong evidence that once the liberalization process begins the latter undermines the performances of traded-goods sectors, particularly of manufacturing (exporting sectors) as implied by all types of regression methods in appendix table 9.5. In recent years, there has been a consistent upward trend in bilateral cooperation aimed at helping directly private sector growth through non-official channels, which might be an explanation of the negative coefficient exhibited by this sector. Also, there is an argument that aid has the pervasive effect of appreciating the real exchange rate and decreasing trade competitiveness of the manufacturing sector for open economies (Rajan and Subramanian, 2005). Further analysis of this topic is provided in the section dealing with real exchange appreciation. Furthermore, the results obtained with the general method of moments imply that aid tends to negatively affect sectors such as construction and mining and utilities as documented in appendix tables 9.2 and 9.6.

6.3. Domestic credit allocation in open economies

Having demonstrated that there is a straightforward effect of financial liberalization on the growth of non-traded goods, this study attempts to establish indirect linkages between financial opening and sectoral growth. Domestic credit appears to the primary transmission mechanism between capital inflows and growth of non-traded goods sectors, and is widely analyzed in the following pages with the use of two proxies which are domestic credit to private sector and domestic credit provided by banks only. The sectoral effect of liquidity and interest rates are also discussed afterwards.

Domestic credit is usually perceived as a fundamental factor which allocation strongly impacts sectoral growth in general, and the development of non-traded goods sectors, in particular. Domestic credit is itself favorably influenced by non-FDI financial flows as illustrated by OLS and GMM estimations illustrated in table 6.3.1. The general method of moments uses the real interest rate of the US economy as an instrument which validity is confirmed by the over-identification Sargan test; indeed the test p-values of the regressions fluctuate between 0.57 and 0.71.

Table 6.3.1: Effects of Financial Flows on Domestic Credit

Dependent variable: domestic credit	Credit*(1)* OLS	Credit*(2)* Diff in diff	Credit*(3)* GMM	Credit*(4)* GMM
Financial flows				
Lagged variable			0.74**	0.75**
			(0.04)	*(0.05)*
Financial non-FDI flows*(5)*	0.48**	-0.2	0.35**	0.34*
	(0.20)	*(0.48)*	*(0.18)*	*(0.19)*
Observations	1673	1614	1560	1560
Cross-sections	93	92	91	91
R square	0.78	0.07		
Sargan statistics			0.71	0.57

(1) Regression by ordinary least squares with fixed effects.
(2) Regression with the use of the difference-in-difference method.
(3) Regression with the use of the general method of moments;
the instrument(2lags) is the real interest rate of the USA.
(4) Regression with the use of the general method of moments;
the instrument(3lags) is the real interest rate of the USA.
(5) Financial flows are net non-FDI flows as% of $US GDP.

The best indicator of domestic credit is undoubtedly net domestic credit to private sector as percent of GDP which effect on tradable and non-tradable sectors is analyzed in table 6.3.2. Indeed, the results highlight the importance of domestic credit to private sector which has a systematically significant impact on different non-traded goods sectors of the economy. The fact that domestic credit, particularly credit by financial

intermediaries to the private sector, exerts a strong influence on economic growth has already been underlined by recent studies (Levine, Loayza, and Beck, 2000; Beck and Levine, 2000).

Table 6.3.2: Sectoral Effects of Domestic Credit and Capital Flows(Difference in difference equation)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Before financial liberalization							
Domestic credit*(2)*	-0.58*	0.22**	-0.09	0.21	0.20	-0.52*	0.69**
	(0.35)	*(0.07)*	*(0.11)*	*(0.14)*	*0.20*	*(0.29)*	*(0.32)*
Lagged dependent variable	0.11	0.41**	0.06	-0.73	-0.34	-0.41	-0.08
	(0.45)	*(0.17)*	*(0.20)*	*(0.71)*	*(0.29)*	*(0.60)*	*(0.53)*
Observations	993	993	792	993	996	978	927
Cross sections	76	76	66	76	76	75	72
R-Square	0.07	0.06	0.08	0.06	0.08	0.04	0.05
After financial liberalization							
Domestic credit	-0.05**	0.22**	0.55	0.98**	0.12	-0.29*	0.44**
	(0.20)	(0.05)	(0.87)	(0.44)	0.12	(0.17)	(0.10)
Non-FDI Financial flows*(3)*	-0.03	0.21**	0.13	-0.15	-0.75	-0.26	0.49**
	(0.18)	(0.08)	(0.15)	(0.09)	0.99	(0.33)	(0.20)
Lagged dependent variable	-0.07	0.21**	0.10	-0.77	-0.28	0.09	0.22**
	(0.14)	(0.11)	(0.15)	(0.86)	0.87	(0.30)	(0.11)
Observations	1546	1546	1545	1546	1492	1483	1436
Cross sections	90	90	90	90	89	88	83
R-Square	0.06	0.07	0.05	0.06	0.05	0.03	0.04

** and *: significant at the 5 and 10% levels
(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Net domestic credit to private sector as % of US$ GDP.
(3) Financial flows as % of $US GDP.

In our traded versus non-traded goods approach, an increase in domestic credit in the post financial liberalization period leads to a decline of the GDP share of agriculture, hunting and fishery, a traded-good sector, with both the difference-in-difference and seemingly unrelated regression approaches(tables 6.3.2 and 6.3.3). Also, the mining and utilities share tends to shrink when credit becomes easily available in an open economy as documented by the difference-in-difference regressions in table 6.3.2. Inversely, an improvement of domestic credit seems to have a positive impact on the GDP shares of construction, services, communication and transportation, which are mostly non-traded

goods sectors. In other words, an upward looking trend in domestic credit is negatively correlated with traded-goods sectors but positively related to non-traded goods sectors. This outcome is consistent with most credit imperfection models (Tornell, Westermann, and Martinez, 2004) which strongly suggest that financial liberalization eases credit constraints and borrowing restrictions on non-tradable sectors that are in turn able to grow faster

In contrast, before financial liberalization takes place, non-traded firms face two major credit imperfections: contract enforceability and a low level of bailout by banks. Contract enforceability is an issue for lenders because the ability of the non-traded sectors to repay their debt in foreign currency is uncertain. At the same time, a bailout to lenders by intermediary banks is unlikely to occur if only a few borrowers default. Such an assumption makes optimal for non-traded sectors to denominate debt in foreign currency and run the risk of going bankrupt as a group so that a bailout can occur. As a result, this pattern discourages financial intermediaries to finance the needs of the non tradable firms in order to avoid self-fulfilling crises as illustrated by the weak or insignificant coefficients of these sectors in closed countries (tables 6.3.3. and 6.3.4).

Table 6.3.3: Sectoral Effects of Domestic Credit and Capital Flows
(Seemingly Unrelated Regressions)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Before financial liberalization							
Domestic credit*(2)*	-0.25**	0.41**	0.29	0.11**	0.27	0.63	0.32**
	(0.05)	*(0.08)*	*(0.64)*	*(0.06)*	*(0.64)*	*(0.56)*	*(0.07)*
Lagged dependent variable	0.102**	0.116**	0.98**	0.116**	0.97**	0.11**	0.97**
	(0.004)	*(0.006)*	*(0.05)*	*(0.004)*	*(0.05)*	*(0.02)*	*(0.05)*
Observations	1808	1808	1807	1808	1808	1494	1714
R-Square	0.26	0.18	0.17	0.29	0.18	0.02	0.17
After financial liberalization							
Domestic credit	-0.27**	0.45**	0.67	0.13**	0.55	-0.07	0.29**
	(0.06)	*(0.08)*	*(0.87)*	*(0.05)*	*(0.66)*	*(0.18)*	*(0.07)*
Financial non-FDI flows*(4)*	-0.08	0.63**	0.11	-0.04	-0.14	0.08	0.28**
	(0.11)	*(0.15)*	*(0.13)*	*(0.11)*	*(0.13)*	*(0.39)*	*(0.13)*
Lagged dependent variable	0.111**	0.110**	0.102**	0.97**	0.98**	0.13**	0.96**
	(0.005)	*(0.007)*	*(0.006)*	*(0.05)*	*(0.05)*	*(0.02)*	*(0.06)*
Observations	1494	1494	1494	1494	1492	1292	1436
R-Square	0.27	0.19	0.19	0.24	0.17	0.04	0.18

** and *: significant at the 5 and 10% levels.
(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants;
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Net domestic credit to private sector as % of US$ GDP.
(4) Financial flows as % of $US GDP.

The Wald coefficient restrictions performed on the system of equations in table 6.3.3 point out that the construction and services regression coefficients are not statistically different, confirming the fact that both are intrinsic non-traded goods sectors. On the contrary, the test strongly rejects the statistical similarity between these two sectors and the wholesale, retail and restaurants breakdown of gross domestic product which does not exhibit particular sensitivity to domestic credit booms per se.

There appears to have no statistical interaction between the coefficients of the manufacturing and the mining sectors but rather a strong statistical similarity between the coefficients of agriculture and mining, which are both classified as parts of the primary sector and to a certain extent subject to non-market driving factors(weather, discovery of new energy reserves for instance). Also, the results suggest that traded and non-traded

goods sectors exhibit uneven growth paths as the construction and manufacturing sectors present strong evidence of statistical divergence.

After successfully demonstrating the conclusive importance of domestic credit for non-traded goods sectors, it would be interesting to make a comparative analysis of the sectoral effect of domestic credit provided by the banking sector only.

Table 6.3.4: Sectoral Effects of Domestic Credit by Banks and Capital flows (Seemingly Unrelated Regressions)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Before financial liberalization							
Domestic credit by banks*(2)*	-0.10	0.17**	0.29	0.41	0.17	-0.21	0.21**
	(0.37)	*(0.06)*	*(0.64)*	*(0.44)*	*(0.47)*	*(0.14)*	*(0.05)*
Lagged dependend variable	0.100**	0.12**	0.87**	0.154**	0.93**	0.72**	0.99**
	(0.006)	*(0.01)*	*(0.08)*	*(0.008)*	*(0.08)*	*(0.23)*	*(0.08)*
Observations	1002	1002	1002	1002	1005	783	1714
R-Square	0.20	0.13	0.10	0.29	0.12	0.02	0.14
After financial liberalization (3)							
Domestic credit by banks	-0.92**	0.15**	-0.42	0.13*	-0.02	0.09	0.10**
	(0.41)	*(0.05)*	*(0.45)*	*(0.05)*	*(0.43)*	*(0.15)*	*(0.05)*
Lagged depended variable	0.106**	0.116**	0.103**	0.94**	0.105**	0.14**	0.95**
	(0.005)	*(0.007)*	*(0.006)*	*(0.05)*	*(0.006)*	*(0.03)*	*(0.07)*
Observations	809	808	809	809	807	714	782
R-Square	0.33	0.19	0.28	0.35	0.3	0.04	0.21

** and *: significant at the 5 and 10% levels.
(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants;
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Domestic credit provided by banks as % of US$ GDP.
(3) Closed and opened economies are defined according to the Sachs Warner index of openness.

The system of equations that regress the shares of GDP on domestic credit provided by banks only exhibits similar trends with previous estimations of the effects of domestic credit to private sector. We see that a strong positive correlation between credit by banks and the construction sector although there is no clear indication that the effect becomes stronger in the post-financial liberalization period. Previously, we argued that non-traded goods sectors such as construction are credit constrained in closed economies and are not able to borrow risky capital flows on international markets. Their only source of financing is then the local banking system which in turn is not keen to finance non-

traded goods sectors. However, this does not mean that large corporations involved in business areas related to non-traded goods sectors cannot benefit from banking financing at all; in fact the rule would be that large scale enterprises would be able to borrow from local banks while small and medium businesses would not. This mechanism is a plausible cause of the significant coefficient of the construction sector with respect to banking credit as many firms in this area are often medium and large scale-sometimes state-run-enterprises. In fact the Wald coefficient restrictions imply that the coefficients of the construction and wholesale sectors are not statistically different in the case of countries with closed financial systems. In the post-liberalization period, new opportunities and types of available financing appear besides traditional borrowing from banks which are likely to be used by the construction sector firms; as a result the coefficient of banking credit for non-traded goods stagnates or even declines as illustrated in table 6.3.4. In other words, as foreign non-FDI capital flows in, domestic credit as a whole improves but there is no sign that credit provided by banks only impacts construction in a stronger way as suggested by our seemingly unrelated and difference-in-difference regressions(table 6.5.5). Only in the case of services, do we oversee a slight improvement of the effect of banking credit after liberalization although this pattern is only confirmed with seemingly unrelated regressions in table 6.3.4 and significant at the 10% level.

Table 6.3.5: Sectoral Effects of Domestic Credit by Banks (Difference-in-difference method)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Before financial liberalization							
Domestic credit by banks*(2)*	-0.12	0.91**	0.12**	0.21	0.17	-0.35**	0.27**
	(0.10)	*(0.28)*	*(0.06)*	*(0.40)*	*(0.61)*	*(0.17)*	*(0.11)*
Observations	1158	1158	1158	1158	1162	1144	1050
Cross sections	87	87	87	87	87	86	81
R-Square	0.06	0.05	0.05	0.03	0.07	0.05	0.04
After financial liberalization*(4)*							
Domestic credit by banks	-0.19**	0.65**	-0.43	0.28	-0.13	0.002	0.17**
	(0.09)	*(0.29)*	*(0.60)*	*(0.29)*	*(0.90)*	*(0.115)*	*(0.07)*
Observations	837	837	836	837	834	845	811
Cross sections	68	68	68	68	68	68	64
R-Square	0.08	0.08	0.07	0.05	0.06	0.09	0.07

** and *: significant at the 5 and 10% levels.
(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants;
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Domestic credit provided by banks as % of $US GDP.
(3) $US PPP Real GDP per capita.
(4) Closed and opened economies are defined according to the Sachs Warner index of openness.

The government sector does not also exhibit signs of stronger growth due to banking credit when capital controls are lifted and markets liberalized. This obviously makes sense since the government intervenes less on the economic scene once financial liberalization occurs; moreover, there are accrued opportunities for the state to borrow from foreign banks or other international sources of capital (bonds, syndication or private lending).

Similarly with credit to the private sector as a whole, credit by banks diminishes the share of non-efficient sectors of the economy, such as agriculture, hunting and fishery. Banks are likely to finance profitable projects and efficient firms in a free-market economy, and agriculture is certainly the sector with the lowest profitability and return on investment. Furthermore, the test of coefficient restrictions in the SUR equations advocate that agricultural decline is not statistically different from the coefficient of the mining and utilities sector. In a liberalized economy, mining and energy related

investments are more likely to be financed through foreign direct investments or other foreign sources of capital rather than uniquely by banking domestic credit. For example, several countries included in our sample have recently allowed foreign capital involvement in their energy state monopolies as illustrated by the recent decision of the Russian energy corporation Gasprom to sell shares of its capital to international investors.

Overall, domestic credit provided by banks is an important variable for the study of sectoral economics although its significance and importance is more relevant for the period preceding financial liberalization. For open economies, domestic credit provided by banks does not impact the growth of non-traded goods sectors in a relatively stronger way than before capital account opening, suggesting that these sectors are able to use alternative sources of capital. As a result, domestic credit to private sector, which impact on non-traded goods is stronger in liberalized economies, is the best variable to use when discussing sectoral effects of credit constraints. These findings are consistent with prior studies that emphasized the robustness of credit to private sector as the most comprehensive indicator of financial activity, which includes credit by bank and non bank intermediaries, over credit by banks only (Beck, Demirguc-Kant, Levine and Maksimovic, 2001).

Besides domestic credit, liquidity has often been used in related studies as an independent variable in the analysis of sectoral economics. M2 is the best proxy for liquidity and is defined as the sum of all the currency in circulation, checking accounts and traveler's checks (M1) plus savings deposits, time deposits and money market mutual fund shares. Our results with this respect are mitigated; money and quasi money as percent of GDP (M2) seems to have relatively little effect on the growth of credit

(liquidity) constrained non-traded goods sectors. In the pre-financial liberalization period, none of the regression coefficients are significant while only countries that have open their capital account exhibit favorable consequences of liquidity on the construction sector. However, such a result does not apply to services or wholesale and retail which are also non tradable sectors, as illustrated in table 6.3.6.

Table 6.3.6: Sectoral Effects of Money and Quasi Money(M2) in open economies (difference-in-difference method)

Dependent variable: share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
M2*(2)*	0.29	0.31**	0.96	-0.52	0.08	0.09	-0.18
	(0.19)	*(0.16)*	*(0.75)*	*(0.67)*	*(0.15)*	*(0.24)*	*(0.48)*
Observations	147	147	146	147	147	150	140
Cross-sections	16	16	15	16	15	16	15
R-square	0.18	0.14	0.04	0.01	0.08	0.27	0.03

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2)M2: Money and quasy money as % of $US GDP.

Overall, these findings only partially confirm the claim made by Mohtadi and Agarwal(2003) that market liquidity is the only financial intermediary that directly affects growth and that liquidity is somewhat a synonym for abundant availability of domestic credit.

Finally, the nexus between financial liberalization and sectoral growth would not be fully assessed without a few words about the role of real interest rates in our sample countries. The difference-in-difference regressions presented in table 6.3.7 provide interesting insights. Real interest rates primarily depend on aggregate domestic demand and supply of money, and can rise because of the economy heating up and signing strong expansion. The empirical estimations suggest that non-traded goods sectors grow faster in an expansionary environment leading to higher interest rates as these sectors are likely to be the driving force of growth. In fact, the construction sector is often considered as being the primary source of economic booms in most economies. However, once financial liberalization occurs, we observe this correlation to become weaker, given the

fact that interest rates hikes are not anymore only the result of economic expansion but also of inflows of financial non-FDI capital. The opening of the capital account will attract foreign non-FDI capital only if adequate interest rates are set up by monetary authorities. The result is that two forces are at play at this stage: on one hand, higher rates are synonyms of more financial inflows or economic expansion; on the other hand, they might lead to inflation and tighter credit and monetary policies. The latter would explain the weaker relationship between non-traded goods sectors and real interest rates in the post-financial liberalization period. There is also a negative relationship between interest rates and output of traded goods sectors for open economies as higher rates are associated with exchange rate appreciation, which in turn declines the international competitiveness of sectors such as agriculture and mining. These findings are strongly supported by the difference-in-difference approach and documented in table 6.3.7.

Table 6.3.7: Sectoral effects of real interest rates (difference-in-difference method)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Before financial liberalization*(2)*							
Real interest rates*(3)*	0.007	0.92**	0.12**	0.72	-0.28	-0.75**	0.48**
	(0.138)	*(0.22)*	*(0.05)*	*(0.29)*	*(0.34)*	*(0.08)*	*(0.08)*
Observations	907	907	907	907	911	896	825
Cross-sections	74	74	74	74	74	73	69
R-Square	0.07	0.08	0.06	0.04	0.09	0.12	0.08
After financial liberalization*(4)*							
Real interest rates	-0.18**	0.10**	0.17*	-0.27	-0.19	-0.28**	0.34**
	(0.41)	*(0.03)*	*(0.06)*	*(0.29)*	*(0.57)*	*(0.13)*	*(0.08)*
Observations	658	658	658	658	656	663	645
Cross-sections	59	59	59	59	59	59	56
R-Square	0.07	0.11	0.17	0.08	0.09	0.10	0.09

** and *: significant at the 5 and 10% levels

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.

(2) Closed and opened economies are defined according to the Sachs Warner index of openness.

(3) Real interest rates as provided from the World Development Indicators.

6.4. Real exchange rate appreciation in open countries

The second key transmission mechanism between capital account opening and sectoral growth identified in table 6.4.1 is the real exchange rate which tends to appreciate due to an increase of non-FDI capital flows(here aid has an ambiguous impact). Clearly, capital non-FDI flows and short term debt, the two types of risky capital inflows, exhibit negative coefficients which imply an appreciation of the exchange rate. This effect is even more significant and stronger for countries that have floating exchange regimes and that are likely to be emerging markets. However, it is hard to distinguish the magnitude of exchange rate appreciation between countries that have closed and open capital accounts according to the regression output. These results are supported by both ordinary least squares and difference-in-difference regression techniques, and presented in table 6.4.1.

Table 6.4.1: Sectoral Effects of Capital Flows on the Real Exchange Rate

Dependent variable: Real Exchange Rate	RER(1) *OLS*	RER(2) *Diff in diff*	RER(3) *Fix XR*	RER(4) *Float XR*	RER(5) *Cap cont*	RER(6) *No cap cont*
Foreign direct investments(7)	0.68	-0.07	-0.03	-0.12*	-0.07	-0.10
	(0.54)	*(0.19)*	*(0.16)*	*(0.07)*	*(0.22)*	*(0.14)*
Aid	0.85**	0.007	0.009	-0.16	0.09	0.12
	(0.39)	*(0.110)*	*(0.112)*	*(0.23)*	*(0.71)*	*(0.07)*
Financial non-FDI flows	-0.12**	-0.60*	-0.13	-0.33**	-0.56**	0.7
	(0.06)	*(0.34)*	*(0.41)*	*(0.08)*	*(0.27)*	*(0.62)*
Short term debt	-0.10*	-0.50**	-0.45*	-0.18**	-0.48**	-0.45*
	(0.06)	*(0.19)*	*(0.24)*	*(0.04)*	*(0.16)*	*(0.26)*
Observations	1855	1732	1206	351	1187	1205
Cross-sections	92	92	85	50	65	15
R-Squares	0.23	0.04	0.10	0.29	0.06	0.19

(1) Regression of the real exchange rate on capital flows with the use of ordinary least squares.
(2)Regression of the real exchange rate on capital flows with the use of the difference-in-difference method.
(3)Regression of the real exchange rate on capital flows with the use of the difference-in-difference method for countries with fixed exchange rates(Rienhart and Rogoff tables).
(4)Regression of the real exchange rate on capital flows with the use of the difference-in-difference method for countries with floating exchange rates(Rienhart and Rogoff tables).
(5)Regression of the real exchange rate on capital flows with the use of the difference-in-difference method for countries with capital controls(Shambaugh tables).
(6)Regression of the real exchange rate on capital flows with the use of the difference-in-difference method for countries with no capital controls(Shambaugh tables).
(7) All flows are % of $US real GDP.

With respect to debt, we find out that external and long term debt tend to depreciate the RER in the long run as confidence in highly indebted countries collapses while short term debt has a strong appreciating effect that might particularly occur prior to crises. For example, Thailand experienced similar appreciation of the real exchange rate prior to the 1997 crisis, correlated with a deepening of the currency and term mismatches of short term debt. Following the demonstration that an increase in financial flows tends to appreciate the real exchange rate, the thesis focuses on how in turn the real exchange rate affects sectoral breakdowns of GDP in table 6.4.2.

Table 6.4.2: Sectoral effects of the real exchange (difference-in-difference method)

Dependent variable: share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Real Exchange Rate(Sachs-Warner closed) *(2)*	-0.04**	0.53	-0.48	-0.16	-0.15**	0.44**	-0.44**
	(0.01)	*(0.48)*	*(0.91)*	*(0.56)*	*(0.07)*	*(0.16)*	*(0.15)*
Observations	1107	1284	1284	1284	1288	1271	1107
Cross-sections	82	88	88	88	88	87	82
R-square	0.04	0.04	0.04	0.04	0.07	0.04	0.04
Real Exchange Rate(Sachs-Warner openness)	0.11	-0.18	0.02	-0.22**	0.22*	-0.85**	-0.36**
	(0.19)	*(0.57)*	*(0.14)*	*(0.07)*	*(0.12)*	*(0.30)*	*(0.17)*
Observations	825	825	824	825	822	833	795
Cross-sections	65	65	65	65	65	65	61
R-square	0.07	0.08	0.07	0.07	0.08	0.09	0.07
Real Exchange Rate(WTM openness)	0.13**	-0.11*	-0.47*	-0.22*	0.23**	0.57	-0.16**
	(0.03)	*(0.02)*	*(0.29)*	*(0.13)*	*(0.04)*	*(0.70)*	*(0.04)*
Observations	191	191	191	191	188	191	196
Cross sections	13	13	13	13	13	13	13
R-square	0.07	0.15	0.08	0.05	0.19	0.05	0.15
Real Exchange Rate(Shambaugh, no cap.control)	0.18**	-0.11**	-0.10	-0.03	0.17**	0.21	-0.06
	(0.04)	*(0.03)*	*(0.08)*	*(0.08)*	*(0.06)*	*(0.19)*	*(0.07)*
Observations	152	152	151	152	152	155	142
Cross-sections	16	16	15	16	15	16	15
R-square	0.21	0.18	0.03	0.01	0.18	0.28	0.04

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants; STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government; expressed in of US$ GDP.
(2)Indexes exhibit a 1 for openness and 0 for closeness using the Sachs-Warner, Westermann, Tornell and Martinez (WTM) and the Shambaugh capital control tables.

This analysis is most interesting when we consider a sample of closed and open countries with the well-know Sachs and Warner index of openness, the WTM of financial openness and the Shambaugh data of capital constraints: all three indexes point out that exchange rate depreciation(appreciation) is strongly and positively(negatively) correlated

with the growth of traded goods sectors for open countries while countries that are classified as closed with the Sachs-Warner exhibit the reversal patterns for traded goods. Therefore, countries which are closed or not integrated to the world economy may face a deterioration of their current account balance even if their currency is depreciating (thus trade liberalization is good). As for open and integrated economies, when the RER depreciates, sectoral share of agriculture increases under both the Shambaugh and WTM proxies of openness despite the fact that output in the latter sector is volatile and sensitive to exogenous changes in weather conditions, and manufacturing exhibit an upward trend in all three cases. Inversely, an appreciation of the exchange rate, partially due to financial non-FDI capital inflows, slows down the expansion of traded goods and boosts the growth of non-traded goods sectors. The Tornell, Westermann and Martinez(2004) index of financial liberalization captures this trend best: output in construction, wholesale, and retail, restaurants as well as services altogether growth relatively faster than output in the tradable sectors, as highlighted in table 6.4.2.

Furthermore, the phenomenon clearly exhibited by the results in table 6.4.3 and which is a core finding of our investigation is that the real exchange rate tends to appreciate relatively less in financially liberalized countries. In fact, this result is based on the classical assertion of the liberalization sequencing: developing countries tend to open trade first, which leads to increased foreign direct investments and imports of modern efficient technology that drive productivity and the current account up (Balassa-Samuelson, 1964), and only then liberalize their financial structure. Balassa and Samuelson demonstrated that productivity in nontradables does not vary much across countries and pointed out the low importance of capital in non-traded goods sectors

which result in higher prices and wages in traded goods sectors in developed versus developing nations. As a result, labor will migrate from the non-traded to the traded goods sectors once trade is liberalized, wages in the nontradables will move upward and lead to exchange rate appreciation. In other words, the deepening of the current account surplus obviously causes real exchange rate appreciation but once a county faces accrued financial inflows, the appreciation effect is undermined as suggested by the table 6.4.3 and graph 6.4.

Table 6.4.3 : Real Exchange Rate Appreciation
Trade versus Financial Liberalization

Dependent variable: RER	RER*(1)* Diff in diff/S-W	RER*(2)* Diff in diff/WTM	RER Over*(3)* Diff in diff	RER Over*(4)* OLS
Countries closed				
Current Account	-0.06**	-0.17	-0.54**	-0.95**
	(0.01)	*(0.53)*	*(0.25)*	*(0.39)*
Observations	779	59	1169	1140
Cross-sections	62	11	67	67
R square	0.01	0.05	0.02	0.47
Financial liberalization				
Current Account	-0.05**	-0.48**	-0.27**	-0.97**
	(0.01)	*(0.18)*	*(0.14)*	*(0.20)*
Financial flows	-0.44**	-0.17**	0.55*	0.20**
	(0.16)	*(0.07)*	*(0.30)*	*(0.08)*
Observations	684	40	933	933
Cross-sections	59	8	65	65
R square	0.05	0.34	0.03	0.60

(1) The Sachs-Warner index of openess is used to weight open countries.
(2)The WTM index of financial liberalization is used to weight open countries.
(3)The real exchange rate overvaluation is obtained from the growth development finance tables.
(4)Dependent variable is exchange rate overvaluation; OLS with fixed effects.

This relationship particularly holds when the sequencing of liberalization and its effect on the RER are analyzed for the set of countries classified as open by the Sachs-Warner index of openness. Somewhat identical results are obtained with the use of the Westermann, Tornell and Martinez index of trade and financial liberalization which

confirm a relatively weaker appreciating effect of financial non-FDI flows on the real exchange rate versus the current account. However, we do not find that trade liberalization per se is significantly correlated to the RER with the use of the WTM index; one of the reasons might be the limited number of countries included in the survey. The results also point out that trade liberalization leads to more real overvaluation of the real exchange rate in comparison with the financial liberalization period; in other words, trade liberalization would tend to misalign and put an upward pressure on the real exchange rate in economies with closed capital accounts.

6.5. Sectoral effects of investment

This thesis also attempts to cover the analysis of potential transmission mechanism between financial liberalization and sectoral growth other than domestic credit and the real exchange rate. The regression outputs univocally demonstrate that financial liberalization and openness both in terms of exchange rate regimes and capital account opening have a robust positive impact on aggregate investment. The reverse is also true: in closed countries, with fixed exchange rate regimes and capital controls, investment is mostly correlated with foreign direct investments as illustrated in table 6.5.1.

Graph 6.4: Exchange Rate Appreciation in Closed and Open Economies

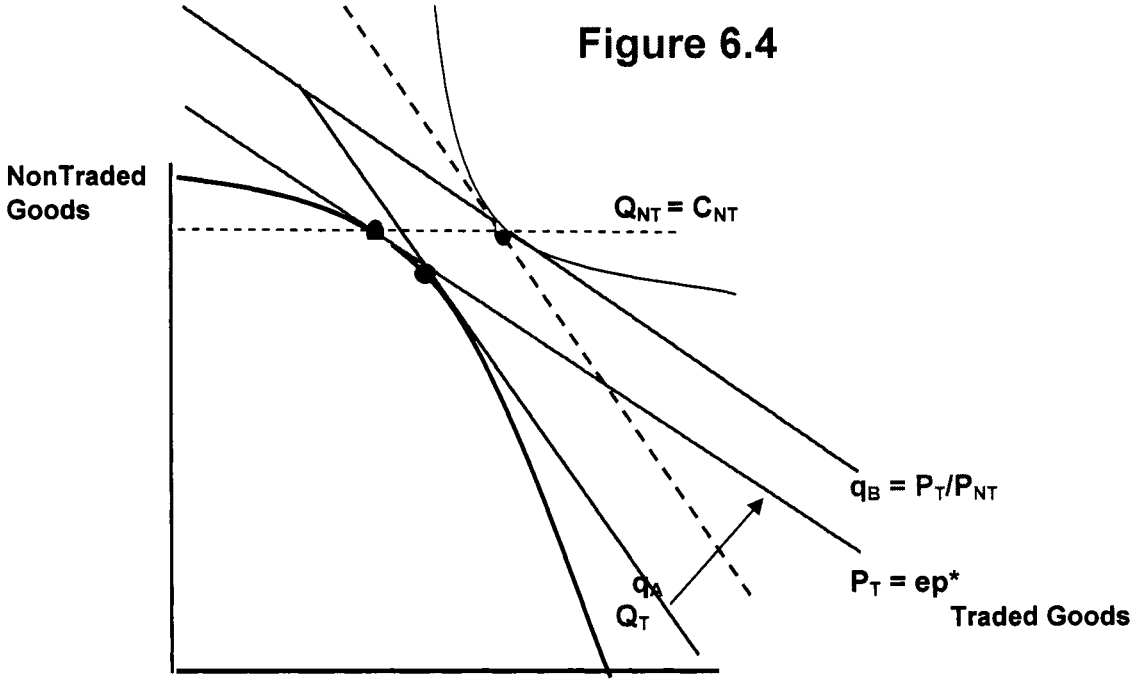
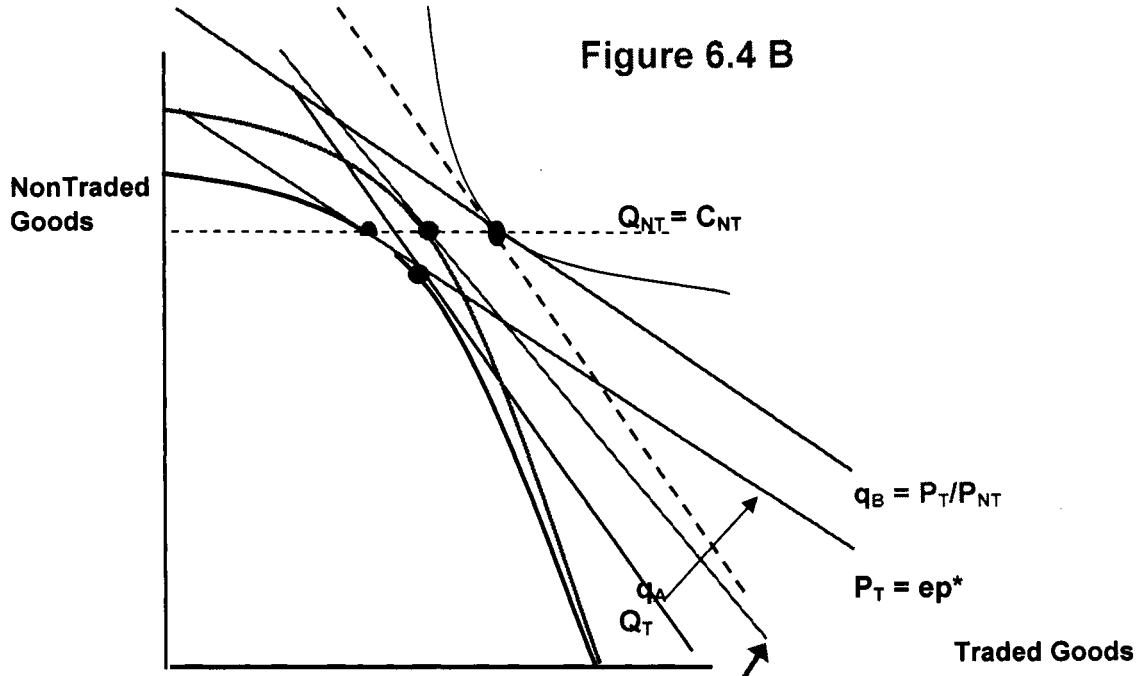


Figure 6.4: Capital Inflows always cause an appreciation of the real exchange rate, RER or $q = P_T/P_{NT}$ where $P_T = ep^*$.
Fixed Exchange Rate: P_T is fixed so P_N must increase. (capital inflows are generally inflationary)
Flexible Exchange rate: $P_T = ep^*$ may fall, or P_N may increase. (capital flows cause inflation to rise or fall)



6.4.B: Capital Inflows cause less RER appreciation and a boost of the NT (WTM 2004).

Table 6.5.1: Effects of Net Capital Flows on Investment

Dependent variable:	INV	INV	INV	INV	INV	INV
Investment as % of GDP*(1)*	*(1)*	*(2)*	*Fix XR(4)*	*Float XR(5)*	*Closed(6)*	*Open(7)*
Net flows						
Foreign direct investments*(8)*	0.29**	0.92**	0.21**	0.5	0.79**	0.11**
	(0.07)	*(0.31)*	*(0.04)*	*(0.55)*	*(0.40)*	*(0.06)*
Aid	-0.57**	-0.21**	-0.19**	-0.57**	-0.18**	-0.39**
	(0.12)	*(0.02)*	*(0.02)*	*(0.14)*	*(0.02)*	*(0.06)*
Non-FDI financial flows	-	0.23	-0.03	0.30**	-0.10	0.11**
	-	*(0.40)*	*(0.52)*	*(0.09)*	*(0.61)*	*(0.06)*
Short-term debt	0.78**	0.65**	0.34	0.10**	0.33	0.10**
	(0.29)	*(0.22)*	*(0.27)*	*-(0.04)*	*(0.32)*	*(0.03)*
Observations	1779	1637	1127	341	852	753
Cross-sections	94	89	82	48	73	64
R-square	0.16	0.16	0.18	0.23	0.18	0.16

(1) Investment is defined as gross capital formation as % of real $US GDP.
(2) Investment in a closed economy; there is no non-FDI flows.
(3) Investment for all types of flows altogether for both closed and open economies.
(4) Investment in country with fixed exchange rates (Rienhart and Rogoff tables).
(5) Investment in country with floating exchange rates (Rienhart and Rogoff tables).
(6) Investment in closed countries (Sachs Warner).
(7) Investment in open countries (Sachs Warner).
(8) All flows as in % of real US$ GDP; debt is short term debt.

Aid as % of GDP has a systematical negative correlation with investment that increases for the set of countries with floating exchange rates and open capital accounts. Also, we do no find a strong relationship between gross capital non-FDI flows and investment in liberalized countries; as a matter of fact only economies with fixed exchange rates and closed capital accounts exhibit a significant correlation between gross financial non-FDI flows and investment. There is also a recurring positive relationship between gross FDI and investment for countries that have opened their capital account.

Finally, investment also seems to be an important conclusive transmission mechanism between increasing flows, particularly non-FDI financial flows, and sectoral shares of GDP. In fact table 6.5.2 shows that the coefficient of the construction sector regressed on aggregate investment is much stronger in a financially liberalized economy as described by the WTM index of financial openness than in a closed country or a

Table 6.5.2: Sectoral Effects of Investment (difference-in-difference method)

Dependent variable: share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Investment							
Closed countries(Sachs-Warner) *(2)*	-0.34**	0.36**	-0.01	0.05	0.03	-0.04*	0.05
	(0.15)	*(0.05)*	*(0.10)*	*(0.06)*	*(0.07)*	*(0.17)*	*(0.15)*
Observations	1199	1199	1199	1199	1202	1180	1129
Cross-sections	90	90	90	90	90	89	85
R-square	0.05	0.08	0.04	0.03	0.07	0.04	0.04
Trade liberalization(WTM) *(3)*	-0.35	0.75**	0.31	-0.01	-0.02	-0.14**	0.11
	(0.25)	*(0.10)*	*(0.20)*	*(0.07)*	*(0.26)*	*(0.05)*	*(0.19)*
Observations	337	337	337	337	333	337	323
Cross-sections	20	20	20	20	20	20	19
R-square	0.07	0.20	0.06	0.04	0.04	0.06	0.06
Capital controls(Shambaugh) *(4)*	-0.63**	0.45**	0.36**	0.11**	0.06	-0.97**	0.44**
	(0.17)	*(0.05)*	*(0.12)*	*(0.05)*	*(0.10)*	*(0.23)*	*(0.15)*
Observations	1317	1317	1317	1317	1314	1324	1250
Cross-sections	70	70	70	70	70	70	66
R-square	0.04	0.10	0.02	0.04	0.04	0.04	0.03
Country open (Sachs Warner)	-0.38**	0.51**	0.27*	-0.001	0.18	-0.13**	0.43**
	(0.20)	*(0.07)*	*(0.16)*	*(0.08)*	*(0.14)*	*(0.03)*	*(0.21)*
Observations	835	835	834	835	832	843	814
Cross-sections	67	67	67	67	67	67	63
R-square	0.10	0.14	0.08	0.06	0.08	0.10	0.07
Financial Liberalization(WTM)	-0.74**	0.86**	0.12	-0.17**	0.29	-0.11**	-0.02
	(0.17)	*(0.05)*	*(0.12)*	*(0.05)*	*(0.10)*	*(0.02)*	*(0.15)*
Observations	226	226	226	226	223	226	230
Cross-sections	15	15	15	15	15	15	15
R-square	0.12	0.22	0.05	0.05	0.07	0.08	0.06

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Sachs-Warner index of openness; 1=0pen; 0=closed.
(3) Westermann, Tornell and Martinez indexes of trade and financial liberalization (0 or 1 for openness).
(3) Shambaugh tables of capital controls (o for capital controls and 1 for no capital controls).

country that has only undertaken trade liberalization. The same trend is visible between countries defined as open and closed according to the Sachs-Warner index of openness. The construction sector exhibits the strongest R-square among all the coefficients, with the highest regression explanatory power occurring in financially opened nations.

Agriculture and mining and utilities exhibit a strong negative relationship with investment suggesting that the latter leads to a relative decline of traded-goods sectors.

This negative correlation is increasingly sensitive to the degree of trade or financial openness. These effects are confirmed with the use of indexes of openness (Sachs-Warner, 1995), capital controls (Shambaugh, 2005) and trade and financial liberalization in emerging markets (Westermann, Tornell and Martinez, 2004).

However, it appears that services and the retail sector might even benefit from investment when capital control measures are imposed. Investment sometimes presents a few inconsistent results at first glance as pointed out by Abiad, Oomes and Ueda (2004) which emphasize the quality instead of quantity of investment as source of sectoral growth.

6.6. Market capitalization in financially open countries

There is clear indication that financial development has a strong effect on market capitalization of listed companies and value of stock traded as documented by our regression outputs in tables 6.6.1 and 6.6.2. The latter suggests that countries which have liberalized their financial structure have faced a tremendous development of their stock exchanges and market capitalization index while nations that are still closed according to the Sachs-Warner and WTM indexes have underperforming and non-profitable financial markets.

Table 6.6.1: Financial liberalization and financial markets
Regional Breakdown

Dependent variable: Financial markets	Market Cap *DIF in DIF(1)*	Stock Traded *DIF in DIF(2)*	Market Cap OLS*(3)*	Stock Traded OLS*(4)*
Emerging Markets				
Financial non-FDI flows	0.30**	0.17** 0.4	1**	0.25**
	(0.45)	*(0.05)*	*(0.05)*	*(0.04)*
Observations	330	327	369	258
Cross-sections	27	27	27	27
R square	0.13	0.05	0.81	0.49
Developing countries				
Financial non-FDI flows	-0.22	0.18	0.25	-0.24
	(0.31)	*(0.19)*	*(0.40)*	*(0.26)*
Observations	226	198	265	222
Cross-sections	25	20	28	20
R square	0.03	0.08	0.59	0.34
Africa				
Financial non-FDI flows	-0.17	0.26*	-0.33	0.14
	(0.37)	*(0.15)*	*(0.58)*	*(0.15)*
Observations	159	151	177	166
Cross-sections	14	14	16	14
R square	0.03	0.02	0.49	0.20
Asia				
Financial non-FDI flows	0.72**	0.43** 0.7	1**	0.42**
	(0.80)	*(0.11)*	*(0.07)*	*(0.09)*
Observations	141	134	154	144
Cross-sections	12	10	12	10
R square	0.37	0.10	0.84	0.43
Latina America				
Financial non-FDI flows	0.17	-0.01	0.86	0.39**
	(0.50)	*(0.12)*	*(0.59)*	*(0.13)*
Observations	167	155	194	173
Cross-sections	16	13	17	13
R square	0.02	0.02	0.67	0.60

(1) Market capitalization of listed companies as % of real $US GDP; difference-in-difference method.
(2) Value of stock traded as % of real $US GDP; difference-in-difference method.
(3) Market capitalization of listed companies as % of real $US GDP; ordinary least squares with fixed effects.
(4) Value of stock traded as % of real $US GDP; ordinary least squares with fixed effects.

Table 6.6.2: Financial Liberalization, Market Capitalization and Stock Traded

Dependent variable: Financial markets	Market Cap *(1)*	Stock Traded *(2)*	Market Cap OLS*(3)*	Stock Traded OLS*(4)*
Finance closed*(5)*				
Financial flows	0.87*	0.10	-0.20	-0.81
	(0.49)	(0.08)	(0.88)	(0.71)
Observations	145	146	145	126
Cross-sections	15	15	26	23
R square	0.76	0.03	0.41	0.53
Finance open				
Financial flows	0.53**	0.27**	0.35**	0.22**
	(0.07)	(0.08)	(0.04)	(0.03)
Observations	185	185	491	469
Cross-sections	14	14	48	43
R square	0.22	0.07	0.81	0.53

(1) Market capitalization of listed companies as % of real $US GDP; difference-in-difference n
(2) Value of stock traded as % of real $US GDP; difference-in-difference method.
(3) Market capitalization of listed companies as % of real $US GDP; ordinary least squares wi
(4) Value of stock traded as % of real $US GDP; ordinary least squares with fixed effects.
(5) For the difference-in-difference regressions, we use the Westermann, Tornell and Martine of financial openness; for the OLS regressions, we use the Sachs-Warner index of openness.

However, this process seems not to be symmetrical across continents and income groups as discussed in table 6.6.1; listed companies and traded stocks in emerging markets have benefited more from financial non-FDI flows than developing countries. For example, poor countries and especially African countries have not exhibited an increase in market capitalization following financial liberalization. Also, Asian countries have been the driving force that experienced a boom in capitalization and value of stocks as highlighted by the powerful coefficients and R-squares of the regression outputs while Latin American financial markets do not seem to have benefited from financial liberalization as a whole.

These findings are confirmed by both ordinary least squares with fixed effects and difference-in-difference regression methods. The heterogeneity of these results, or in other words, the non-existence of a unique causal relationship between non-FDI flows

and financial markets for all geographic classes in our sample is most likely the source of inconclusive effects of capitalization and stock markets on sectoral breakdowns of gross domestic product. In fact, there have been very few publications that focused on the direct link between market capitalization and stock markets on long-run growth. Levine and Zervos(1998) were among the few to establish such a correlation but the latter was based on a cross-sectional approach and Levine later admitted that market capitalization could not be considered as a robust cause of gross domestic growth, particularly for developing countries. Recent panel data studies by Mohtadi and Agarwal(2003) suggest in fact that market capitalization in emerging markets may affect investment, which in turn leads to higher aggregate growth rates, and that stock market development also leads to higher growth because liquidity and productivity shocks are controlled.

Some of the results (OLS, SUR) emphasize that the manufacturing sector only strongly benefits from market capitalization of listed companies. However, previous regressions of the manufacturing sector on non-FDI financial flows and domestic credit have somewhat provided us with inconclusive results and there is strong suspicious that the sector does not evenly benefit from market capitalization. The catch is that the manufacturing sector is not homogeneous and must be divided into externally dependent industries that are more sensitive to market capitalization and self-financing industries which are not. Rajan and Zingales(1998) and Braun(2005) have been able to fragment the manufacturing sector into externally dependent industries for financing and labor-intensive industries with the use of the UNIDO data and found out that the first group tends to grow much faster when credit imperfections are eliminated.

6.7. Financial crises and the speed of adjustment

Finally, we incorporate uncertainty in our empirical analysis of sectoral effects of financial liberalization by analyzing the effects of credit and banking crises as well as volatility of the exchange rate. The first two tables 6.7.1 and 6.7.2 show evidence of a strong negative effect of credit crunches as well as banking crises on non-traded goods sector while table 6.7.3. emphasizes the faster adjustment of traded goods sectors to fluctuations in the real exchange rate.

In countries that are not financially liberalized, non-traded goods sectors are credit constrained and are not able to borrow from domestic financial intermediaries unless they are large scale enterprises. As a result, their sensitivity to a credit crunch seems to be limited as presented by the coefficient of the construction sector in table 6.7.1. The seemingly related regressions allow us to test coefficient restrictions among different sectors of the economy and help conclude that the coefficients of the construction, wholesale and services sectors are not statistically different for countries that are not financially open. By considering that the construction sector is equal to the coefficients of other non tradable sectors, we are able to obtain a unique regression coefficient for all non-traded goods sector shares on credit crunches. The former confirms that the impact of credit crises is much weaker in economies that have not undertaken financial and market reforms.

Once a country opens up, the coefficient of the regression of the construction sector on credit crunches increases in magnitude indicating the risk that the non-traded sectors might be entirely wiped out. Indeed, at this stage credit allocation has become more available to non-traded goods which growth depends extensively on its new

acquired ability to borrow on domestic markets in foreign denominated debt. As a result, credit risk rises as capital inflows tend to take the form of risky capital flows and non guaranteed private lending that exacerbate financial fragility and recurring crises. Also the results suggest that inefficient sectors such as agriculture might even benefit from credit crunches and the relative decline of the shares of non-traded goods sectors in open economies. In other words, while financial liberalization switches productive forces and labor from the old inefficient sectors to the modern sectors of the economy, a credit crunch appears to cause the reverse effect.

Table 6.7.1: Sectoral Effects of Credit Crunches in Open Economies (Seemingly Unrelated Regressions)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV	Non-Traded Wald*(2)*
All countries								
Credit crunch in domestic credit *(3)*	0.13	-0.79**	-0.10	-0.29	0.39	0.23-	0.21	-0.36**
	(0.25)	*(0.32)*	*(0.25)*	*(0.22)*	*(0.26)*	*(0.76)*	*(0.33)*	*(0.17)*
Lagged dependent variable	0.100**	0.109**	0.101**	0.98**	0.94**	0.111**	0.092**	0.106**
	(0.005)	*(0.007)*	*(0.005)*	*(0.05)*	*(0.05)*	*(0.018)*	*(0.007)*	*(0.005)*
Observations	1152	1152	1152	1152	1153	946	1090	1152
R square	0.24	0.20	0.25	0.28	0.21	0.04	0.14	0.19
Financial liberalization								
Credit crunch in domestic credit	0.57*	-0.11**	0.13	-0.29	0.42	-0.43	0.01	-
	(0.31)	*(0.04)*	*(0.24)*	*(0.23)*	*(0.31)*	*(0.87)*	*(0.40)*	
Lagged dependent variable	0.105**	0.11**	0.99**	0.92**	0.106**	0.12**	0.91**	-
	(0.006)	*(0.01)*	*(0.04)*	*(0.04)*	*(0.006)*	*(0.02)*	*(0.04)*	
Observations	542	542	542	542	542	542	470	
R square	0.38	0.36	0.48	0.45	0.38	0.08	0.23	

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants; STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Wald coefficient restrctions imply that the coefficients of construction, wholesale & retail and services are not statistically different.
(3) Credit crunches identified by Mathias Baun(0 or 1).

Banking crises present somewhat similar effects on the construction sector as presented in table 6.7.2. In countries considered to be closed, the banking system is the primary channel through which different sectors of the economy might borrow their needs in capital. However, the large scale firms in traded goods sectors can in most cases borrow capital from international markets or benefit from foreign direct investments

while the needs of the non-traded goods sectors are financed almost exclusively through domestic banks. Moreover, as suggested in previous sections, banks are reluctant to finance non-traded goods sectors as they fear the latter might not be able to honor their obligations. As a result, only a few large corporations in non-traded goods sectors are eligible to credit allocated by banks. The traded good sectors, which are seen as more credible and mostly composed of large domestic firms often implicitly bailed out by the government, do not face this issue. The consequence is that the sensitivity of non-traded goods sectors to banking crises, although significant, is not extremely strong in countries that have not opened up their capital account. The Wald coefficient restrictions imposed in the coefficient imply that this result is valid for both the construction and wholesale and retail sectors as their regression coefficients are not statistically different.

Table 6.7.2: Sectoral Effects of Banking Crises in Open Economies (Seemingly Unrelated Regressions)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV	Non-Traded Wald*(2)*
All countries								
Banking crises *(2)*	0.09	-0.95**	-0.41	0.01	-0.16	0.66	-0.57**	-0.41*
	(0.24)	*(0.33)*	*(0.28)*	*(0.30)*	*(0.27)*	*(0.77)*	*(0.30)*	*(0.23)*
Lagged dependent variable	0.105**	0.120**	0.97**	0.116**	0.101**	0.11**	0.96**	0.121**
	(0.005)	*(0.007)*	*(0.06)*	*(0.006)*	*(0.005)*	*(0.02)*	*(0.06)*	*(0.007)*
Observations	1643	1643	1642	1643	1642	1418	1535	1642
R square	0.22	0.17	0.15	0.19	0.17	0.03	0.16	0.15
Financial liberalization								
Banking crises	0.06	-0.14**	-0.73**	-0.37	0.40	0.55-0.	59	-
	(0.33)	*(0.04)*	*(0.36)*	*(0.28)*	*(0.36)*	*(1.16)*	*(0.41)*	
Lagged dependent variable	0.104**	0.116**	0.104**	0.93**	0.106**	0.12**	0.94**	-
	(0.005)	*(0.007)*	*(0.006)*	*(0.05)*	*(0.006)*	*(0.02)*	*(0.07)*	
Observations	783	783	782	783	781	698	765	
R square	0.31	0.28	0.29	0.35	0.28	0.04	0.20	

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government
(2) Wald coefficient restrctions imply that the coefficients of construction and services are not statistically different.
(3) Banking crises identified by Demirguc-Kunt, Asli and Detragiache, Enrica(0=no crisis;1=crisis).

In the post liberalization period, the inflows of foreign non-FDI capital improve the ability of non-traded goods to borrow risky foreign denominated capital through non-banking sources. At the same time, the opening of the capital account and reforms of the

domestic financial structure usually increase the efficiency and liquidity of the banking sector. The latter is able to allocate a higher share of loans to non-traded goods sectors which in turn become relatively more sensitive to domestic conventional borrowing. Such a pattern is illustrated in table 6.7.2. by the robust negative coefficients of the construction and wholesale sectors regressed on banking crises in open countries; moreover, several studies(Bonfiglioli, and Mendicino, 2004) support that banking crises have a robust and independent impact on gross domestic product decline.

Furthermore, the rule identified by both tables is that the impacts of credit crunches and banking crises tend to converge in magnitude in financially liberalized countries. Indeed, non-traded goods sectors are more sensitive to credit provided by banks as well as foreign intermediaries which make them more vulnerable to both credit crunches and banking crises. There is also evidence from other results that non-traded goods sectors in emerging markets, which have more developed banking systems, are more sensitive to banking crises than developing countries. Two reasons might explain this phenomenon: first banks in developing countries are mostly subsidiaries of larger banking groups based in advanced countries which guarantee a potential bailout, and secondly, financial depth and liquidity are higher in emerging markets which are more incline to finance risky projects in non-traded goods sectors.

Westermann, Tornell and Martinez (2004) arrived to similar conclusions in their analysis of credit crises in financially liberalized countries. Their claim that credit allocation is asymmetric, as non-traded goods sectors are less likely to be able to access international capital markets, supports our findings of greater sensitivity of these sectors to domestic credit crunches and banking crises. Although crises occur rarely, they have

devastating effects on non-traded goods sectors which have exacerbated currency and term mismatches of the debt structure. In the long run, crises might even be the price to pay to achieve smoother paths of growth equilibrium if necessary reforms are undertaken with respect to risky lending to non-traded goods sectors. However, in the short term, the non-tradable will suffer much more than the tradable sector, leading to a sharp depreciation of the real exchange rate. This in turn explains the skewed distribution of credit distribution over time as credit crises are rarer than booms but exert a much stronger negative impact on the growth of non-traded goods sectors in particular, and the overall economy, in general.

Similar empirical results have been obtained in recent sectoral research studies on the decline of the non traded goods sectors in the wake and aftermath of a credit or banking crisis in Mexico, Brazil, Korea and Argentina (Burstein, Einchanbaum and Robelo, 2003). For instance, the findings emphasized that the post crisis period was characterized by a fall of prices of non-traded goods and services by 45% for the three first countries and 85% in Argentina respectively in comparison with a moderate decrease of prices of traded goods by about 18% in Argentina and 6% in Brazil. Moreover, disaggregated data of the consumer prix index from March to December 2002 showed that following a devaluation of 125% in Argentina, the increase in retail prices of non tradable and tradable goods reached 80% and 40% respectively, confirming the non-price stickiness of domestic goods.

Finally, we look at the impact of exchange rate volatility on the different sectors of the economy, and more particularly provide insights to explain the greater sensitivity

of traded goods to exchange rate fluctuations in comparison with non-traded goods sectors in non-credit crunch years. Section 6.4. highlighted the fact that real exchange rate appreciation was strongly correlated with the growth of non-traded goods sectors and the decline of the shares of traded goods. This implies that strong devaluations of the real exchange rate are driven and associated with a faster adjustment in non-traded goods than traded goods sectors.

What is the case then when the exchange rate is more stable and oscillates in a normal non-crisis range? The pattern identified by the regression of the monthly deviations from the average real exchange rate on sectoral shares presented in table 6.7.3. points out that traded goods sectors tend to grow or decline at a significant level when the exchange rate is fluctuating. We find for instance that volatility is associated with a decline in manufacturing and mining as well as with robust growth of agriculture in countries that have not undertaken financial reforms. On the contrary, open countries present a strong decline of manufacturing and mining sectors while there is evidence of moderate growth of agriculture, hunting and fishery when regressed on exchange rate volatility. Moreover, the results emphasize that the adjustment of traded goods sectors to exchange rate deviations is much stronger for countries that are considered closed according to the Sachs-Warner index and for nations that have fixed exchange rate regimes. The significance and magnitude of adjustment of tradable softens when financial liberalization occurs and countries switch to floating exchange rates regimes.

Table 6.7.3: Sectoral Effects of Exchange Rate Volatility
(Difference-In-Difference Method)

Dependent variable: Share of GDP	AHF*(1)*	CON	WRR	STC	MAN	MIU	GOV
Closed countries							
Volatility of XR *(3)*	-0.67**	0.14	-0.28**	0.68	0.20**	0.11**	0.49**
	(0.09)	*(0.25)*	*(0.05)*	*(0.13)*	*(0.08)*	*(0.02)*	*(0.11)*
Observations	1136	1136	1136	1136	1141	1141	999
Cross sections	84	84	84	84	84	84	79
R square	0.05	0.04	0.05	0.04	0.07	0.04	0.02
Open countries							
Volatility of XR	0.50*	0.17	-0.09	0.15	-0.55**	-0.25**	-0.14
	(0.29)	*(0.90)*	*(0.10)*	*-(0.59)*	*(0.15)*	*(0.08)*	*(0.28)*
Observations	789	789	788	789	785	796	757
Cross sections	62	62	62	62	62	62	58
R square	0.06	0.06	0.06	0.04	0.07	0.04	0.06

(1) AHF: Agriculture, hunting and fishery; CON: Construction; WRR: Wholesale, Retail and Restaurants
STC: Services, Transportation and Communication; MAN: Manufacturing, MIU: Mining and Utilities; GOV: Government.
(2) Closed or open according to the Sachs-Warner index.
(3) Monthly deviations from the average exchange rate(Shambaugh tables), lagged by one year.

On the other hand, fluctuations of the real exchange rate require a relatively longer period to recover for non-traded goods. Not surprisingly, most non-traded good sectors such as construction and services exhibit insignificant regression results as the effect of exchange rate volatility takes a long time to materialize. Open countries tend to present an even lower significance of adjustment of non traded goods suggesting that the sectoral impact of volatility decreases in the long run. Obviously, real exchange volatility can be caused by many endogenous and exogenous causes and we do not especially assume in table 6.7.3 that volatility is especially due to credit crises which are historically rare and would require the coefficients of non-traded goods sectors to be significantly negative.

Previous sections put in evidence that financial liberalization leads to higher growth of non-traded goods once the allocation of domestic credit becomes more

democratic and borrowing constraints are lifted. The accrued ability of non-traded goods sectors to borrow from banks or through other internal or external channels might unfortunately be correlated with an increase in non-performing loans, currency and term mismatches of the debt structure as discussed earlier. Once a crisis occur, the non-traded goods inability to repay its obligations leads to partial or total default and immediately causes the real exchange rate to depreciate. Combining the results from the three tables of this section, it can be shown that it takes a long time before for sectors like construction and services to be revitalized in the period that follows a credit crunch or banking crisis. Many Asian emerging markets that where hit by the 1997 crisis have been through this process; in fact their non-traded goods sectors that were previously wiped out have only been able to catch up their pre-crisis state in recent years. These findings are similar with the Westermann. Martinez and Tornell(2004) claim of slow adjustment process of non-traded goods sectors in the aftermath of major depreciation of the real exchange rate once non-traded goods sectors have initially been devastated.

Overall, financial liberalization leads to higher real GDP growth even if countries experience crises due to risky international flows and financial fragility. Paradoxically, the same forces that lead to faster growth lead to higher financial fragility. In fact they suggest that those countries, which previously faced financial and economic crashes, are likely to grow faster in the long-run. The reason is that they tend to be more careful in their expansion of domestic credit and its allocation after a crisis; this explains why real GDP growth is positively correlated with negative skewness of domestic credit.

VII. CONCLUSION

The model of capital flows and growth with traded and non traded investment goods proposed to test the sectoral impacts of financial opening captures several channels of transmission, including domestic credit, the real exchange rate and lower costs of investment.

In this dissertation, we found that financial liberalization has a very important effect on aggregate GDP growth in general, and on growth of traded and non-traded goods in particular. Countries that have undertaken profound reforms of the financial sector have in most cases be able to attract additional capital non-FDI inflows, which in turn positively impacted the development of non-traded goods sectors. The results presented in previous sections also suggest that this relationship might be the result of direct or indirect linkages, the latter involving intermediate transmission mechanisms such as domestic credit, real exchange appreciation or aggregate investment. Indeed, all three channels are strongly and positively correlated with the rise in the share of non-traded goods sectors and the relative fall of at least one of the primary traded goods sectors (agriculture and mining and utilities). As for manufacturing our results are mitigated, and although the latter is significantly responsive to the development of stock exchanges and market capitalization of listed companies, recent investigations at the industry level led by Rajan and Zingales(1998) suggest that manufacturing is not an homogenous sector and should be divided into externally dependent for financing and labor intensive firms.

The findings of this dissertation are also important in the sense that they describe the changing nature of the drivers of non-FDI capital inflows in countries that are not part of the OECD. For instance, developing countries, most of which were closed in the 1980s and early 1990s, present evidence that the main components of their inflows of financial-non FDI flows are publicly guaranteed debt (multilateral and bilateral), and to a smaller extent publicly guaranteed private lending. However, as closed economies start to integrate to the rest of the world and open their capital account, there is a shift toward a more risky type of non-FDI capital inflows such as private non-guaranteed debt. The results of this thesis are consistent with the empirical reality of the last decade as they illustrate the fact that emerging markets that have undertaken financial liberalization are able to attract more sophisticated-but more risky- types of flows such as bonds and equity.

Finally, this thesis brings new insights regarding the impact of credit crunches and banking crises in the framework of sectoral economics as non-traded goods sectors have relatively limited access to domestic credit and are forced to borrow in foreign denominated debt. Thus, currency and term mismatches in the debt structure make the non-traded goods very sensitive to any major macroeconomic external or internal shock; in fact our results in previous parts of this study identified that non-traded goods sectors might be wiped out during such types of recessions and are slower to recover from major fluctuations in the real exchange rate than traded goods sectors. However, such crises might be the price to pay to heal the entire economy by discouraging private lending in highly risky projects and lead to more stability in the long run, as illustrated by the relatively limited of credit and banking crises in recent years.

VIII. REFERENCES

Abiad, Abdul., Oomes, Nienke and Ueda, Kenichi. 2004. "The Quality Effect: Does Financial Liberalization Improve the Allocation of Capital?" International Monetary Fund, Working Paper no. 04/112.

Aghion, Philippe, Philippe Bachetta and Abhijit Banerjee. 2001. "Currency Crisis and Monetary Policy in an Economy with Credit Constraints". European Economic Review, Vol. no.45, pp. 1121-1150.

Arellano, M and Bond, S. 1991. "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations". The Review of Economic Studies, vol. 58 no.2.

Bonfiglioli, Alessandra and Mendicino, Caterina. 2004. "Financial Liberalization, Bank Crises and Growth: Assessing the Links". Stockholm School of Economics, Working Papers in Economics and Finance, no. 567.

Burstein, Ariel, Eichenbaum Martin and Robelo, Sergio. 2004. "Large Devaluations and the Real Exchange Rate". National Bureau of Economic Research, Working Paper no. 10986.

David, Card and Krueger, Alan. 2004. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania". The American Economic Review, vol. no. 48(4), pp 772-793.

Bagehot, Walter.1873. "Lombard Street: A description of the money Market". London.

Balassa, Bela. 1964. "The Purchasing Power Doctrine: A Reappraisal". Journal of Political Economy, vol. no.72 pp. 584-596.

Barro, Robert J. and Jong-Wha Lee, 2000. "International Data on Educational Attainment: Updates and Implications". Harvard University, Center for International Development, working Paper no. 42.

Beck, Thorsen, Demirguc-Kant, Asli, Levine, Ross and Maksimovic, Vojislav. 2001. "Financial Structure and Economic Development: Firm, Industry and Country Evidence". Massachusetts Institute of Technology, MA.

Beck, Thorsen, and Levine, Ross. 2000. "Industry Growth and Capital Accumulation: Does Having a Market or Bank-Based System Matter?" Mimeo, Finance Department, University of Minnesota.

Beck, Thorsen, Levine, Ross, and Loayza, Norman. 2000. "Finance and the Sources of Growth". Journal of Financial Economics, vol. no. 58(1), pp. 261-300.

Braun, Mathias. 2003. "Essays in Financial Economics". Doctoral dissertation, Harvard University, Cambridge, MA.

Demirguc-Kunt, Asli and Detragiache, Enrica. 1998. "The Determinants of Banking Crises in Developing and Developed Countries". IMF Staff Papers, vol. no. 45(1), pp. 81-109.

Goldsmith, Raymond. 1969. "Financial Structure and Development", New Heaven, Connecticut, Yale University Press.

Gourinchas, Pierre-Olivier and Jeanne, Olivier. 2003. "The Elusive Gains from International Financial Integration". National Bureau of Economic Research, Working Paper no. 9684.

Greene, William. 2002. "Econometric Analysis". Fifth Edition, Prentice Hall, 1056 pp.

Growth Development Finance (GDF). 2006. World Bank. Online Subscription.

Hayashi, Fumio. 2000. "Econometrics". Princeton University Press, 452pp.

International Monetary Fund, 2005. "International Financial Statistics". Online subscription.

International Monetary Fund. 2005. "World Economic Outlook". Online Subscription.

Levine, Ross. 2004. "International Financial Liberalization and Economic Growth", Review of International Economics, vol. no. 9(4), pp. 688-702.

Levine, Ross and Zervos, S. 1998. "Stock Markets, Banks and Economic Growth". American Economic Review, vol. no.88, pp. 537-558.

King, Robert and Levine, Ross. 1993. "Finance and Growth; Schumpeter might be right", World Bank, Countries Economics Department, Working Paper no. 1083.

Mohtadi, Hamid and Argawal, Sumit. 2003. "Stock Market Development and Economic Growth: Evidence from Developing Countries". University of Wisconsin-Milwaukee, Working Paper.

Morisset, Jacques. 2000. "Foreign Direct Investments in Africa: Policies Also Matter". World Bank, Policy Research Working Paper no. 2481.

Rajan, Raghuram and Zingales, L. 1998. "Financial Dependence and Growth", American Economic Review, vol. no. 88, pp.559-586.

Rajan, Raghuram and Subramanian, Arvind. 2005. "What Undermines Aid's Impact on Growth". National Bureau of Economic Research, Working Paper no. 11657.

Ranciere, Romain, Tornell, Aaron and Westermann, Franck. 2005. "Systemic Crises and Growth". National Bureau of Economic Research, Working Paper no. 11076.

Reinhart, Carmen and Rogoff, Kenneth. 2002. "The Modern History of Exchange Rate Arrangements: A New Reinterpretation". National Bureau of Economic Reasearch, Working Paper no.8963.

Robinson, Joan. 1952. "The Generalization of the General Theory." London. Macmillan, 1952, pp. 67-142.

Sachs, J.D. and Warner, A, M., 1995. "Economic Reform and the Process of Global Integration". Brookings Paper on Economic Activity vol. no. 1, pp. 1-118.

Samuelson, Paul. 1964. "Theoretical Notes on Trade Problems". Review of Economics and Statistics, vol. no. 23, pp. 145-154.

Sargan, J. D. (1964). "Wages and prices in the United Kingdom: A study in econometric methodology" In Hart, P. E., Mills, G., and Whitaker, J. K.(eds.), Econometric Analysis for National Economic Planning, no. 16 of Colston Papers, pp. 25-63.

Schambaugh, Jay and Klein, Michael. 2005. "The Effect of Fixed Exchange Rates and Trade". National Bureau of Economic Research, Working Paper no. 10696.

Schumpeter, Joseph. 1911. "A Theory of Economic Development". Cambridge, MA. Harvard University Press.

Tornell, A.,Westermann, F., Martinez., L. 2004. "The Positive Link Between Financial Liberalization, Growth and Crises". National Bureau of Economic Research, Working Paper no.10293.

United Nations. 2005. "United Nations Statistical Database". Online subscription.

Wacziarg, Romain and Welch, Karen. 2003. "Trade Liberalization and Growth: New Evidence". National Bureau of Economic Research, Working Paper no.10152.

Wald, Abraham. 1940. "Contributions to the Theory of Statistical Estimation and Testing Hypotheses". Annals of Mathematical Statistics, Vol. no.10, pp. 299-326.

Warner, Andrew. 2003. "Once More Into the Breach: Economic Growth and Global Integration". Center for Global Development, Working Paper no. 34.

Warnock, Veronica and Warnock, Francis. 2000. "The declining volatility of US unemployment: Was Arthur Burns Right?". International Finance Discussion Paper, Working Paper no.677.

World Bank. 2006. "World Development Indicators". CD-ROM.

IX. APPENDICES

Table 9.1: Sectoral effects of financial liberalization on agriculture, hunting and fishery

Dependent variable: Share of GDP-agriculture	OLS (1)	SUR (2)	Diff in diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	-0.61**	0.102**		0.61**	0.64**
	(0.12)	*(0.005)*		*(0.03)*	*(0.04)*
Foreign direct investments(7)	-0.10	-0.07	0.11	-0.60**	-0.66**
	(0.11)	*(0.05)*	*(0.12)*	*(0.75)*	*(0.25)*
Aid	0.23*	0.07	-0.23	0.06	0.09
	(0.12)	*(0.51)*	*(0.80)*	*(0.19)*	*(0.20)*
Short term debt	-0.81*	-0.65**	-0.13	0.24	0.04
	(0.42)	*(0.31)*	*(0.14)*	*(0.28)*	*(0.30)*
Observations	1692	1692	1740	1709	1709
Cross sections	90		90	94	94
R-Square	0.11	0.23	0.04		
Sargan statistics				0.55	0.62
After financial liberalization					
Lagged dependent variable	-0.63**	0.105**		0.57**	0.58**
	(0.08)	*(0.005)*		*(0.07)*	*(0.04)*
Foreign Direct Investments	-0.20*	-0.15*	0.38	-0.10**	-0.11**
	(0.11)	*(0.08)*	*(0.24)*	*(0.03)*	*(0.04)*
Aid	-0.23	0.16	-0.25	-0.36	-0.08
	(0.77)	*(0.47)*	*(0.21)*	*(0.32)*	*(0.17)*
Financial non-FDI flows	-0.17	-0.24**	-0.38**	0.15*	0.18**
	(0.15)	*(0.13)*	*(0.21)*	*(0.08)*	*(0.08)*
Short term debt	-0.81*	-0.43	-0.12	0.49**	0.33
	(0.54)	*(0.34)*	*(0.18)*	*(0.29)*	*(0.31)*
Observations	1563	1563	1582	1563	1563
Cross sections	88		88	88	88
R-Square	0.11	0.24	0.04		
Sargan statistics				0.65	0.56

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a three periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

Table 9.2: Sectoral effects of financial liberalization on construction

Dependent variable: Share of GDP-construction	OLS (1)	SUR (2)	Diff in diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	-0.39	0.107**		0.69**	0.66**
	(0.03)	(0.006)		(0.03)	(0.04)
Foreign direct investments(7)	0.95	0.33	-0.18	0.01	0.05
	(0.94)	(0.71)	(0.37)	(0.75)	(0.76)
Aid	0.03	0.19	-0.05	-0.40*	-0.45*
	(0.08)	(0.73)	(0.26)	(0.24)	(0.24)
Short term debt	0.19**	0.28**	0.18**	0.15**	0.10**
	(0.07)	(0.09)	(0.04)	(0.05)	(0.05)
Observations	1692	1685	1740	1819	1819
Cross sections	90		90	96	96
R-Square	0.13	0.15	0.05		
Sargan statistics				0.59	0.58
After financial liberalization					
Lagged dependent variable	0.22**	0.109**		0.59**	0.56**
	(0.03)	(0.006)		(0.39)	(0.12)
Foreign Direct Investments	0.25**	0.11	0.001	-0.11	0.02
	(0.12)	(0.11)	(0.650)	(0.12)	(0.12)
Aid	0.18	0.21	-0.16	-0.77**	-0.45**
	(0.17)	(0.67)	(0.41)	(0.17)	(0.19)
Financial non-FDI flows	0.13**	0.46**	0.26** 0.3	0*	0.14
	(0.02)	(0.17)	(0.08)	(0.17)	(0.18)
Short term debt	0.15**	0.31**	0.17**	0.22**	0.25**
	(0.06)	(0.09)	(0.18)	(0.78)	(0.08)
Observations	1563	1556	1582	1569	1569
Cross sections	88		88	88	88
R-Square	0.17	0.17	0.05		
Sargan statistics				0.60	0.59

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

Table 9.3: Sectoral effects of financial liberalization on wholesale, retail and restaurants

Dependent variable: Share of GDP-wholesale and re	OLS (1)	SUR (2)	Diff and diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	0.86**	0.101**		0.77**	0.77**
	(0.05)	(0.005)		(0.03)	(0.04)
Foreign direct investments(7)	-0.48**	-0.68	-0.22	0.04	0.16
	(0.09)	(0.60)	(0.83)	(0.22)	(0.32)
Aid	0.89	0.18	0.23	0.06	0.45
	(0.72)	(0.62)	(0.57)	(0.11)	(0.35)
Short term debt	0.02	-0.09	0.91	0.23	0.27
	(0.18)	(0.37)	(0.99)	(0.20)	(0.27)
Observations	1620	1691	1739	1708	1708
Cross sections	90		94	94	94
R-Square	0.74	0.17	0.03		
Sargan statitics				0.64	0.68
After financial liberalization					
Lagged dependent variable	0.87**	0.102**		0.77**	0.67**
	(0.05)	(0.005)		(0.03)	(0.04)
Foreign Direct Investments	-0.36	-0.14	-0.19	0.08	0.05
	(0.28)	(0.09)	(0.83)	(0.23)	(0.27)
Aid	0.23	0.71	0.23	0.03	0.19
	(0.58)	(0.59)	(0.57)	(0.11)	(0.26)
Financial non-FDI flows	-0.40	0.12	-0.17	-0.87*	-0.82*
	(0.73)	(0.14)	(0.18)	(0.48)	(0.44)
Short term debt	0.09	-0.07	0.10	0.29	0.27
	(0.17)	(0.39)	(0.10)	(0.21)	(0.20)
Observations	1494	1562	1738	1707	1562
Cross sections	88		94	94	88
R-Square	0.75	0.18	0.03		
Sargan statitics				0.55	0.76

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a three periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

Table 9.4: Sectoral effects of financial liberalization on services

Dependent variable: Share of GDP-services	OLS (1)	SUR (2)	Diff in diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	0.88**	0.10**		0.79**	0.78**
	(0.06)	(0.005)		(0.02)	(0.03)
Foreign direct investments(7)	-0.43**	-0.84*	-0.06	0.05	0.02
	(0.13)	(0.51)	(0.46)	(0.13)	(0.13)
Aid	0.13*	0.14	-0.09	0.86	0.72
	(0.08)	(0.52)	(0.32)	(0.93)	(0.93)
Short term debt	0.03	0.10	0.68	-0.14	0.02
	(0.19)	(0.22)	(0.54)	(0.98)	(0.10)
Observations	1621	1692	1740	1709	1709
Cross sections	90		90	94	94
R-Square	0.66	0.23	0.03		
Sargan statistic				0.61	0.53
After financial liberalization					
Lagged dependent variable	0.79**	0.97**		0.74**	0.72**
	(0.04)	(0.04)		(0.03)	(0.03)
Foreign Direct Investments	-0.28	-0.12	0.48	0.09	-0.01
	(0.30)	(0.07)	(0.84)	(0.15)	(0.16)
Aid	0.11	-0.08	-0.47	-0.11	-0.16
	(0.56)	(0.48)	(0.53)	(0.15)	(0.15)
Financial non-FDI flows	-0.67	-0.08	0.29**	0.78**	0.93**
	(0.82)	(0.12)	(0.10)	(0.21)	(0.22)
Short term debt	0.11	0.14	0.40	-0.23**	-0.24**
	(0.17)	(0.31)	(0.58)	(0.10)	(0.11)
Observations	1495	1563	1582	1563	1563
Cross sections	88		88	88	85
R-Square	0.66	0.23	0.04		
Sargan statistics				0.57	0.54

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a three periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

Table 9.5: Sectoral effects of financial liberalization on manufacturing

Dependent variable: Share of GDP-manufacturing	OLS (1)	SUR (2)	Diff and diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	0.80**	0.95**		0.65**	0.67**
	(0.01)	(0.05)		(0.03)	(0.03)
Foreign direct investments(7)	-0.33	-0.31	0.22	-0.33	-0.36
	(0.43)	(0.58)	(0.58)	(0.28)	(0.26)
Aid	-0.05	-0.45	-0.65**	-0.26	-0.19
	(0.36)	(0.60)	(0.10)	(0.17)	(0.12)
Short term debt	-0.13	0.69*	0.31	-0.21	-0.28
	(0.33)	(0.37)	(0.83)	(0.21)	(0.19)
Observations	1619	1690	1737	1706	1706
Cross sections	90		94	94	94
R-Square	0.71	0.16	0.05		
Sargan statistics				0.56	0.64
After financial liberalization					
Lagged dependent variable	0.83**	0.97**		0.72**	0.72**
	(0.03)	(0.05)		(0.04)	(0.04)
Foreign Direct Investments	-0.57	-0.20**	-0.02	-0.17	-0.17
	(0.54)	(0.09)	(0.14)	(0.21)	(0.21)
Aid	-0.24	-0.11**	-0.24**	-0.55**	-0.45*
	(0.56)	(0.06)	(0.07)	(0.27)	(0.25)
Financial non-FDI flows	-0.50	0.001	-0.11	0.18	0.14
	(0.88)	(0.14)	(0.10)	(0.35)	(0.36)
Short term debt	-0.07	-0.63	0.16	-0.19	-0.25
	(0.34)	(0.39)	(0.93)	(0.20)	(0.20)
Observations	1492	1560	1578	1559	1559
Cross sections	88		88	88	88
R-Square	0.72	0.17	0.05		
Sargan statistics				0.64	0.65

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a three periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

Table 9.6: Sectoral effects of financial liberalization on mining and utilities

Dependent variable: Share of GDP-mining and utilitie	OLS (1)	SUR (2)	Diff and diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	-0.29**	0.11**		0.65**	0.69**
	(0.02)	(0.02)		(0.03)	(0.04)
Foreign direct investments(7)	0.55*	0.30	-0.06	0.84**	0.81**
	(0.29)	(0.25)	(0.15)	(0.39)	(0.32)
Aid	0.12	0.11	0.03	-0.23	0.04
	(0.17)	(0.12)	(0.11)	(0.30)	(0.33)
Short term debt	-0.36**	-0.16	-0.45**	-0.005	0.05
	(0.14)	(0.10)	(0.19)	(0.299)	(0.32)
Observations	1417	1417	1731	1699	1699
Cross sections	81		93	93	93
R-Square	0.23	0.03	0.03		
Sargan statistics				0.54	0.69
After financial liberalization					
Lagged dependent variable	-0.30**	0.12**		0.77**	0.61**
	(0.02)	(0.02)		(0.03)	(0.04)
Foreign Direct Investments	0.60**	0.44*	-0.05	0.12**	0.14**
	(0.29)	(0.25)	(0.14)	(0.05)	(0.05)
Aid	0.13	-0.01	0.31	0.21**	0.23**
	(0.21)	(0.17)	(0.28)	(0.05)	(0.05)
Financial non-FDI flows	-0.39	0.12	-0.16	0.04	0.24
	(0.39)	(0.39)	(0.27)	(0.73)	(0.77)
Short term debt	-0.35**	-0.24**	-0.45**	-0.52*	-0.52
	(0.14)	(0.11)	(0.14)	(0.31)	(0.33)
Observations	1349	1349	1730	1551	1551
Cross sections	78		93	87	87
R-Square	0.23	0.04	0.03		
Sargan statistics				0.58	0.71

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a three periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

Table 9.7: Sectoral effects of financial liberalization on government

Dependent variable: Share of GDP-government	OLS (1)	SUR (2)	Diff and diff (3)	GMM (4)	GMM (5)
Before financial liberalization					
Lagged dependent variable(6)	0.99**	0.92**		0.65**	0.58**
	(0.20)	(0.06)		(0.03)	(0.06)
Foreign direct investments(7)	0.18	0.12**	0.60**	-0.08	-0.08
	(0.12)	(0.06)	(0.12)	(0.16)	(0.17)
Aid	0.43**	0.50	0.24**	-0.02	-0.15
	(0.13)	(0.64)	(0.09)	(0.11)	(0.98)
Short term debt	0.61	0.24	0.22	0.65**	0.65**
	(0.49)	(0.38)	(0.14)	(0.24)	(0.29)
Observations	1658	1658	1708	1669	1699
Cross sections	87		91	91	91
R-Square	0.15	0.14	0.05		
Sargan statistics				0.55	0.53
After financial liberalization					
Lagged dependent variable	0.91**	0.93**		0.52**	0.61**
	(0.20)	(0.06)		(0.07)	(0.04)
Foreign Direct Investments	-0.04	-0.04	0.52**	-0.18	-0.25
	(0.13)	(0.98)	(0.18)	(0.43)	(0.30)
Aid	-0.15	-0.24	-0.24**	-0.66*	-0.46*
	(0.11)	(0.60)	(0.11)	(0.41)	(0.28)
Financial non-FDI flows	0.27**	0.20	0.60**	0.21**	0.21**
	(0.14)	(0.15)	(0.20)	(0.06)	(0.05)
Short term debt	0.40	0.13	0.27**	0.79**	0.69**
	(0.49)	(0.40)	(0.12)	(0.33)	(0.24)
Observations	1530	1530	1547	1524	1524
Cross sections	85		85	85	85
R-Square	0.16	0.15	0.04		
Sargan Statistics				0.55	0.56

(1) Ordinary Least Squares with fixed effects, share regressed on its lagged value and capital flows.

(2)Semingly unrelated regressions;shares regressed on capital flows in a system of equations.

(3) Difference in the share regressed on the difference in the flows.

(4) General Method of Moments with a dynamic panel in which the share has a two periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(5) General Method of Moments with a dynamic panel in which the share has a three periods lag and the instruments are the ratio of total capital flows over total US$ GDP PPP for all countries.

(6) One lag of the dependent variable.

(7) All capital flows are % of $US GDP.

ABSTRACT

Samir Gadio

BS, Russian Peoples' Friendship University

MA, Fordham University

Sectoral Impacts of Financial Liberalization in Developing Countries and Emerging Markets.

Dissertation directed by Darryl McLeod, PhD

There is now considerable evidence that financial development enhances per capita income and productivity growth, as surveyed by Levine (2004). However, there is much less agreement in the literature regarding the effects of capital account liberalization and financial development on poor and emerging market economies. This study develops and tests several new models of how financial development affects overall growth by focusing on their implications for different sectors of the economy. The findings obtained with the use of panel data for the period 1980-2003 are consistent with the capital flows and growth extended version of the Warner (2003) model, and the Tornell, Westerman and Martinez (2004) model of financial liberalization and accelerated rise of non-traded goods sectors. More precisely, domestic credit, the real exchange rate and investment are identified as fundamental channels that also impact the development of non-tradable sectors. Finally, there is empirical evidence to support that credit crunches and banking crises are particularly harmful for non-traded goods sectors, which recovery is much slower than for traded goods sectors.

VITA

Samir Racine Gadio, son of Ismail and Elena Gadio, was born on Januray 10, 1978. After graduating in 1996 from College International Jean Mermoz in Abidjan, Ivory Coast, he entered Russian Peoples' Friendship University as recipient of a full time Scholarship. In 2001, he received the Bachelor of Science degree in Economics.

He was then accepted into Fordham University in 2001, earned his Master of Arts degree in Economics in 2002 and his PhD in Economics in 2006. During his time at Fordham, he was awarded a Presidential Scholarship. While working toward his doctoral degree, under the mentorship of Dr. Darryl McLeod, he held several research positions with the United Nations Development Program, the Central Bank of Tunisia and Citigroup.