QEH Working Paper Number 50

A Survey of the Econometric Literature on the Real Effects of

International Capital Flows in Lower Income Countries

J Benson Durham*

This review examines the empirical literature on financial flows and economic performance, with particular respect to foreign direct investment (FDI), foreign portfolio investment (FPI), and foreign bank lending (FBL). Few studies report unequivocal positive statistical relations between flows and performance. Instead, even generally benevolent perspectives on liberalisation suggest that lower income countries should exhibit sufficient 'absorptive capacity' vis-à-vis variables such as the initial level of income, education, or trade openness. Notably, lower income countries are less likely to meet such 'thresholds'. But, before drawing definitive conclusions, shortcomings beset inference from existing studies. For example, the literature ignores the initial level of financial development in host countries, a potentially important intervening variable. Also, previous results likely suffer from specification bias, as few studies produce a standard set of control variables.

October 2000

* Finance and Trade Policy Research Centre
Queen Elizabeth House
University of Oxford
Oxford OX1 3LA
UK

1. Introduction

Recent 'emerging market' financial crises during the mid- to late- 1990s – including the Mexican 'Tequila Crisis', the 'Asian flu', Russia's default, and Brazil's devaluation – have spawned a truly burgeoning literature on the 'international financial architecture,' currency crises, and the merits of capital account liberalisation. While theoretical debate and policy prescriptions are abundant, comparatively little evidence thoroughly addresses the real effects of international capital flows (UNCTAD, 1999, pp. 23, 43). In point of fact, Fischer (1999) suggests that 'there is as yet little convincing econometric evidence bearing on the benefits or costs of open capital market' (p. 95). This paper surveys the empirical literature on the effects of capital flows on the real economy – growth, investment, and savings – with particular respect to lower income countries (LICs).[1]

Academic economists are deeply divided regarding the IMF's general preference for open capital accounts. Therefore, at the risk of caricature and crude taxonomy, this paper sequentially examines optimistic views that emphasise efficiency on the one hand and more sceptical perspectives the focus on volatility on the other. With respect to the former, Fischer predicts that the evidence on asset trade will eventually reflect (purported) benevolent data on goods trade.[2] Indeed, a few recent studies report benevolent effects of capital flows, foreign direct investment (FDI) or foreign portfolio investment (FPI), on macroeconomic indicators such as growth and private investment as well as financial variables, such as stock market performance, which in turn affect real activity.

Turning to a more sceptical view, Bhagwati (1998, p. 7) argues that '(s)ubstantial gains have been asserted, not demonstrated' regarding open capital accounts. As the following sections outline in detail, detractors commonly note the frequency of 'financial crisis' following financial liberalisation. In fact, Bhagwati succinctly assesses the costs

---

[1] Countries of particular interest include India, Bangladesh, Sri Lanka, Uganda, Kenya, Ghana, and Zambia.

simply as 'the probability of running into a crisis' (p. 9). Indeed, in contrast to some recent evidence on investment and growth, a growing empirical literature links banking and currency crises to financial liberalisation. Rather than FDI or (equity) FPI, this literature focuses on debt flows and foreign bank lending (FBL).

Given this general mixed evidence – that flows enhance expansion according to some studies but induce crises according to others – some commentators conclude that LICs face a 'dilemma' (UNCTAD, 1999). Simply, poorer areas need development finance, yet the existing 'international financial architecture' produces domestic financial crises upon liberalisation and, at least among countries that participate in IMF programs, 'bone-crushing recessions' (Krugman, 1999, p. 154) that result from monetary and fiscal tightening.

But drawing conclusions from recent literature should not proceed too far afield. Again, little empirical evidence attends the debate, and one should only infer from existing studies with trepidation because a few general shortcomings beset previous econometrics. First, the literature exhibits statistical problems with respect to specification and 'out-of-sample' biases. In addition to general model uncertainty in regressions for real and financial variables, studies that report findings consistent with advocates of capital account liberalisation often do not test for alternative theories. Conversely, sceptics of liberalisation do not satisfactorily address long-run transmission mechanisms from flows to macroeconomic volatility to long-run expansion. Also, case selection, with respect to both time and space, are somewhat suspect. Some studies either temporally truncate samples that exclude recent crisis or spatially limit analyses to counties that liberalised financial markets, thereby ignoring cases of interest that did not liberalise.

Second and more theoretically noteworthy, a conspicuously omitted variable limits empirical estimates – the initial level of financial development in LICs. Much of the

---

[2] He writes that 'the economics profession is a little behind where we were a decade ago on trade liberalisation, when empirical work showing its benefits was widely regarded as highly suspect, too' (p. 95).

literature considers 'emerging markets' as a homogenous sample. To the contrary, non-OECD countries comprise a rather disparate group and the distinction between middle-income countries (MICs) and LICs is crucial. In fact, some studies indicate that the determinants of economic expansion differ considerably with income breaks, even within a sub-sample of 'developing' countries (Blomström et al, 1992). Therefore, research on MICs that does not adequately consider income breaks is possibly irrelevant to LICs.

Even more germane to this research question, the relative development of financial intermediaries, from banks to stock markets, varies widely. Also, capital flows in the 1990s were highly concentrated, as the five largest recipients accounted for over half of all inflows, and 12 countries accounted for 75 percent.[3] Therefore, the initial level of development over time and across space might considerably mitigate real effects. In short, using control variables and interaction terms, this paper recommends testing the hypothesis that the depth of domestic financial markets helps capture the 'absorptive capacity' of host countries to harness flows toward productive enterprises. Such an empirical assessment of 'thresholds' might yield specific *conditions under which* financial liberalisation enhances the real economy. Very broadly, in contrast to 'one size fits all,' there are possibly no universal answers but only qualified inferences regarding this empirical question. Perhaps, for example, the real effects of flows depend on the initial development and the depth of the domestic financial system.

Given these shortcomings, this paper suggests three general empirical inquiries. The first addresses the direct effect of financial openness on the real economy – macroeconomic growth, private investment, and savings – in a cross-country regression framework. The second examines the 'boom-and-bust' perspective in more detail and examines a possible indirect effect of flows through the effect of macroeconomic volatility on output growth.

---

[3] Put differently, 140 of 166 less developed countries account for less than 5 percent of total inflows (López-Mejía, 1999, p. 7).

This entails an examination of whether the mean of growth negatively correlates with volatility and, in turn, whether flows exacerbate volatility. The final set of econometric exercises examines recent literature that advances benevolent effects of stock market liberalisation. In particular, additional econometrics on a wider sample of 'emerging markets' should scrutinise the relations between liberalisation, ensuing stock market performance, and real variables.

The organisation of the paper is as follows. Section 2 outlines the theory and evidence that support a more benevolent view of cross-border flows, while Section 3 similarly examines a more sceptical perspective. Section 4 outlines some shortcomings in the existing empirical literature with respect to statistical problems as well as the conspicuously omitted variable of initial financial development. Section 5 outlines specific econometric tests that might address these issues. Section 6 concludes.

2. The more benevolent view of capital flows and liberalisation

Recent civilian protests at meetings of the WTO as well as the IMF and World Bank illustrate that the subject of international trade is increasingly emotive and divisive, but perhaps academic debate extols greater balance. Nonetheless, at this risk of simplicity, this paper very broadly classifies perspectives on the real effects of capital flows into advocates and sceptics of liberalisation. However crude, this distinction is perhaps more useful with respect to empirical evidence than theory. After all, very few econometric studies include independent variables on the right-hand-side for which the expected sign is ambiguous and insignificant, and indeed inference from statistical results is limited to positive, negative, or insignificant effects.

The remainder of this section briefly outlines the more benign theoretical view of flows and discusses recent evidence with respect to FDI and FPI, particularly equity

investment. While the evidence is somewhat mixed, as for example the benevolent effects of

FDI are somewhat dependent on critical antecedent conditions, this literature broadly

addresses Fischer's contention regarding a general positive relation between open capital

accounts and real economic performance.

2.1. General theory

While more detailed theoretical expositions can certainly be found elsewhere,

empirical studies ultimately refer to some theory regarding international capital markets.

Therefore, a very brief review of the general arguments instructively places the evidence in

perspective.

To begin, the open economy investment identity follows

(1)

$$I = S - (EX - IM),$$

where *I*, *S*, *EX*, and *IM* refer to investment, savings, exports, and imports, respectively.

Simply, the supply for investment demand derives from domestic savings *as well as* the

capital account.[4] Therefore, holding foreign reserves constant, international capital flows in

general enable domestic investment to deviate from domestic savings levels.[5] Similar to the

domestic market for loanable funds, open capital accounts permit savings to slow freely

across borders to investment projects with the highest return (given various levels of lender

risk aversion).

---

[4] Numerous studies note the changing composition of flows in the 1990s (López-Mejía, 1999; Lipsey, 1999). Very generally, 'other investment,' particularly bank lending (FBL), was the most important component of private flows in the 1970s and 1980s, but FPI and FDI increased in the 1990s. Also, private agents replaced governments as the most prominent recipients of flows. These trends, however, differ substantially across regions, as, for example, FDI has been more prevalent in Asia than in the Western Hemisphere, Africa, the Middle East, and developing Europe (where FPI and FBL accounted for most flows) (Knight, 1998, p. 1187).
[5] Empirical studies still generally conclude that savings and investment remain highly correlated in 'open' economies (Edwards, 1995, p. 2). Also, Bekaert and Harvey (1998) note that liberalising emerging markets did not experience increased current account deficits (p. 17).

More specifically, advocates of capital account liberalisation cite several potential

benefits, which are somewhat analogous to arguments regarding free trade in goods. For

example, Obstfeld (1994) explicitly links financial market integration and economic

expansion – diversification upon liberalisation is desirable not only because of risk reduction,

but it also allows market participants to invest in higher-yield projects, which in turn

enhances economic growth. That is, world portfolio shifts from safe low-yield capital to

riskier high-yield capital link global portfolio diversification to growth, as lenders receive

greater returns on their investments and recipients enhance output expansion.[6] Also,

liberalisation enhances market discipline on government fiscal and monetary policy,[7] which

in turn produces improved long-run macroeconomic performance. Given recent emphasis on

property rights and long-run growth (Knack and Keefer, 1995), liberalisation therefore

perhaps enables importation of credibility, perhaps in the context of a broader reform

program. Finally, some economists suggest that since open capital accounts afford

divergence of domestic savings and investment, economic agents can therefore effectively

smooth consumption. Even in an LIC context, Lipsey (1999, p. 2) argues that flows into

under-diversified economies, for example countries that are dependent on particular primary

exports, might stabilise consumption under supply shocks.[8]

2.2. *Testing General Theory: The Real Effects of FDI and FPI*

Empirical studies of these purported general benefits of capital account liberalisation

generally focus on two general types of flows. First, perhaps the most advanced empirical

literature addresses FDI. Second, some recent studies address the effects of FPI, and fewer

---

[6] Obstfeld (1994) suggests that as long as risky returns are imperfectly correlated and market participants hold some risk-free assets, 'a small rise in diversification opportunities always rises expected growth as well as national welfare' (p. 1311).
[7] FitzGerald (1999a) and López-Mejía (1999) also summarise these arguments.
[8] He also argues that development history, with particular respect to the United States and Argentina in the nineteenth century, shows that inflows of foreign investment permitted faster growth with less sacrifice of

still examine fixed income as opposed to equity investment within FPI. Finally, there seems

to be a dearth of empirical literature on the benevolent effects of 'other' flows, namely FBI.

2.2.1. Empirical Evidence: FDI

Conventional wisdom suggests that FDI is the most favourable form of flow, and

economists usually cite two general reasons. First, FDI exhibits positive externalities through

the dissemination of advanced technological and managerial practices through the host

country. Second, FDI flows tend to be more stable compared to alternatives (UNCTAD,

1999; Lipsey, 1999). Direct investment is purportedly more costly to reverse and less

sensitive to global shocks,[9] such as interest rate volatility and world (OECD) business

cycles.[10]

The question of whether FDI is wholly fungible aside,[11] some empirical literature

suggests that FDI generally correlates positively with growth, although the simultaneous

nature of such a 'virtuous cycle' involving FDI and growth is perhaps a nettlesome statistical

issue. Notably, the transmission mechanism generally focuses on the first beneficial

characteristic of FDI, the dissemination of advanced technologies, as in

(2)

$$FDI \Rightarrow \uparrow \Pr oductiveTechno \log ies \Rightarrow \uparrow Output$$

current consumption. With respect to net lenders, such as Great Britain in the nineteenth century and
contemporary Japan, international capital flows provided greater investment returns (p. 1).

[9] Lipsey (1999) also suggests that the importance of retained earnings facilitate lower volatility (pp. 21-22, 25).
Another aspect of FDI in this context regards that fact that the (fragile) banking system does not mediate FDI
flows (López-Mejía, p. 25). (In general, one key aspect of various types of financial flows – FDI, FPI, and FBL
– is that each involves a distinct set of financial intermediaries and institutions.)

[10] The distinction between stocks and flows of direct investment is critical. As Blomström et al. (1992, p. 12)
note, MNC production and employment can proceed without flows, and conversely, flows do not necessarily
entail production and employment. Somewhat related, the ability of the MNC to raise capital in the domestic
market also complicates the use of FDI flows in empirical analyses.

[11] Claessens et al. (1995) also argue that 'if a flow is a close substitute for other flows, it can be…volatile, but
this need not necessarily be a cause for concern, because other flows may be offsetting its volatility'. They
conclude therefore that the 'possibility of systematic interactions between components of…(the) capital account
needs thus to be addressed before making inferences from parts to the whole' (p. 157). Somewhat related, the
distinction between FDI and privatisation is crucial, as the latter does not necessarily entail production or
employment. Section 3 discusses these issues in more detail.

For example, given a sample of eight Asian countries from 1976 to 1997, Ito (1999) finds a positive econometric link between one-year lagged FDI and annual growth rates, controlling only for contemporaneous expansion in the United States and Japan.

However, more extensive studies with augmented growth (and investment) specifications do not report significant unqualified statistical relations between FDI flows and real variables. That is, studies suggest that whether FDI enhances growth is contingent on additional factors within the host country. For example, while his fixed effects panel regressions do not isolate specific characteristics, de Mello (1999) suggests that several factors can influence the 'absorptive capacity' of host countries to successfully harness FDI toward sustained expansion.[12] Other studies do explicitly examine such conditional factors, and variables of particular interest include the initial level of development, existing human capital development, and trade policy.

First and perhaps most discouraging for LICs as opposed to MICs, Blomström et al. (1992) argue that MICs are more likely to effectively absorb FDI flows. In short, they suggest that LICs 'may learn little from the multinationals, because local firms are too far behind in their technological levels to be either imitators or suppliers to the multinationals' (p. 16). Therefore, in LICs MNCs are more likely to produce 'enclaves' that are detached from other production in the host economy (p. 16). Indeed, they divide their sample – 78 countries from 1970 to 1985 – between higher- and lower-income developing countries and find that FDI has a significantly positive coefficient in the former sample but an ambiguous effect in the latter group. Blomström et al. conclude that there might be some 'threshold' below which FDI is ineffective.[13]

---

[12] More specifically, de Mello (1999) finds that time-series analysis does not capture critical country-specific intervening variables that explain contingent FDI growth effects. He lists, but again does not explicitly evaluate, various 'institutional factors,' such as the trade regime and political stability as well as 'scale factors', such as balance of payments constraints and domestic market (p. 134).

[13] Blomström et al. (1992) use FDI inflow divided by GDP (in current U.S. dollars) averaged over the (cross-sectional) sample period. They also readily note shortcomings in the data, as industry breakdowns of FDI, as

Similarly consistent with the 'absorptive capacity' perspective, Borensztein et al. (1998) find that the productivity gains associated with FDI are contingent upon the initial level of human capital development. Starting from the premise that MNCs bring advanced technologies and managerial techniques to host countries, they more precisely identify education, which correlates positively with the initial level of development, as the requisite 'infrastructure.' Briefly, they argue that the application of such advanced production methods 'requires the presence of a sufficient level of human capital in the host economy' (p. 117). Unlike Blomström et al., they empirically estimate the 'threshold' of human capital development using an interaction term given data on 69 developing countries from 1970 to 1989.[14] In growth regressions that alternatively include and exclude fixed investment, they find that FDI has a positive direct effect on growth, but notably only for certain levels of education levels.[15]

Finally, Balaubramanyam et al. (1996) also report statistically significant but clearly conditional effects of FDI on expansion with respect to the prevailing trade regime. They find empirical evidence that supports Bhagwati's notion that LICs that follow export promoting (EP) growth strategies more likely use FDI productively than countries that follow import substituting (IS) strategies. The argument reasons that EP countries have fewer market distortions than IS countries.[16] With a sample of 46 lower- and middle-income

---

well as 'measures of real FDI activity' (employment, plant and equipment assets or expenditures, or production) might be instructive.

[14] The basic specification – where g is per capita GDP growth, H is human capital, Y is the initial GDP per capita, and $\mathbf{A}$ is a set of other control variables – follows

$$g = c_0 + c_1 FDI + c_2 FDI \times H + c_3 H + c_4 Y_0 + c_5 A$$

(p. 121). The 'threshold' is value of H that makes the sum of the second and third terms positive, given estimates of c_1 and c_2.

[15] However robust in all reported growth regressions, the precise size of the threshold, and therefore whether FDI has a positive predicted effect on growth in a majority of the sample, seems sensitive to specification. For example, growth equations that include investment indicate considerably greater thresholds that would imply negative total effects on a majority of cases.

[16] Bhagwati (1985) writes that 'the IS strategy, on both domestic investments and FDI has been cut from the same cloth: protect your market and attract home based investments to serve the market'. Balaubramanyam et al. (1996) add that 'Mere infusion of human capital and new technology into a distortion ridden economy may

countries from 1970 to 1985, they find that pure cross-sectional regressions using only EP country samples produce significant relations between FDI and growth, while models of IS countries produce ambiguous results.[17] Unfortunately, while their use of a dichotomous distinction between EP and IS constrains the analysis by omitting information, they do not calculate a more precise threshold (or control for the initial level of income or educational attainment).

Therefore, to briefly summarise previous evidence, comparatively completely specified empirical studies of FDI on growth do not produce direct, unmitigated empirical relations between FDI and growth.[18] Substantial levels of FDI are not enough – host countries must either additionally exhibit some initial level of development with respect to income and/or education or follow complementary trade practices. The implications for emerging markets is therefore mixed, as, for example, LICs are by definition less likely to exhibit the proper initial 'absorptive' characteristics according to Blomström et al. (1992) and, assuming a positive correlation between income and education rates, Borensztein et al. (1998).[19]

Notably, again these empirical studies mainly focus on the first benevolent characteristic of FDI – the potential dissemination of technology and managerial practices into the host economy. Fewer studies focus on the second advantage – the relative volatility of FDI in comparison with other flows. But, while the literature on economic growth is

---

neither lift the economy to a higher plane nor alter the slope of the production function. It may, instead, merely serve to redistribute income in favour of the new agents of production' (p. 96).

[17] Several authors note that growth and FDI might be simultaneously determined. Just as FDI purportedly affects development, higher growth rates might conceivably affect FDI. Blomström et al. (1992), Borensztein et al. (1998), and Balasubramanyam et al. (1996) all find that simultaneity bias does not affect their inferences.

[18] Some authors suggest that the sectoral composition of FDI is another potentially mitigating factor. This tract might, however, come perilously close to tautology – to suggest that FDI must flow into industries that promote growth is unproblematic. Somewhat curiously, Dutt (1997) finds that the industrial composition of FDI is insignificant in growth regressions (pp. 1933-34).

[19] None of these studies report significant relations between overall investment and FDI. For example, Borensztein et al. (1998) report some evidence that FDI 'crowds in' and does not substitute for domestic investment, but their positive findings are sensitive to specification (pp. 117-18). Therefore, existing evidence, however qualified, indicates that FDI affects capital allocation rather than accumulation.

largely silent on this issue, empirical studies of financial crisis distinguish between types of cross-border investment. For example, Frankel and Rose (1996) find that smaller ratios of FDI to total debt are a robust predictor of currency crises in emerging economies. While they duly note the debate on the fungible nature of FDI, they emphasise that FDI is 'directly tied to real investment in plant, equipment and infrastructure, whereas borrowing can go to finance consumption' (p. 7).

2.2.2. *Empirical Evidence: FPI and Equity capital*

While FPI does not entail the advantages of FDI with respect to dissemination of technology and (more arguably) capital flow stability, some economists also advance the virtues of cross-border equity (stock market) investment. For example, in his general overview of proposals for reducing 'global financial instability' – including international bankruptcy courts, capital controls, and the prospect of a global central bank – Rogoff (1999) recommends a substantial shift from debt to equity finance.[20] He argues that equity finance introduces risk sharing, via reductions in moral hazard with ownership, as well as more efficient resource allocation, via (share) price signalling. His advocacy is broadly consistent with some recent studies (Levine and Zervos, 1998a) that produce a positive statistical correlation between aggregate stock market development measures and long-run growth.

FPI shares of total international capital flows increased considerably in the 1990s, climbing to approximately half of such investment (FitzGerald, 1999b; López-Mejía, 1999),[21] and some recent econometric literature reports positive effects of FPI on the real economy. But notably, this evidence focuses primarily on equity rather than fixed-income flows. Three distinct empirical issues and/or transmission mechanisms are critical. First, some studies

---

[20] Rogoff (1999) notes existing 'biases' toward debt in existing international capital markets. These include public subsidies (namely deposit insurance) that increase banking sector size, international courts for lending contracts, and underdeveloped stock markets in lower income countries (pp. 37-38).

report positive *direct* links on long-run economic performance. Second, others emphasise the positive long-run *indirect* effects of liberalisation on economic growth through stock market development. Finally, additional research on indirect channels focuses on the short-run effects of liberalisation on private investment through increases in equity prices (due to decreases in the cost of equity capital) upon liberalisation.

First, with respect to direct FPI effects, Bekaert and Harvey (1998) suggest that private equity flows have a positive direct effect on macroeconomic performance in emerging markets. That FPI flows should have a direct effect on the real economy in addition to their effect through domestic capital markets seems somewhat ambiguous. But nonetheless, while the focus of their research primarily addresses the cost of capital, they generally find a positive relation between equity capital flows and various macroeconomic indicators, including growth and inflation, using data on 17 emerging markets from 1977 to 1996.[22] Also, in a related study, Bekaert and Harvey (2000) find that growth increases in 14 of 19 liberalising countries. Given pooled regressions, the coefficient for their 'official liberalisation' indictor is positive and safely significant (p. 26).[23]

Second, with respect to indirect mechanisms, additional literature focuses on (long-term) stock market development. Levine and Zervos (1998b) outline a benevolent mechanism from liberalisation through overall stock market development to the real economy. Briefly, they find that liberalisation tends to increase various measures of stock market development, including market size[24] and liquidity. Citing a separate inquiry (Levine

---

[21] FPI also seems to flow to higher income countries (UNCTAD, p. 9), which might simply reflect the general correlation between financial market development and income levels.

[22] While the following section discusses specific shortcomings in more detail, their results are notably sensitive to sample selection. For example, analysis that excludes the Philippines suggests that per capita GDP growth increases from 2.73 to 2.93 after flow break points (p. 17). On the other hand, GDP does not significantly change in countries with significant breaks.

[23] A less rigorous investigation also suggests that 'there is a reasonably significant correlation between capital flows and growth: the correlation coefficient between the capital flows in per cent of GDP and the average annual GDP growth rates, over the period 1993-1997…is equal to 0.36' (UNCTAD, 1999, p. 22).

[24] Of course, any immediate increase in market size simply reflects increases in stock prices upon liberalisation. Therefore, a distinction between extended cumulative development and immediate past performance is

and Zervos, 1998a), equity market development, particularly market liquidity, is in turn a

robust determinant of macroeconomic growth. Therefore, this benevolent long-run indirect

mechanism follows:

(3)

$$Flows \Rightarrow \uparrow StockMarketDevelopment \Rightarrow \uparrow Growth.^{25}$$

Notably, however, samples that produce positive empirical relations between stock

market development indicators and economic growth include developed countries. Even

augmented analyses that include cases in which stock market activity is 'inconsequential'

(Levine and Zervos, 1998a, p. 553) still use information from OECD countries to produce

robust estimates. Therefore, (3) is not based on evidence from *exclusive* MIC or LIC

samples. Briefly, as Section 4 discusses in more detail, perhaps reflecting the empirical

literature on 'absorptive capacity' and FDI, the effectiveness of the stock market might be

contingent on other variables closely related to the initial level of national income.

Third, the final strand of empirical literature on the real effects of portfolio flows

focuses on short-term indirect dynamics. Briefly, Henry (2000a) documents temporary

increases in private investment growth rates among a sample of 11 developing countries[26]

that liberalised their stock markets during the 1977 to 1994 period. He argues that stock

---

instructive. However, Bekaert and Harvey (1998) note that the number of listed firms on local exchanges tends to appreciably increase after liberalisation, and price appreciation is not concentrated in the largest companies (p. 15).

[25] Levine and Zervos (1998a, 1998b) suggests that increase stock market liquidity should lower the cost of equity capital, which in turn would imply lower ex post returns across markets and over time. Drawing on this literature, Henry (2000a, 2000b) also suggests that there is a link that includes aggregate stock market liquidity, as in

$$Liberalization \Rightarrow \uparrow Liquidity \Rightarrow \downarrow CostofCapital \Rightarrow \uparrow PrivateInvestment.$$

There are two key difficulties with respect to this channel. First, Levine and Renelt (1999a) notably do not find that market liquidity correlates with investment. Second, given an extreme bound analysis (EBA) of anomalies in emerging markets, Durham (2000) finds that market liquidity is fragile in both panel and time-series regressions using data on 16 emerging markets from March 1988 to January 1995.

[26] These include Argentina, Brazil, Chile, Colombia, India, Korea, Malaysia, Mexico, the Philippines, Thailand, and Venezuela. He finds that in the first, second, and third years after liberalisation, 9, 10 and 8 of the 11 sample countries, respectively, had growth rates of private investment above their non-liberalisation medians. He reports that rates return to their pre-liberalisation by the fourth year after reform.

market liberalisation in general lowers the cost of capital, k,[27] and therefore increases

aggregate stock prices in emerging markets.[28] Given the decrease in k and holding expected

cash flows constant, some investment projects with negative net present values (NAVs)

before liberalisation exhibit positive NPVs afterwards, which induces increased private

investment. Therefore, the short-run benevolent mechanism from flows through the stock

market to the real economy follows:

(4)

$$Liberalization \Rightarrow \downarrow k \Rightarrow \uparrow Aggregate \Pr ices \Rightarrow \uparrow \Pr ivateInvestment .$$

Notably, increases in private investment did not merely substitute for direct investment.

Rather, Henry finds that the share of FDI to total investment in general increased (p. 19).[29]

The supposed link between price appreciation and real variables is critical, as Henry

argues that 'the ultimate validity of this theory requires the existence of an intermediate

empirical link from stock prices to investment' (p. 20). He documents a 'strong correlation'

between the growth rate of investment and valuation changes, particularly stock price

appreciation associated with liberalisation. Without tracing the effects ultimately to private

---

[27] Henry cites three arguments that liberalisation lowers k (p. 2). First, 'liberalisation can increase net inflows, which could reduce the risk free rate.' Second, foreign participation in the domestic equity market 'facilitates risk sharing across borders,' which 'should reduce the equity premium.' Third, 'increased capital inflows may also increase stock market liquidity,' which purportedly reduces the equity premium. This contention is based on evidence that lower liquidity stocks have higher returns (Ahimud and Mendelson, 1986). He clearly notes, however, the possibility that the risk-free rate might rise upon liberalisation if 'the autarky risk-free rate, which is an equilibrium outcome of aggregate savings and investment, is above or below the world rate' (ft. 2). More generally, Henry suggests that '(t)he central message…is not that the stock market liberalisation will in all cases lead to a fall in a country's cost of capital…(r)ather…stock market liberalisation may *change* the liberalising country's cost of capital, with attendant implications for physical investment' (p. 13, emphasis added).

[28] One can easily deduce the effect of decreased k on aggregate prices from the standard Gordon growth model of aggregate valuation, as in

$$P = \frac{D}{k - g} .$$

where D refers to dividends, k is the cost of capital (composed of the risk-free rate and the equity risk premium), and g is the expected growth rate of dividends. All else equal (most contentiously g in the case of liberalisation), a decrease in k produces an increase in P.

[29] The cost of equity capital is related to local market volatility (variance) in closed capital markets. In open markets, the cost of capital is related to the covariance with world market returns. Theory suggests that if the covariance is less than the (domestic) variance, then the cost of equity capital should decrease after liberalisation.

investment, using distinct data sets as well as different observation frequencies,[30] other

studies similarly report a positive impact of flows on stock prices. For example, Froot et al.

(1998) report a positive correlation lagged equity capital flows and stock market returns using

daily data from 1994 to 1998.[31] Also, given lower frequency data and with varying degrees

of qualification, Bekaert and Harvey (2000) and Henry (2000b) argue that equity market

liberalisation and/or flows lowers the cost of capital in emerging markets.[32] As Section 5

outlines in greater detail below, whether liberalisation and levels of flows are a truly robust

determinant of market performance aside (Durham, 2000a, 2000b), the elasticity of private

investment vis-à-vis price appreciation merits further econometric inquiry.

But all in all, some evidence does suggest that both FDI and FPI have positive real

effects, however conditional on other critical variables in host countries. However, no

econometric studies corroborate the sanguine view of capital account liberalisation and report

that other types of international capital flows, namely fixed portfolio flows or FBL, correlate

with increased expansion or investment. This foreshadows the alternative, more sceptical,

view of international asset trade.

3. A More Sceptical View of Capital Flows

In contrast to the more optimistic view of capital account convertibility, some

economists, particularly critics of contemporary IMF policy (Rodrick, 1998; Bhagwati, 1998;

Krugman, 1999; FitzGerald, 2000), outline key market failures that prohibit efficient

international flow of information and therefore productive capital allocation. These

---

[30] Portes and Rey (1999) find no relation between flows and returns using annual data and suggest that the dearth of their findings are due to data frequency.

[31] Given that flows predict future returns in emerging stock markets (over and above the documented persistence in flows), Froot et al. conclude that international investors has privileged information vis-à-vis domestic participants. Notably, they do not find a significant relation between lagged flows and contemporaneous returns in developed markets.

[32] In particular, Henry (2000b) finds that stock market liberalisation is a robust determinant of returns in equations that control for contemporaneous LDC, EAFE, and S&P500 index performance (p. 18). However,

deficiencies in financial markets include information asymmetries, moral hazard, investor myopia, and contagion. With respect to evidence, the following review suggests that the empirical literature emphasises financial crises more directly than sustained gradual effects on long-run economic performance. Indeed, as Rodrik suggests, '(b)oom-and-bust cycles are hardly a side show or a minor blemish in international capital flows', rather 'they are the main story' (p. 2).[33]

The remainder of this section briefly lists various international capital market failures and outlines the particular susceptibility of FDI, FPI, and FBL. The discussion notes the 'over-heating' transmission mechanism and previous evidence.

3.1. General theory

Key differences between current and capital account liberalisation perhaps usefully convey the more cautious view of international capital flows. In contrast to the supposed complementary link between trade in assets and trade in goods, Rodrik (1998), Bhagwati (1998) and others suggest that capital account liberalisation is not 'the natural follow-up' to convertibility for current-account transactions. Rather, financial markets are fundamentally different from goods markets because information asymmetries, as well as considerable volatility and uncertainty, characterise asset trade. Very generally, market failures are 'endemic' to international capital markets (Rodrik, 1998, p. 4), and therefore require intervention.

---

inclusion of macroeconomic fundamentals weakens the relation, as the dummy variables for trade and financial reform are no longer statistically distinguishable (p. 21).

[33] While beyond the purview of this paper on econometric literature, 'dependency theory' is broadly relevant to this sceptical perspective on flows (Frank, 1969). This school of international political economy suggests that international capital flows (as well as trade) lead to greater poverty in developing countries, as the 'core' of capitalist developed countries necessarily expands into peripheral areas. (One might briefly note, however, that the empirically observed 'home bias' in developed capital markets contradicts the notion of inevitable export of capitalist savings. Portfolios in developed markets are clearly underweight with respect to emerging markets [Tesar and Werner, 1995]).

Specific manifestations of such market failures – vis-à-vis the existing 'international financial architecture' and LICs – include information asymmetries and moral hazard, investor myopia, and contagion. For example, regarding asymmetric information and moral hazard, any long-term investment, debt or equity, entails a potentially problematic relationship between principal and agent, as borrowers have more information concerning and control over return prospects than their creditors. This asymmetry is perhaps more acute across national border because of increased monitoring costs. Moreover, the combination of asymmetric information and implicit (deposit) insurance is particularly deleterious. That is, international flows intensify the problem of moral hazard founding in (banking) finance.

Also, either due to inflation history (Mishkin, 1999) or the imperative of risk reduction (FitzGerald, 1999b), international capital flows exacerbate a duration mismatch between short-term liabilities and long-term assets in recipient countries. This leaves domestic financial intermediaries vulnerable to financial panic (such as bank runs). And, even though such mismatches also characterise bank balance sheets in more 'developed' markets, the absence of a true international lender of last resort compounds this problem.

Finally, detractors of unfettered capital account liberalisation note the perils of contagion – the (however qualitatively observed in some cases) relation between covariance in country asset returns and (particularly sharply) negative performance.[34] There are perhaps two noteworthy views on the origins of contagion. First, the covariance of asset returns simply increases across borders upon liberalisation by definition. That is, barriers to financial flows decrease the correlation between domestic and foreign financial assets, and therefore removal of such impediments leads to greater covariance (Bekaert, 1995). Second, some economists alternatively focus on the incentive and behaviour of international fund managers.

---

[34] More formally, Calvo and Mendoza (1999, p. 2) define contagion as 'a situation in which utility-maximising investors choose not to pay for information that would be relevant for their portfolio decision – thereby making them susceptible to country-specific rumours – or in which investors optimally choose to mimic arbitrary 'market' portfolios'.

As Calvo and Mendoza (1999) argue, globalisation may weaken incentives for collecting costly country-specific information and increase naïve (passive) indexing strategies. They suggest that the utility of paying fixed information cost varies negatively with the number of investable countries. López-Mejía (1999, pp. 22-23) also notes that the 'incentive to herd' increases when managers endeavour to outperform their (median) benchmark.[35]

This very general discussion of financial market failures does not address the nuances of different types of international capital flows – FDI, FPI, and FBL – and their distinct real effects. Indeed, conventional wisdom suggests that different types of flows are susceptible to different market failures to varying degrees. Also, specific financial institutions perhaps by definition mediate different flows. Therefore, brief discussion of flow-specific failures is instructive.

In general, the more volatile (or reversible) the flow, the less desirable the form of investment. Again, as Section 2.2.1. indicates, some studies suggest that FDI is the most stable and FBL the most volatile form of flow, with FPI somewhere in between (Lipsay, 1999; FitzGerald, 1999b). However, there are some caveats to the comparatively benevolent view of FDI, and these transcend the mixed (empirical) implications regarding conditional effects discussed previously. For example, if production based on FDI is geared for the internal domestic consumption as opposed to exports, the current account could be adversely affected, and more generally, host governments loose control of production (UNCTAD, 1999, p. 23). Furthermore, while this literature seems couched in scepticism of capital controls, there is some controversy regarding the relative stability of FDI vis-à-vis alternative capital flows. Put simply, the more fungible FDI, the more susceptible to market failures, particularly with respect to myopia. Again, some studies report the conventional perspective

---

[35] Perhaps the argument in a domestic context regarding borrowing constraints is analogous. Drawing on Zeldes (1989), perhaps capital controls limit countries that would otherwise increase consumption. Liberalisation, therefore, might lead to decreases in private savings and investment as barriers erode. Edwards (1995) finds, however, that the effect is 'marginally significant' (p. 29).

with respect to emerging (UNCTAD, 1999) as well as developed economies (Lipsey, 1999;

FitzGerald, 1999b).[36] But, Claessens et al. (1995) suggest that the time-series properties of

FDI do not reveal the suspected relation, as autocorrelation coefficients are not statistically

more persistent for 'long-term' flows.[37] In short, the difficulties in distinguishing FDI and

FPI are not necessarily straightforward (UNCTAD, 1999).[38]

Some market failures are particularly germane to FPI. For example, as FitzGerald

(1999a, 1999b) notes, in contrast to MNCs involved in direct overseas investment,

international portfolio managers exercise minimal direct control over the management of

acquired assets. In addition to potentially enhanced investor returns, another rationale for

either equity or debt FPI is diversification, which investors notably can achieve with passive

'indexing' investment strategies that involve minimal, if any, monitoring. Given these

limitations on control, international investors (funds) have an incentive to invest in shorter-

term assets to minimise perceived risk.

Finally, considerable literature focuses on FBL and the weaknesses of the banking

sector in LICs. For example, lending booms due to rapid credit expansion and asset price

increases following liberalisation may exacerbate the maturity mismatch between assets and

liabilities in domestic banks, which in turn reduces loan quality (López-Mejía, 1999, p. 29)

and increases the probability of and incentives for bank runs. With respect to households, if

capital flows produce sharp asset price increases, debts and consumption may rise via wealth

effects, as households use assets such stocks or real estate as collateral for new loans. Poorly

---

[36] The coefficient of variation for (annual) FDI is lower compared to other financial flows (UNCTAD, 1999, p. 26).

[37] They also argue that '(s)hort-term flows that are rolled over are equivalent to long-term asset, and a disruption in gross FDI inflows, for example, can cause its net flow to be equivalent to repayment of a short-term flow' (p. 155). If FDI is indeed fungible, assessing its comparative importance with respect to other flows would be challenging.

[38] The 'ten percent rule' is perhaps particularly problematic, as the arbitrary criterion does not satisfactorily distinguish investors' long- and short-term intentions. For example, purely speculative positions can assume greater than 10 percent of a given firm's market capitalisation. Conversely, a long-term position might quite conceivably comprise a smaller portion of total capitalisation.

managed and supervised banks might therefore finance consumption booms and speculative activities.

Given these market failures, associated to varying degrees with FDI, FPI, and FBL, this literature strongly emphasises resultant *crises* in LICs.[39] The general mechanism from inflows, market failures, to crises entails 'over-shooting' or 'over-heating' in LICs that undergo financial liberalisation. While the exchange rate regime[40] and monetary policy (particularly regarding sterilisation)[41] are very important conditional variables, capital inflows lead to rapid credit expansion, as foreign purchases of domestic assets increase the money supply. The relative increase in consumption vis-à-vis investment is crucial, but the general symptoms of 'over-heating' inflationary pressures, real exchange rate appreciation and attendant current account deficits, and financial sector risks (FitzGerald, 1999a; López-Mejía, 1999).

3.2. Previous evidence: Real Indicators and Financial Crises

Briefly, few studies that advance the 'boom-and-bust' perspective empirically examine the long-run real effects of capital flows. Instead, most empirical work germane to this perspective clearly focuses on crisis probability. Therefore, a more direct assessment of the purported 'boom-and-bust' cycle due to flows on the real economy would be instructive.

3.2.1. Rodrik's findings on the real economy

---

[39] Similar to 'second generation' models of currency crises, Rodrik (1998) suggests that there is no consistent or commensurable link between financial crises and fundamentals (p. 5).

[40] Under a free float, a positive shock to the capital account generates no change in international reserves and monetary aggregates, as the nominal exchange-rate appreciates and induces a current account deficit. There is no change in reserves or monetary aggregates. But under a pegged rate, intervention to defend parity leads to reserve accumulation and monetary expansion (and therefore, lower domestic interest rates and higher domestic asset prices) (López-Mejía, 1999, p. 25).

[41] Perhaps particularly in the context of recent emerging market crises, considerable literature emphasis the 'perils' of fixed exchange rates (Stockman, 1999; Obstfeld and Rogoff, 1995), and other studies examine the potential benefits of sterilisation (López-Mejía, 1999; FitzGerald, 1999b).

Rodrik (1998) produces some evidence on the real effects of a very general measure of 'financial openness.' His econometric test of macroeconomic indicators – growth, investment, and inflation – uses the IMF's measures of 'unrestricted capital accounts' as the independent variable of interest. He controls for other variables such as education rates, the initial level of national income, the 'quality of government institutions,' and regional dummies. Given the sample from 1979 to 1989 that covers nearly 100 high- and low-income countries, his results suggest that capital controls, very broadly defined, have no statistically significant impact on economic performance.

While his results are noteworthy, they do not comprehensively address the extensive hypotheses in this literature. For example, his very general measure of the existence of controls does not capture critical hypotheses regarding the distinct nature of various types of flows. More generally, a mere dichotomous measures of financial openness cannot capture critical degrees of flows across cases and over time. Also, his comprehensive sample of OECD and less developed countries precludes focused analysis on LICs, in which market failures are purportedly particularly acute. Therefore, his results do not address the findings discussed in Section 2.2.1. and Section 2.2.2. regarding the benevolent effects of liberalisation.

3.2.2. Financial Crises

Rodrik's results aside, given the emphasis in the theoretical literature, empirical studies tend to focus more on the probability of financial crises upon (premature or excessive) financial liberalisation.[42] Indeed, recent and well documented experiences in the mid- to late-1990s in East Asia, Developing Europe (particularly Russia in 1998), and Latin America (particularly Brazil in 1999) seem to indicate a cursory (yet imprecise) empirical correlation

---

[42] Fischer suggests that he underestimated the probability of financial *crisis* in East Asia (quoted in Bhagwati, 1998).

between financial integration, investor herding and contagion, financial crises, and macroeconomic volatility (López-Mejía, 1999). Crises, in turn, can have considerable real consequences, as Calomiris (1999) estimates that bailouts can cost between 20 to 50 percent of GDP in developing countries (p. 1500).

Given the theoretical emphasis on over-heating, some studies examine the statistical relation between rapid credit expansion upon financial liberalisation and banking and/or currency crises. That is, very briefly,

$$(5)$$

$$Liberalisation \Rightarrow \uparrow CreditExpansion \Rightarrow BankingCrisis \Rightarrow CurrencyCrisis .$$

For example, Kaminsky and Reinhart (1999)[43] find that among 26 banking crises from 1970 to 1995, 18 were preceded by financial liberalisation in the five years prior to the event (p. 480).[44] Banking crisis, in turn, increase the probability of currency crises.[45] In addition, many studies of currency crises find that sharp devaluations tend to occur either when domestic credit growth is high or when reserves are low as a share of broad money (Berg and Patillio, 1999; Frankel and Rose, 1996; Tornell, 1999). Therefore, some economists conclude from the apparent relations between liberalisation, rapid credit expansion, over-heating, and banking and/or currency crises that financial liberalisation should proceed gradually (Mishkin, 1999, p. 1530).

---

[43] Some commentary on the origins of equity portfolio flow volatility is instructive. Perhaps the 'boom-and-bust' scenario does not fully consider the implications of portfolio rebalancing upon and after liberalisation. That is, as Bekeart et al. (1999, p. 9) summarise, '(f)lows are of course virtually zero before the liberalisation. After the liberalisation, which may be gradual, large inflows occur as foreign investors include the emerging market into their portfolios. However, once the rebalancing is accomplished, net flows need no longer be positive…capital flows can overshoot'. They find that flows gradually increase after liberalisation but stabilise after three years. This might suggests that portfolio flows may 'dry up' simply because foreign investor achieve their desired allocation.

[44] This is of course not compelling evidence. Another relevant statistic would be the probability of banking crises, however defined, following liberalisation.

[45] According to 'first generation' crisis models, central banks bailout distressed financial institutions by printing money, and such excessive money creation is inconsistent with the effective maintenance of currency pegs (Kaminsky and Reinhart, 1999, p. 475).

4. Empirical Shortcomings

How does one reconcile the evidence on crisis probability with the more optimistic research results for various specific flows on long-run investment and growth, however qualified? If indeed 'we have to live with financial markets that are prone to herding, panics, contagion, and boom-and-bust cycles' (Rodrik, 1998, p. 10), are crises simply adolescent phases in (very) long-run growth trajectories? Put somewhat differently, given the ubiquity of financial crises, are they part and parcel of long-run expansion, or detrimental to growth?

But rather than conjecture from underdeveloped empirical literature, this section outlines very general shortcomings in previous econometric studies from both perspectives. Two problems complicate satisfactory inference. The first set of issues concerns econometric design, namely specification and 'out-of-sample' biases. In addition, this section examines the empirical importance of a potentially critical intervening variable that previous studies do not sufficiently examine – the interaction between the initial level of financial development and international capital flows.

4.1. Incommensurable polemics, Model Uncertainty, and Case Selection

Various statistical biases beset the empirical literature on the real effects of capital flows. While previous sections outline specific issues with respect to key studies, in general the existing evidence suffers from specification and sample biases. Model uncertainty in the literature refers both to competing independent variables within the context of the debate on global capital flows as well as more comprehensive general specification of growth and investment, important research questions that transcend financial and monetary economics. Also, drawing inferences from the existing literature is particularly difficult considering disparate samples. Therefore, potential spatial and temporal 'out-of-sample' biases seriously beset inference.

First, with respect to model uncertainty and polemics, the debate on capital mobility seems long on controversy but unfortunately short on commensurable empirical evidence. Indeed, some noted economists even proffer conspiracy theories, as Bhagwati (1998, pp. 11-12) describes the 'Wall Street-Treasury complex' composed of 'like-minded luminaries' at the U.S. departments of Treasury and State, the IMF, the World Bank and on Wall Street.

Bhawati's description of 'the fog of implausible assertions' (p. 11) from advocates of liberalisation is overstated. As Section 2 illustrates, the literature produces considerably more than the 'banner-waving' (p. 10) that he asserts. But nonetheless, previous evidence does not thoroughly examine the long-term effects of liberalisation. The recent ('benevolent') literature on equity flows briefly outlined in Section 2 clearly does not fully address the 'overheating' perspective described in Section 3.

On the other hand, there seems to be a general dearth of empirical tests with respect to the more sceptical view, particularly regarding the purported link to business cycle volatility. No study satisfactorily assesses the long-run macroeconomic effects, in addition to isolated crises. That is, with the possible exception of Rodrik (1998), few studies examine the direct and indirect effects of international capital flows in cross-sectional (or panel) regression studies.

While Section 5 outlines other relevant instances in greater detail, perhaps an example is illustrative. While their respective samples are clearly distinct yet not wholly disparate, Henry's findings regarding investment booms after liberalisation seem to very generally contradict the implication in Kaminsky and Reinhart (1999) that banking crises are more likely after financial liberalisation. As the following section outlines in more detail, perhaps additional empirical tests can address these seemingly contradictory accounts.

But beyond competing theories of the real effects of international capital flows, the extent of capital account liberalisation is hardly the only variable that affects economic

growth and/or investment. Indeed, as Sala-i-Martin (1997a, 1997b) notes, the literature reports over sixty 'statistically significant' variables. Also, published evidence on determinants of stock market returns, a key intervening variable in studies of equity market liberalisation and investment, is similarly incommensurable (Durham, 2000a, 2000b), as the literature on 'market anomalies' reports dozens of 'statistically significant' factors. In short, research on real and financial performance concerns myriad factors beyond cross-border financial flows, and therefore empirical tests should exhaustively control for competing explanations.

For example, the specification in Henry (1999a) of private investment is comparatively thorough, especially with respect to other reform measures,[46] but the literature seems to apply an even greater legion of variables (Edwards, 1995; Aizenman and Marion, 1996). Also, Ito's growth models – which only include forms of FDI, the exchange rate, and U.S. and Japanese contemporaneous growth rates – seem grossly under-specified, especially considering the enormous literature on growth determinants and sensitivity analysis (Levine and Renelt, 1992; Sala-i-Martin, 1997a, 1997b). Therefore, in sum, satisfactory econometric estimates of the real effects of flows should not only control for alternative perspectives in the debate but also should be commensurable with previous research on these expansive inquiries. The existing literature does not qualify on this score.

Turning to sample selection, some studies seem suspect with respect to cases across space. For example, to assess the effect of liberalisation on financial markets on the real economy, Henry (2000a, 2000b) and Bekaert and Harvey (1998, 2000) use samples that only include countries which experienced such an 'event.' But unfortunately, it seems that a simple spatial comparison of countries that do *not* liberalise would usefully inform the

---

[46] In the context of comprehensive specification, it seems important to consider a host of other reform measures (trade, exchange rate, and privatisation, particularly), as Henry suggests. Also, running growth, investment, or asset price regressions with various liberalisation measures (trade and/or privatisation) might give some indication of the importance of sequencing.

estimates. Perhaps this criticism reflects event study methodology in general, but election of cases that only include certain values on the independent variable possibly biases the estimates, especially when pooling from individual time-series event studies.[47] More technically, perhaps this criticism reflects the inherent shortcomings in the event-study methodology in this context, as spatial is as relevant as temporal variance. For example, Bekaert (1995) suggests that on average segmented equity markets are more volatile, which seemingly contradicts the finding based solely on temporal variance that liberalisation tends to (temporarily) increase volatility (Levine and Zervos, 1998b).

With respect to temporal case selection, some studies seem to conspicuously include periods that are perhaps more disposed to significant results. For example, Henry's samples (2000a, 2000b) cease in 1994, well before the Asian flu. He readily suggests that his sample is 'somewhat special,' because the universe of emerging markets that he examines began economic reforms when world interest rates were relatively low. In short, updated data, particularly data that includes increased risk premiums in emerging markets after the Asia crisis, should ameliorate some of these biases.[48]

4.2. An Omitted Variable: Initial Financial Development

In addition to statistical biases, the existing literature unsatisfactorily discusses the initial level of domestic financial development. By not controlling for such measures, the literature seems to assume that all systems exhibit the same level of financial depth and

---

[47] The precise measurement of the appropriate 'event' – official liberalisation dates, structural time-series, breaks in flow data, or the establishment of country funds – is controversial. While some studies exhaust existing precedents (Bekeart and Harvey, 2000), additional considerations might be instructive, including the raw (relative) level of flows (and perhaps non-linear forms), which might incorporate financial development and openness.

[48] Also, there is no consensus with respect to other research design issues, such as the frequency and source of the data, which differ markedly across studies. For example, the results do seem somewhat sensitive to frequency. In contrast to monthly observations in Henry (2000a, 2000b) and Bekaert and Harvey (2000), Froot et al. (1998) have daily data, while Portes and Rey (1999) use annual data. Given that annual data are more reliable (and widely available) for macroeconomic indicators, the lower frequency might be more appropriate for empirical assessments of the direct effect of flows on the real economy.

potentially allocate flows equally efficiency. To the contrary, perhaps more 'developed'

financial systems more effectively absorb capital inflows, including FPI, FBL, and, especially

is flows are in fact fungible, FDI.[49] Thus, consideration of the initial state of financial

development might help explain possibly divergent outcomes across division of national

income.[50] Broad money, bank credit, stock market capitalisation and liquidity, or

government debt issues to GDP might be critical intervening variables. As this section

argues, not only might such explicit estimation more effectively capture the true real effects

of flows, but special attention to existing domestic financial development (and institutions)

has policy relevance for LICs.[51]

Two broad financial sectors within the overall system are crucial. First, as Knight

(1998) notes, banks are the key financial intermediaries in lower income countries. The

banking sector is 'the main fulcrum' for transmitting monetary policy to interest rates,

liquidity and, ultimately, to the price level and real economy activity in LICs (p. 1189).

Moreover, given the dearth of non-bank sources of credit for investing firms in emerging

markets, banks may be the sole source of information regarding the viability of investment

projects outside the firm and therefore comprise the key conduit from overseas savings to

(productive) domestic investment (p. 1189-90). Also, the empirical emphasis in previous

studies on the 'twin crises' regarding currencies and banking institutions would seem to only

underscore the potential importance of 'institutions' or financial intermediaries in LICs that

---

[49] In addition to starting from the same level of openness, the degree of initial liberalisation seems conspicuously absent from these studies. Inclusion of capital control variables in some specifications, for example, might be useful. Indeed, despite use of crude measures, Rodrik (1998) briefly examines the interactive relation between the dichotomous measure of controls and a very broad measure of 'institutional quality' across cases and finds no significant results.

[50] Knight thoroughly notes a variety of financial instruments and intermediaries that are largely absent in lower income countries. Such instruments include government securities markets, spot and foreign exchange markets, and markets for corporate securities, equities, mortgages, insurance, and derivative instruments. Intermediaries and institutions include securities dealers, mortgage and leasing companies, insurance companies (p. 1188).

[51] Such an inquiry is germane to part of contemporary conventional wisdom or 'today's answer' regarding financial crises (Rodrick, 1998, p. 6) – 'strengthening the financial system'.

process flows.[52] Specific proxies might be total bank credit to GDP or measures of the

concentration of the banking sector, which would reflect Knight's (1998) emphasis on the

extent of competition among domestic banks.[53] In short, larger, more competitive banking

sectors would conceivably mediate FBL more efficiently than comparatively 'fragile'

systems.

A second financial intermediary of particular interest is the stock market. As Knight

(1998, p. 1194-95) and Levine and Zervos (1998b) note, the initial level of stock market

development in lower income countries differs dramatically. For example, as Bekaert (1995)

notes, Zimbabwe's stock market capitalisation was approximately 150 times smaller than

Mexico's in the mid-1990s (p. 100). Also, Bekaert and Harvey (2000, p. 17) note in general

that, despite little difference between the first quartile of stock market capitalisation and the

median, there is a 'sharp jump' from the median to the third quartile.[54] These considerable

discrepancies seem relevant to previous studies. For example, considering Henry's

hypothesis with respect to liberalisation, stock market prices, and investment, one might

expect Mexico to experience the benevolent transmission mechanism much more readily than

Zimbabwe, largely because equity issuance is a more viable form of corporate finance the

deeper and more liquid the domestic bourse. The ultimate requisite for the link between

Tobin's q, for example, and increased investment is that corporate mangers can issue

additional shares, which is considerably more likely in larger markets with greater turnover.

Therefore, the capacity of domestic equity markets to effectively absorb foreign inflows to

boost private investment would seem to vary positive with market development.[55]

---

[52] In particular, this section might address the 'bank versus (stock) market systems' approach. Perhaps different financial intermediaries produce varying results.
[53] According to Knight (1998, pp. 1190) the consequences of imperfect competition in the banking sector include lower levels of bank credit given the wider spread between lending and deposit rates.
[54] See also Levine and Zervos (1998b, p. 1173) and Knight (1998, pp. 1194-95) regarding the considerable spatial differences in stock market development.
[55] Another aspect of the initial development or, more broadly, 'institutional' view would focus on expectation formation and the speed of adjustment. For example, perhaps the stickiness of prices and wages vary across

Other interactive relations between key variables in previous studies are analogous. For example, the conditional intervening variables with respect to growth-enhancing FDI – the initial level of income and education as well as the trade regime – imply a similar interactive relation. That is, just as these variables purport to capture the 'absorptive capacity' of host countries with respect to FDI, the initial level of financial development similarly captures more specific conditions under which inflows might have benevolent real effects. Also, with respect to more general empirical studies of economic growth in LICs, the 'convergence' hypothesis is perhaps similarly germane. While some empirical growth literature suggests that lower income countries grow faster, ceteris paribus (Blomström, 1992), other studies note that empirical estimation of 'conditional convergence' requires explicit interactive consideration of human capital development (Nelson and Wright, 1992).

This discussion implies two general econometric addenda to the existing empirical literature. Models should, first, control for the initial level of development (banking system; stock market size, liquidity, and concentration) and, second, include interaction terms with such variables. The specification of the control variables and the 'financial development threshold' might therefore resemble

$$(6)$$

$$Y = \beta_0 + \beta_1 FLOW + \beta_2 FLOW \times FD + \beta_3 FD + \beta_4 X + \varepsilon$$

where Y is some macroeconomic indicators, $FLOW$ is some measure of FDI, FPI, or FBL, FD refers to some proxy for the level of international development, and $\mathbf{X}$ is a set of appropriate control variables. If β_1 is negative and β_2 is positive, the appropriate 'institutional' threshold would be the value of FD that makes the sum of the second and third terms positive.[56] Of

---

cases, and therefore the degree of overshooting differs. Quantitative measures of labour market organisation might be informative in this context.

[56] This empirical exercise with respect to the initial level of banking and stock market development would not directly capture regulatory controls that address moral hazard and excess risk-taking in financial markets. In point of fact, Rodrik (1998) notes the considerable difficulty with such measures, even with respect to comparatively developed markets. He writes that 'The U.S. Controller of the Currency recently complained that

course, if β_1 and β_2 are both positive (negative), then FLOW has an unambiguously positive (negative) real effect.

The specification in (6) might more satisfactorily capture real effects econometrically. But in addition, explicit assessment of the effect of initial development levels produces some comparative leverage with respect LICs, particularly in cases of nascent financial markets. That is, precise approximation of a threshold would have clear implications for 'pre-emerging markets.' If the case of a negative β_1 and a positive β_2, the obvious inference is that unfettered flows are deleterious in LICs, and with respect to policy, such a result would suggest 'sequencing' from domestic capital market development to (eventual) liberalisation.[57]

5. Econometric Inquiries

Given these general shortcomings in the literature, this section outlines three more specific sets of econometric tests. The first set addresses the direct effect of capital flows on real indicators, including growth, savings, and investment. The second set focuses mainly on the 'boom-and-bust' perspective and examines both the direct effect of macroeconomic volatility on macroeconomic indicators in LICs and the indirect real effects of flows through volatility. The third set of econometric issues address the purported benevolent transmission mechanisms from portfolio flows through equity markets. The econometric design with respect to each of these questions should incorporate the issues outlined in Section 4. That is, each test should entail extensive sensitivity analyses and evaluate the possibility of initial financial thresholds or conditions under which LICs can efficiently mediate flows.

---

only four of the 64 largest North American banks practice state-of-the-art portfolio risk management and that loan standards are therefore more lax…Imagine the problems that will keep bank regulators awake at night in India or Turkey!' (p. 7).

[57] Given some emphasis on the 'credibility' of reform (Henry, 2000a, 2000b; López-Mejía, 1999, p. 31), some consideration of central bank autonomy might be instructive. In fact, Pastor and Maxfield (1999) find a positive

5.1. *Do flows/liberalisation directly affect the real economy?*

Detailed transmission mechanisms aside, direct tests of flow data – FDI, FPI, and FBL – on macroeconomic performance might instructively address Fischer (1999), Bhagwati (1998), Rodrik (1998), and others in the most sweeping fashion. In comparison with related other areas of reform and liberalisation, such as trade, financial variables are notably absent from standard growth studies and, notably, broad sensitivity analyses of growth regressions (Levine and Renelt, 1992; Sala-i-Martin, 1997a, 1997b).

With respect to FDI, as Section 2.2.1. outlines, the empirical literature is fairly well advanced. However, indicative of the general specification bias in the literature, there is clearly a lack of consensus regarding specification of the contingent factors that capture 'absorptive capacity.' That is, Borensztein et al. (1998) and Balasubramanyam et al. (1996) report that human capital development and the trade regime, respectively, are critical intervening or interactive variables with respect to FDI. But, neither study controls for the alternative explanation. Also, several studies of the real effects of FDI indeed cite sensitivity analyses of growth regressions, but none actually performs a complete extreme bound analysis (EBA), as some simply opt of 'parsimonious' models (Dutt, 1997). Moreover, EBA studies do not list FDI measures among extensive lists of possible growth determinants (Levine and Renelt, 1992; Sala-i-Martin, 1997a, 1997b). Therefore, a more rigorous sensitivity analysis with respect to both (competing) contingent variables that enhance growth and other more general factors would be instructive.

Turning to FPI, at least given equity flow data from the U.S. Treasury, Bekaert and Harvey (1998) examine the direct impact on macroeconomic growth, in addition to inflation, budget deficits, exchange rate volatility, and country risk. Again, they find some evidence of

---

correlation between central bank autonomy and private investment, controlling for other factors given data on 20 developing countries from 1973 to 1986.

benevolent effects and no indication of detrimental effects of liberalisation on output growth.[58]

However, they explicitly exclude consideration of fixed income flows. Bekaert and Harvey generally suggest that equity and bond flows are correlated, and therefore conjecture that debt flows similarly have a benevolent effect on the economy. Given their sample of 17 emerging markets from 1977 to 1996, the simple correlation statistic of equity and bond flows in six countries (Argentina, Brazil, Indonesia, Korea, Mexico, and Pakistan) is greater than .90. They surmise that 'in general, the evidence points to the bond and equity markets being complementary sources of foreign funding rather than substitutes' (p. 10-11).[59] They suggest that perhaps both assets increase simultaneously upon liberalisation simply because investors adjust their portfolios to reflect available investable securities.

But, the average correlation statistic of the entire sample is 0.51, and notably they find a negative correlation between equity and bond flows in Chile, Portugal, and Taiwan, which would suggest that the equity and bond markets might be substitutes in these cases. Therefore, a more directly analysis of bond flows on macroeconomic indicators would usefully address Rogoff's (1999) prescription regarding the comparative efficiency of equity vis-à-vis debt portfolio investment.[60]

In sum, growth, investment, and savings equations that include FDI and FPI measures would be instructive. Finally, consideration of FBL, which the conventional view suggests is the most volatile, would produce a more comprehensive empirical assessment of flows. Again, the empirical issue of whether different types of flows are fungible might plague such an analysis, but neither existing research on financial liberalisation or the broader literature

---

[58] Also, with respect to dependent variables of interest, Bekaert and Harvey (1998) do not test for various effects on government versus private savings (or investment).
[59] Bekaert et al. (1999) find that 'positive shocks to stock (bond) flows are followed by positive responses in bond (stock) flows,' which is 'potentially consistent with gradual portfolio rebalancing towards emerging markets' (p. 15).

on economic growth include satisfactorily comprehensive specifications, which should notably include expressions such as (6) that address conditional factors.

5.2. Do flows/liberalisation indirectly affect the real economy via output volatility?

The second set of tests more directly assesses the dearth of empirical studies on the 'boom-and-bust' perspective with respect to long-run growth. Presumably, the 'over-heating' view suggests that capital inflow shocks or liberalisation precipitate increased business cycle volatility, from 'boom' to 'bust', which, say, standard deviations of annual GDP per capita growth rates capture.

The mechanism generally follows

$$(7)$$

$$Flows \Rightarrow \uparrow Macroeconomic Volatility \Rightarrow \left(\downarrow Savings \Rightarrow \right) \downarrow Long Run Growth .$$

Note the two key assumptions. First, flows lead to more macroeconomic volatility. Second, flows increase macroeconomic volatility, which in turn adversely affects long-run macroeconomic growth. Also notice that this mechanism does not necessarily entail a full-blown banking or currency crisis. In other words, the malevolent effects of liberalisation might be more subtlety sustained over longer periods.

Therefore, as (7) indicates, the two relevant empirical questions are, first, does output volatility adversely affect mean output, and, second, does liberalisation affect output volatility?

5.2.1. The effect of the volatility of growth on its mean

---

[60] In general, this section on direct effects addresses the conditions for a 'benevolent debt cycle' as outlined in FitzGerald (1999b), including the effects of flows on the ratio of investment to consumption, factor productivity growth, the tradables to non-tradables ratio, and marginal savings rates.

Economists have paid comparatively little attention to this first question, largely because of the distinction between long-run economic growth and the business cycle studies. However, a few studies empirically address whether the volatility of growth correlates with the mean of growth across countries and over time.

To complicate (7) considerably, there is substantial debate and conflicting evidence as to whether the second affects the first moment of output growth. In contrast to (7), various arguments suggest a *positive* relation between volatility and mean growth. For example, with respect to allocation, Black (1987) suggests that economies face a general trade-off between risk and reward with respect to productive technologies. Therefore, high (low) variance projects in general produce high (low) returns. Also, considering accumulation, Mirman (1971) and Sandmo (1970) argue that there is a precautionary motive for savings when households and firms face higher output volatility, which ultimately leads to increased growth. More germane to our purposes, Edwards (1995, p. 13) also argues that this precautionary motive for savings is higher in less diversified developing economies, particularly those that heavily depend on agriculture. Notably, this second channel indicates a (testable) indirect effect on expansion through savings (and investment).

With respect to evidence, Kormendi and Mequire (1985) find a positive relation between the standard deviation and the mean of growth using a sample of 47 countries in pure cross-sectional regressions that cover 1950 to 1977. Also, given a larger sample (113 countries) from 1951 to 1980 that includes additional lower income countries, Grier and Tullock (1989) similarly find a positive relation between output volatility and growth using (five-year) pooled regressions. Notably, they divide the sample according to the initial level of development as well as specific regions. They find that the standard deviation of growth positively correlates with growth in Africa given data form 1961 to 1980, but the coefficients

are statistically insignificant (as well as negative) for lower income countries in the Americas and Asia (p. 270).

Alternatively and consistent with (7), more recent studies report a negative impact on growth and private investment. For example, using two samples – 92 cases from 1960 to 1985 and OECD countries from 1950 to 1988 – Ramey and Ramey (1995) find that countries with higher volatility have lower growth with no effect on investment. Notably, in some specifications they find that volatility has greater economic significance than investment.[61]

Also, with respect to accumulation, Aizenman and Marion (1996) find that volatility has a negative impact on private investment. Given a sample of 46 developing countries from 1970 to 1992, they suggest that the volatility of government consumption, nominal money growth, and the real exchange rate negatively co-vary with private investment. They note that Ramey and Ramey do not distinguish between private and public investment, and they attribute the dearth of findings for investment in previous studies to the use of aggregate figures.[62]

Given this conflicting empirical evidence, (7) is a rather contentious mechanism, and therefore re-examination of this question would be instructive, both with respect to shortcomings in these studies in particular as well as the context of LICs in general. With respect to previous evidence that suggests a positive correlation, the data are rather dated, as the analysis in Grier and Tullock (1989) ends in 1980, well before the 1982 debt crises and more recent events. Also, considering studies that corroborate a negative correlation, there are some possible methodological shortcomings in Ramey and Ramey (1995) as Aizenman and Marion (1996) with respect to specification. Ramey and Ramey seem to suggest that a

---

[61] Ramey and Ramey (1995) attribute the discrepancy with Kormendi and Mequire (1985) to the latter's inclusion of the standard deviation of monetary shocks, which correlates negatively with growth. They suggest that this variable 'may be correlated with the standard deviation of the innovations to output growth. Thus, in their regressions, the positive effect of the standard deviation of output may be capturing the effect of predictable movements in growth, which depend in large part on the persistence of output growth' (p. 1145).

fixed-effects model (with time dummies) is more rigorous tests than EBA (p. 1146). Perhaps

their assessment is more germane to a pure cross-sectional design, but there would seem to be

variables that are neither exclusively country- nor time-specific that supposedly affect

growth. Furthermore, Aizenmann and Marion only control for the 'base' regressors in

Levine and Renelt (1992), and notably do not produce any sensitivity analyses of other

variables. Therefore such variables might vitiate the robust findings regarding

macroeconomic volatility in panel models.

More generally with respect to extensive sensitivity analyses, (Levine and Renelt,

1992; Sala-i-Martin, 1997a, 1997b) previous studies do not examine the standard deviation of

growth among the doubtful set of variables. Therefore, an EBA, which includes volatility as

a doubtful variable, of growth and investment regressions might be instructive.

Whatever the results in universal samples, for our purposes, these studies

unfortunately do not isolate MICs or LICs, which seems crucial with respect to growth

econometrics and macroeconomic volatility in three ways. First, the overall fit for

regressions is much greater for high income than for lower income samples (Grier and

Tullock, 1989; Durham, 1999b). Importantly, Blomström et al. (1992) find the significance

of various factors is highly sensitive to income breaks, which might suggest a different

growth process in poorer areas. Such empirical differences, in turn, would imply

substantially different policy prescriptions for various developmental 'stages'.[63]

Second, the problem of output volatility is considerably more acute in less diversified

economies, which correlates highly with initial income. In point of fact, Caprio and Honohan

(1999) note considerable greater output volatility in non-OECD countries from 1970 to 1997,

as Sub-Saharan Africa and the Middle East and North Africa exhibit more than twice the

---

[62] Edwards (1995) also empirically documents distinct determinants of private and public savings in a sample of 36 (25 'developing') countries from 1970 to 1992.
[63] For example, Durham (1999b, pp. 92-93) argues that some variables might have opposite effects depending on the initial level of development.

volatility of GDP growth compared to industrialised countries (p. 45).[64] Given wider

variance on the independent variables, it seems a sub-sample of LICs might help identify

non-linearities in the relation between the volatility and mean of growth.

Finally, this analysis should help explain 'conditional convergence' in greater detail.

For example, Bromström et al. (1992) and other studies find that there is no statistically

significant univariate relation between the initial level of development and growth rates.

Rather, the relation is only significant in multivariate augmented specifications. In short,

direct consideration of volatility might explain the ambiguous univariate finding, because

while lower income has a positive effect on growth, volatility, which might be closely related

to under-diversification, might have a countervailing negative effect on growth that vitiates

any 'gross convergence.'

5.2.2. *Do Capital Flows affect the volatility of growth?*

Regarding the second question, if indeed there is a robust link between the mean and

volatility of output growth, no study empirically assess the effect of capital flows or

liberalisation 'events' on this intervening variable. For that matter, unfortunately, despite

studies such as Ramey and Ramey (1995) and Aizenman and Marion (1996), direct models of

volatility are few.

While capital inflows might affect volatility according to the boom-and-bust

perspective, perhaps especially in countries with shallow financial markets,[65] any

specification should include a number of 'internal' and 'external' variables. With respect to

the former, the initial level of development should be included on the right hand side because,

again, less developed economies tend to exhibit less diversification (which should correspond

---

[64] With particular respect to banking sector fragility, Caprio and Honohan (1999) note that in an 'undiversified economy' potential purchasers of 'distressed' firms are themselves distressed, which inhibits the effective function of collateral.

with a more volatile business cycle). Political instability (wars, coups, assassinations) might also be instructive, along with government budget deficits (Alesina et al., 1996). Also, domestic institutional variables such as central bank autonomy or country risk might also be relevant. Operative 'external' factors that might contribute to volatility in LICs include world interest rates and contemporaneous OECD growth rates. Also, in particular, controls for commodity export prices, as an exogenous shock, could adversely affect macroeconomic uncertainty.

5.3. Equity portfolio flows, stock market performance, and the real economy

The final set of recommended empirical tests focuses on evidence that very generally supports the more benevolent perspective on international capital flows, particularly regarding the equity market mechanisms outlined in Section 2.2.2. Again, Henry (2000b)[66] argues that liberalisation leads to decreases in the cost of equity capital in emerging markets.[67] Therefore, following the simple Gordon growth model valuation, one observes a 'one time' asset price increase due to the decrease in the cost of capital, which produce positive NPV estimates and therefore greater investment, ceteris paribus.

The following discussion recommends re-examination of the empirical link between stock market performance and private investment rates and the relation between liberalisation and equity market returns. The initial level of financial development is of particular interest in this general context. Again, previous studies that produce robust econometric relations between stock market development and growth are based on samples that include developed

---

[65] The relation between flows and macroeconomic volatility might possibly be endogenous, as flows might cease entry given wide macroeconomic fluctuations.

[66] Henry does model the direct effect of liberalisation on investment, which generally falls under the rubric of Section 5.1., but he clearly emphasises the channel through stock prices.

[67] Even if the real effect is only purportedly temporary, as Henry maintains, the volatility in expansion might ultimately lead to a lower mean of growth, at least according to Ramey and Ramey (1995) and Aizenman and Marion (1996).

markets. This potential sample bias precludes examination of the possibility of absorptive thresholds that are closely related to the initial level of national income.

In addition to the general lack of consideration of the initial level of stock market development prior to liberalisation and limited sample selection,[68] there are three shortcomings with respect to empirical estimations of equity market channels. First, previous empirical studies that report links between stock prices and private investment in 'emerging markets' do not control for key variables. Moreover, the precise determination of direct and indirect effects of liberalisation on private investment through stock prices is unclear. Second, existing studies do not satisfactorily test the 'boom-and-bust' hypotheses, as there is a dearth of independent variables that examine the longer-run effects of liberalisation on possible asset price bubbles. Third, as Durham (2000a, 2000b) argues, the rigor of asset pricing studies is less advanced compared to sensitivity analyses of growth regressions. The specification of stock market returns is sensible but nonetheless incomplete. Particularly problematic, studies do not control for absolute risk or volatility, an alternative explanation that addresses the purported decrease in the equity cost of capital.

5.3.1. What is the direct effect of stock prices on investment in emerging markets?

The effect of (increased) stock market prices on investment is a key link in Henry's argument.[69] Therefore, similar to Section 5.1., investment regressions are again instructive. Simply, among the myriad purported determinants of private investment, is stock market performance robust? As Henry notes, while some literature addresses this equation with respect to higher-income countries, there is a dearth of studies on LICs. His (under-specified)

---

[68] The time under consideration should extend beyond the Asian flu after 1994, when Henry's sample coverage ceases. Also, the sample should also be extended spatially to consider countries do *not* liberalise, as cross-sectional comparison might be instructive.

[69] What seems somewhat curious in this literature is the consistent finding that stock market development and growth exhibit a significant positive correlation, but the relation between equity market development and investment is statistically ambiguous (Levine and Renelt, 1998).

regressions indicate that lagged one-year stock returns are significant determinants of annual private investment growth rates.

That said, this issue again seems to highlight the importance of direct controls for the initial level of financial or, in this case, stock market development in LICs. Equity finance would seem to be a more viable source of business finance in more developed markets. Therefore, the interaction between stock market performance and development should be significant and positive in private investment equations, and the data might suggest a 'threshold' under which stock market development is less beneficial.

5.3.2. *What is the direct effect of liberalisation on stock prices?*

Assuming a robust link between emerging stock market performance and private investment rates, does liberalisation lead to sustainable increases in equity prices? Two issues are critical. First, in addition to the more benevolent literature, the 'over-heating' perspective also posits asset price increases upon monetary expansion. However, this literature also considers 'overshooting', as financial bubbles eventually burst. Therefore, to augment Henry's empirical analysis, is there some measurable cyclical symmetry to the increase in equity prices? Put differently, how sustainable is the purported decrease in the cost of capital?[70]

Therefore, a useful econometric exercise might be to include another 'event' or to enlarge the 'event window' to test for (much longer) lagged effects of liberalisation and flows on possible asset price *collapses*. Such a specification would address the 'one-time' increase versus the over-heated bubble perspective. The model might resemble

---

[70] There is some econometric indication of this phenomenon. Bekaert and Harvey (2000) find some evidence, however sensitive to specification, that returns are lower in later periods following liberalisation. For example, they report that '(w)hereas we find a consistent decrease in dividend yields, excess returns may increase or decrease from the pre- to post-liberalisation period depending on specification. In the longer-term, average returns appear to be lower' (p. 25). There are perhaps two conflicting interpretations, which Bekaert and Harvey do not explicitly explore. On the one hand, one could conclude that lower returns correspond with a

(8)

$$R_{it} = \beta_0 + \beta_1 LIB_{t_k} + \beta_2 LIB_{t_j} + \beta_3 X + e$$

where R_{it} is total aggregate real market return for country i at time t, *LIB* is the event dummy

for liberalisation, k refers to the event window before and including the implementation

month, j represents various intervals after liberalisation that might capture 'over-heating,' and

X is the set of control variables. If β_1 is positive and significant, consistent with Henry

(2000a, 2000b), but β_2 is negative and significant, this would suggests that stock market

prices increase shortly after liberalisation but notably decrease after a longer periods.

Depending of course on the relative values of β_1 and β_2, this result would seem to corroborate

the overheating perspective rather than purely the benevolent Tobin's q transmission

mechanism from stock prices to private investment and the real economy. Testing for

various values for j might be instructive because in developing economies prices and wages

might be particularly sluggish. More generally, such an inquiry would address Bhagwati's

(1998) suggestion that advocates of capital mobility fail 'to evaluate its crisis-prone

downside.'

Second, an unexplored theoretical issue, again concerning possible specification bias,

includes the simultaneously documented increase in stock prices (Henry, 2000b; Bekaert and

Harvey, 2000) *and* augmentation in stock market volatility (Levine and Zervos, 1998b) after

liberalisation. That is, the previous section outlines several studies that report a positive

relation between flows and returns, but Levine and Zervos (1998b) also note that

liberalisation tends to increase stock market volatility (but the increase does not lead to lower

growth rates, p. 1182).[71] Therefore, does the 'one-time' increase in asset prices reflect the

---

lower equity premium and cost of capital. On the other, one might conjecture that in some cases, equity market
liberalisation leads to price bubbles and market collapses.
[71] As Section 4.1. notes, the distinction between temporal and spatial variance with respect to this finding is
noteworthy. While Levine and Zervos (1998b) find increases in volatility in individual time-series after
liberalisation, they also note that with respect to the cross-section of stock markets that less integrated markets

decrease in the cost of capital, or does the market simply compensate investors for the increased (absolute) risk? If the relation between risk and reward is robust, then there possibly is a tension in emerging markets between Tobin's q theory and the notion that equity market volatility inhibits private investment. Empirical tests that explicitly control for absolute risk should shed light on this issue. Therefore, a more complete econometric specification of the effect of liberalisation on returns should explicitly include an absolute risk proxy (Durham, 2000a, 2000b) in **X** with respect to (8).[72]

6. Conclusions

The preceding literature review examines the existing empirical evidence regarding the real effects of cross-border financial flows, particularly FDI and FPI. Briefly, as Fischer (1999) suggests, the evidence for non-OECD countries is somewhat mixed. For example, the 'conditional' findings with respect to FDI – particularly with respect to human capital and in the initial level of development – are not encouraging for LICs. With significant 'thresholds,' existing evidence suggests that the poorest countries do not exhibit the requisite 'absorption capacity' for direct investment, purportedly the most benevolent form of flow. Also, with respect to FPI, even if the purported benevolent links through equity market prices are empirically robust, such institutions are notably less developed in poorer areas, as banks remain the primary source for development finance.

---

are more volatile (p. 1173). Furthermore, Bekaert (1995, p. 95) finds that market integration and volatility co-vary negatively, and Tesar and Werner (1995, p. 126) also report that the volume of equity flows from the United States also correlates negatively with volatility as well as market turnover. One might conjecture, then, that liberalisation might increase (decrease) volatility in the short- (long-) run. Nevertheless, with respect to this suggested econometric inquiry, the purpose is to evaluate the short-term effects of liberalisation on the cost of capital, with particular respect to Henry (2000a, 2000b).

[72] Another important issue, as Henry (2000a) readily suggests, is possible simultaneity bias, which the use of lower frequency data complicates. Given daily price and flow information, Froot et al. (1998) find evidence that, at least with respect to emerging markets, lagged flows help predict returns (pp. 3, 14). While they fail to control for broader index performance, this broadly corroborates Henry's contention that inflows lead to price appreciation (rather than vice versa).

But as this paper argues, there are notable shortcomings in the literature that suggest additional research. While incommensurable research and other statistical issues are critical, consideration of the initial level of development with respect to banking systems and stock markets might not only yield more precise empirical estimates but also have clear policy implications. For example, calculation of domestic financial 'thresholds' would suggests broad sequencing from local market development to international integration. Unfortunately, direct empirical estimates regarding this issue elude the existing literature.

Three general econometric tests would be instructive. First, the evidence with respect to direct effects on growth and investment is hardly conclusive. Instructive studies would consider more complete specification of the dependent variable with respect to financial as well as non-financial variables. Second, the 'boom-and-bust' perspective does not consider possible empirical mechanisms from macroeconomic volatility, which in turn receives little attention in studies of growth in LICs. Third, more detailed consideration of FPI via the stock market, with respect to both long-run growth and more temporary 'investment booms,' would be instructive.

References

Aizenman J. and N. P. Marion (1996), "Volatility and the Investment Response," NBER Working Paper Series No. 5841.

Alesina, A., S. Özler, N. Roubini, P. Swagel (1996), "Political Instability and Economic Growth," *Journal of Economic Growth*, Vol. 1 No. 1 (June), pp. 189-211.

Amihud, Y. and H. Mendelson (1986), "Asset Pricing and the Bid-Ask Spread," *Journal of Financial Economics*, Vol. 17, pp. 223-249.

Balasubramanyam,V.N., M. Salisu, D., Sapsford (1996), "Foreign Direct Investment and Growth in EP and IS Countries," *Economic Journal*, Vol. 106 (January), pp. 92-105.

Bekaert, G. (1995), "Market Integration and Investment Barriers in Emerging Equity Markets," *World Bank Economic Review*, Vol. 9 No. 1, pp. 75-107.

Bekaert G. and C. Harvey (1998), "Capital Flows and the Behaviour of Emerging Market Equity Returns," NBER Working Paper Series No. 6669.

Bekaert G. and C. Harvey (2000), "Foreign Speculators and Emerging Equity Markets," *Journal of Finance* (April).

Bekaert, G., C. Harvey, and R. L. Lumsdaine (1999), "Structural Breaks in Emerging Market Capital Flows," NBER Working Paper No. 7219.

Berg, A. and C. Pattillio (1998), "Are Currency Crises Predictable? A Test," IMF Working Paper.

Bhagwati, J. (1998), "The Capital Myth: The Difference between Trade in Widgets and Dollars," *Foreign Affairs*, Vol. 77 No. 3 (May/June), pp. 7-12.

Black. F. (1987), *Business Cycles and Equilibrium* (Blackwell: Cambridge, MA).

Blomström, M., R. E. Lipsey, and M. Zejan (1992), "What Explains Developing Country Growth," NBER Working Paper Series No. 4132.

Borensztein, E., J. De-Gregorio, Lee, J. W., (1998), "How Does Foreign Direct Investment Affect Economic Growth?," *Journal-of-International-Economics*, Vol. 45 No. 1 (June), pp. 115-35.

Calomiris, C. W. (1999), "Building an Incentive-Compatible Safety Net," *Journal of Banking and Finance*, Vol. 23 No. 10 (October), pp. 1499-1519.

Calvo, G. A. and E. G. Mendoza (1999), "Rational Contagion and the Globalisation of Securities Markets," NBER Working Paper No. 7153.

Caprio, G. and P. Honohan (1999), "Restoring Banking Stability: Beyond Supervised Capital Requirements," *Journal of Economic Perspectives*, Vol. 13 No. 4 (Fall), pp. 43-64.

Claessens, S., M. P. Dooley, and A. Warner (1995), "Portfolio Capital Flows: Hot or Cold?" *The World Bank Economic Review*, Vol. 9 No. 1 (January), pp. 153-174.

de Mello, L. R. (1999), "Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data," *Oxford Economic Papers*, Vol. 51 No. 1, (January), pp. 133-51.

Durham, J. B. (1999b), "Economic Growth and Political Regimes," *Journal of Economic Growth*, Vol. 4 No. 1, pp. 81-111.

Durham, J. B. (2000a), "Extreme Bound Analysis of Emerging Stock Market Anomalies: Nothing is Robust," *Journal of Portfolio Management*, Vol. 26 No. 2 (Winter), pp. 95-103.

Durham, J.B. (2000b), "Sensitivity Analyses of Anomalies in Developed Stock Markets," *Journal of Banking and Finance*, forthcoming.

Dutt, A. K. (1997), "The Pattern of Direct Foreign Investment and Economic Growth," *World Development*, Vol. 25 No. 11 (November), pp. 1925-36.

Edwards, S. (1995), "Why Are Savings Rates So Different Across Countries? An International Comparative Analysis," NBER Working Paper Series No. 5097.

Fischer. S. (1999), "On the Need for an International Lender of Last Resort," *Journal of Economic Perspectives*, Vol. 13 No. 4 (Fall), pp. 85-104.

FitzGerald, E.V.K (1999a), "Policy Issues in Market Based and Non Market Based Measures to Control the Volatility of Portfolio Investment," Queen Elizabeth House Working Paper No. 26, University of Oxford.

FitzGerald, E.V.K (1999b), "Short-Term Capital Flows, The Real Economy and Income Distribution in Developing Countries," Queen Elizabeth House Working Paper No. 8, University of Oxford.

FitzGerald, E.V.K (2000), "International Capital Market Failure and the Least Developed Countries" (April).

Frank, A. G. (1969), "The Development of Underdevelopment," *Latin America: Underdevelopment or Revolution*, Monthly Review Press (New York and London).

Frankel, J. A. and A. K. Rose (1996), "Currency Crashes in Emerging Markets: Empirical Indicators," NBER Working Paper No. 5437.

Froot K. A., P. G. J. O'Connell, and M. Seasholes (1998), "The Portfolio Flows of International Investors, I," NBER Working Paper Series No. 6687.

Grier, K. and G. Tullock (1989), "An Empirical Analysis of Cross-National Economic Growth, 1951-1980," *Journal of Monetary Economics*, Vol. 24 No. 2 (September), pp. 259-76.

Henry, P. H. (2000a), "Do Stock Market Liberalisations Cause Investment Booms?" *Journal of Financial Economics*.

Henry, P. H. (2000b), "Stock Market Liberalisation, Economic Reform, and Emerging Market Equity Prices," *Journal of Finance*, (April).

Ito, T. "Capital Flows in Asia" (1999), NBER Working Paper Series.

Kaminsky, G. and C. Reinhart (1999), "The Twin Crises: The Causes of Banking and Balance-of-Payments Problems," *American Economic Review*, Vol. 89 No. 3 (June), pp. 473-500.

Knack, S. and P. Keefer (1995) "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics and Politics*, Vol. 7, pp. 207-27.

Knight, M. (1998), "Developing Countries and the Globalisation of Financial Markets," *World Development*, Vol. 26 No. 7, pp. 1185-1200.

Kormendi, R. and P. Meguire (1985), "Macroeconomic Determinants of Growth: Cross-Country Evidence," *Journal of Monetary Economics*, Vol. 16 No. 2 (September), pp. 141-63.

Krugman, P. (1999), *The Return of Depression Economics*, W. W. Norton (New York).

Levine, R., and D. Renelt (1992) "A Sensitivity Analysis Of Cross-Country Growth Regressions," *American Economic Review*, Vol. 82, pp. 942-63.

Levine. R. and S. Zervos (1998a), "Stock Markets, Banks, and Economic Growth," *American Economic Review*, Vol. 88 No. 3 (June), pp. 537-558.

Levine. R. and S. Zervos (1998b), "Global Capital Liberalisation and Stock Market Development," *World Development*, Vol. 26 No. 7, pp. 1169-1183.

Lipsey, R. E. (1999), "The Role of Foreign Direct Investment in International Capital Flows," NBER Working Paper No. 7094.

López-Mejía, A (1999), Large Capital Flows: A Survey of Causes, Consequences, and Policy Responses," IMF Working Paper.

Mirman, L. (1971), "Uncertainty and Optimal Consumption Decisions," *Econometrica*, Vol. 39, No. 1 (January), pp. 179-85.

Mishkin, F. S. (1999), "Lessons from the Tequila Crisis," *Journal of Banking and Finance*, Vol. 23 No. 10 (October), pp. 1521-1533.

Nelson, R. R. and G. Wright (1992), "The Rise and Fall of American Technological Leadership: The Postwar Era in Historical Perspective," *Journal of Economic Literature*, Vol. 60 (December), pp. 1931-64.

Obstfeld, M. (1994), "Risk-Taking, Global Diversification, and Growth," *American Economic Review*, Vol. 84 No. 5 (December), pp. 1310-1329.

Obstfeld, M. and K. Rogoff (1995), "The Mirage of Fixed Exchange Rates," *Journal of Economic Perspectives*, Vol. 9 No. 4 (Fall), pp. 73-96.

Pastor, M. and S. Maxfield (1999), "Central Bank Independence and Private Investment in the Developing World," *Economics and Politics*, Vol. 11 No. 3, pp. 299-309.

Portes, R. and H. Rey (1999), "The Determinants of Cross-Border Equity Flows," NBER Working Paper Series No. 7336.

Ramey G. and V. Ramey (1995), "Cross-Country Evidence on the Link Between Volatility and Growth," *American Economic Review*, Vol. 85 No. 5 (December), pp. 1138-1151.

Rodrik, D. (1998), "Who Needs Capital-Account Convertibility?" in *Should the IMF Pursue Capital-Account Convertibility?* Princeton Essays in International Finance No. 207.

Rogoff, K. (1999), "International Institutions for Reducing Global Financial Instability," *Journal of Economic Perspectives*, Vol. 13 No. 4 (Fall), pp. 21-42.

Sala-i-Martin, X. (1997a), "I Just Ran Two Million Regressions," *American Economic Review*, Vol. 87 (January), pp. 178-183.

Sala-i-Martin, X. (1997b), "I Just Ran Four Million Regressions," NBER Working Papers Series 6252.

Sandmo, A. (1970), "The Effect of Uncertainty on Saving Decisions," *Review of Economic Studies*, pp. 353-360.

Stockman, A. C. (1999), "Choosing and Exchange-Rate System," *Journal of Banking and Finance*, Vol. 23 No. 10 (October), pp. 1483-1498.

Tesar, L. L. and I. M. Werner (1995), "U.S. Equity Investment in Emerging Market Stocks," *World Bank Economic Review*, Vol. 9 No. 1, pp. 109-129.

Tornell, A. (1999) "Common Fundamentals in the Tequila and Asian Crises," NBER Working Paper No. 7139.

UNCTAD (1999), "Comprehensive Study of the Interrelationship between Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI), (23 June).

Zeldes, S. P. (1989), "Consumption and Liquidity Constraints: An Empirical Investigation, *The Journal of Political Economy*, Vol. 97, No. 2. (April), pp. 305-346.