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International lenders' and investors' behaviour: what the markets tell us we didn't know

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Summary

Drawing on interviews with international financial players based in London, New York, Chicago and other US financial centres, this paper aims to provide further information and insights into lenders' and investors' behaviour and their attitudes towards developing countries, and to identify new elements since the financial crises of the late 1990s. Aspects to be highlighted include players' most recent traits, as well as trends they are following, in terms of investment strategies, allocation decisions and risk-management procedures. The paper ends with policy suggestions on how to encourage international lenders and investors to channel a larger proportion of their funds to developing countries.

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Acronyms

AA	Credit rating judged as excellent by the three major rating agencies (Standard & Poor's, Moody's and Fitch)
ADR	American depositary receipts
ALM	Asset liability match
C&S	Codes and standards
CAF	Corporación Andina de Fomento
DEAR	Daily earnings at risk
DFID	Department for International Development
EIB	European Investment Bank
EM	Emerging market
FDI	Foreign direct investment
FMG	Financial Markets Group
FONDAD	Forum on Debt and Development
GDP	Gross domestic product
GDR	Global depositary receipts
IFC	International Finance Corporation
IFI	International financial institution
IIF	Institute of International Finance
IMF	International Monetary Fund
IML	Institut Monetaire de Luxembourg
IRB	Internal ratings-based
LA	Latin America
LSE	London School of Economics
MFR	Minimum funding requirement
OECD	Organisation for Economic Co-operation and Development
PSI	Private sector involvement
SRI	Socially responsible investment
SSA	sub-Saharan Africa
UNU	United Nations University
VAR	Value-at-risk
WB	World Bank
WIDER	World Institute for Development Economics

Introduction

Since the financial crises of the late 1990s capital flows (other than FDI) to developing countries have declined dramatically, reaching in aggregate net zero levels in the year 2001, and being just marginally positive in 2002.[2] For emerging markets, FDI has been the main source of external private capital, remaining positive although on a declining trend, whilst bank lending has been negative. An immediate question that arises is whether this new trend in flows is temporary or permanent.

In a recent paper, Griffith-Jones (2002) shed some light on this issue, by trying to identify which factors are behind the decline in bank lending and portfolio flows to developing countries. For each type of flow, both temporary and permanent factors were identified. The temporary factors included the current world recession, an increase in risk aversion by both lenders and investors, and in certain cases insufficient demand from developing countries. The permanent (or structural) factors included, in the case of banks, a gradual shift from cross-border lending to lending within countries, and in the case of portfolio equities, an increasing lack of good investment opportunities (and, in connection with that, lack of liquidity) in local stock exchanges.

If one agrees that developing countries still need to complement their domestic savings with foreign capital in order to finance their growth and development needs, the next questions that arise are what can be done to reverse the current trends in flows, and more generally, what can be done for these flows to be more stable and long term. Recent econometric work shows that, in large part, portfolio flows to developing countries are explained by source country factors (FitzGerald and Krolzig 2003). Thus, a possible answer to these questions is to propose regulatory changes and incentives in the source countries to encourage international financial players to lend to, and invest more in, developing countries. This, of course, should be in addition to the establishment of stable macroeconomic and political environments in these countries.

However, in order to propose changes that can effectively alter lenders' and investors' behaviour in a way that increases capital flow to developing countries, more needs to be known about how these financial players act. For example, it is important to understand better how they operate, what factors are key in their lending and investment decisions, and what they perceive as obstacles to investing more in developing countries.

In previous work we have already examined this subject (see Griffith-Jones, Gottschalk and Cailloux 2003 and Griffith-Jones 1998). However, knowledge gaps remain, and the purpose of this paper is to move a step further by attempting to fill some of those gaps.

To that end, this paper takes two steps. First, it reviews the theoretical arguments the business literature provides in support of international portfolio diversification and the reasons given to explain why diversification is in reality fairly limited. Second, drawing on a series of interviews with financial players based in London, New York, Chicago and other smaller US financial centres, we aim to provide

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[2]   See IIF (2003).

further information and insights into lenders' and investors' behaviour and their attitudes towards developing countries, and to identify new elements since the crises of the late 1990s.

The paper will thus discuss financial players' most recent traits, as well as the trends they are following, in terms of investment strategies, allocation decisions and risk-management procedures. Aspects to be highlighted include the role of information in the investment decision process and the barriers (real and perceived) these players face when lending to, and investing in, developing countries.

Following this introduction, the paper is divided in two main parts. Part I reviews mainly the business literature on international portfolio investment decision-making, with reference to the strands of the literature that highlight the role of human psychology in explaining why international portfolio diversification is not more widespread. It also discusses current risk-management procedures and their implications for herding. Part II draws mostly on interview material. It first looks at the broad lending and investment strategies that lenders and investors adopt. Second, it discusses in detail how they make their main asset allocation decisions, how they manage risk and what models they use. Third, the following issues are discussed: investors' perception of risk since the East Asian crisis, the role of information in the different phases of the investment process, factors that may influence herding behaviour, and the constraints investors face when investing in both emerging market countries and poor countries. Finally, the paper provides a summary of the main findings and tentative policy recommendations to encourage more lending and investment in developing countries.

Part I

1 The business literature

1.1 Why international portfolio investment?[3]

The modern portfolio theory asserts that an international portfolio of assets should be preferable over a domestic portfolio, because the former can reduce risk through portfolio diversification. International portfolio diversification will reduce risk to the extent that the correlation between assets of different countries is markedly lower than between assets of the same country.

Empirical evidence reported by various business finance textbooks shows that stock market prices vary far more between countries than they do within a country, thus supporting the notion that cross-border diversification can result in lower risks than intra-country diversification. The evidence also shows that a portfolio that combines bonds and stocks can reduce risks even further, as the correlation between stocks and bonds tends to be low.

Empirical work carried out by IDS international finance team has also shown that, because of their low correlation with the assets of developed countries', the inclusion of developing countries in lenders' and investors' portfolios of assets, can reduce risks still further and produce long-term rewards. Research has been undertaken into this phenomenon with respect to both portfolio equity and debt securities (see Kimmis, Gottschalk, Armendariz and Griffith-Jones 2002) and bank lending (see Griffith-Jones, Segoviano and Spratt 2002).

It is true that correlation between the assets of developed and developing countries has gone up recently, but it is still lower than correlation among developed countries. Recent evidence shows that correlation between US stocks and stocks of other developed countries increased from 0.15 in early 1987 to nearly 0.8 in 2001 (Hodrick 2001). IDS work, in turn, shows that the correlation of equity asset returns among developed countries is higher than that between developed countries and emerging markets over the period between 1985 and 2002, and that although both correlations went up over the 1994–2002 period, the correlation between developed countries and emerging markets was still considerably lower – at 0.33 against 0.57 (see Kimmis *et al.* 2002). Correlation has generally risen because markets are increasingly integrated, and are characterised by co-movements of assets. As a result shockwaves are transmitted very rapidly across such markets.[4]

A further reason in favour of international portfolio diversification would be to outperform the world market portfolio. This may be attainable due to the fact that the hypothesis of efficient markets does not hold true at the global level. This hypothesis – central to modern financial theory – asserts that,

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[3] This section mainly reviews the arguments put forward by the business literature, with a focus on portfolio equity assets (although references are made to other types of assets); to add a developing country perspective, it makes reference to work carried out by IDS as well.

[4] In the case of portfolio equity securities, correlation tends to rise particularly during steep downturns, precisely when investors expect low correlation as a hedge against large losses.

under efficient markets, prices reflect all relevant past information and are adjusted instantaneously to any new and unexpected information. Assuming efficient markets, it would not be possible to outperform a given market index. However, international markets seem to be clearly less than efficient, partly because a considerable degree of market segmentation still exists at the international level, due to legal restrictions and transaction costs. Capital controls (in various forms, though these have been to a large extent dismantled worldwide) are a prime example of legal restrictions. Transaction costs are incurred in currency exchanges, access to information worldwide, management fees, the provision of custodian services, and so forth.

1.2 The degree of international portfolio diversification in reality

According to Cooper (2001) and Cooper and Kaplanis (1995) the evidence is that portfolios such as UK funds or US and German pension funds are highly concentrated in domestic equities. Cooper also reports that IMF statistics show foreigners own less than 7 per cent of the US equity market. Below we will also see that the share of developing country assets in the total assets of international portfolios is very low, at around 2 to 3 per cent. If international portfolio diversification seems so beneficial, the question that thus arises is why are portfolios still so little diversified?

The business literature identifies a number of obstacles to international portfolio investment. These include currency risk,[5] lack of sufficient information for forecasting and analysis, information comparability (for example reports between firms tend to follow different accounting practices), the cost of information, cost of international management[6] and international custodian costs.

Still according to the business literature, other factors that discourage international portfolio investment or that negatively affect rates of return are associated with the characteristics of stock markets across countries, which can be perceived as additional sources of risk. For example, investors are less keen on markets that are shallow, lack liquidity and hold a high level of concentration, as such markets would be more vulnerable to shocks and manipulative actions. These characteristics are commonly found in the stock markets of small and emerging countries. Montiel and Reinhart (2001) have focused on this aspect in recent empirical work; interestingly, their econometric results indicate that in fact market features such as market capitalisation and the number of listed companies do influence portfolio flows to emerging economies.

Other market characteristics, such as patterns of share ownership and degree of government regulations, are also believed to be considered by investors when taking investment decisions. Further sources of risk are the multitude of existing financial instruments (each with specific rights and obligations which are not easy to quickly visualise), commissions and transaction costs which vary widely across

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[5]   It is argued, however, that currency risk can be hedged at low cost (see Jorion 1989).
[6]   International management can be passive or active. The first type of management refers to building a portfolio that is believed to reproduce the performance of an international market index, whereas the second type of management seeks to build a superior portfolio through asset allocation and market timing, under the belief that markets are not efficient. The latter type of management tends to charge higher fees.

markets and tax levels, which can significantly affect returns. The question is whether these sources of risk and uncertainty are really important especially for big lenders and investors; it will be seen below that some of these factors are indeed relevant in the investment decision-making process of such international players.

Behavioural finance theorists point to the home bias phenomenon to explain why portfolios are so little diversified despite the clear benefits of diversification. Home bias means that investors tend to invest in assets that are more familiar to them, assets which they feel they know and understand better (Barberis 2001). Behaviour finance also suggests that investors' overconfidence can lead to portfolio under-diversification. For example, an investor may hold just a few stocks, believing that he/she has chosen the winners (Gervais and Odean 2001). If factors such as home bias and overconfidence reduce investors' interest in foreign assets, this is likely to apply particularly to investment in developing country assets, given investors' relatively limited knowledge of these.

A further aspect that may deter diversification is that the risks attached to home and foreign assets are assessed differently. As Tucker, Madura and Chiang (1991) discuss in relation to bond returns, bond prices (and yield) have the following components: a risk-free interest rate for a free-risk bond, a risk premium and an adjustment component. They then report the results of a regression analysis that tests the factors that determine the yield differential between a risky bond yield and a free-risk bond yield, first for the United States, and then for eight different countries.[7] The exogenous variables of the regression are employment, change in the stock market index, inflation and variability in the long-term government interest rate. The findings indicate that the factors that are important in determination of the yield differential in the United States are different from those operating in the other countries. The authors conclude that investors' criteria for determining risk premium vary across countries. This is a hypothesis that deserves further investigation.

Finally, Cooper (2001), focusing on the supply-side constraints to international portfolio diversification, observes that many funds prohibit the use of instruments – such as derivative trades – that may facilitate international portfolio diversification.[8] To this type of restriction, one could add that national regulations also sometimes deter funds from investing abroad, for example by ruling that a fund should hold a minimum percentage, say, of certain types of domestic equities, or by placing limits on holding foreign assets (Davis 2002; see also section 8 of Part II below). A further problem is that fund managers have their performance measured by domestic benchmarks. So, even if a manager can diversify his or her portfolio internationally, it is still not advisable to stray too far from the domestic benchmark, as the penalty for under-performing it would be greater than the loss attached to the missed opportunity of outperforming it.

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[7] Based on research conducted by Barret and Kolb (1986), cited by Tucker, Madura and Chiang (1991).
[8] From the developing country perspective, restricting the use of derivatives should be seen as a positive rather than a negative trend. See the discussion of bank risk management below.

2 Managing the risk of diversified portfolios

We have seen thus far what rationale the business literature provides in support of international portfolio diversification, and the factors that inhibit it. A further issue that the business literature discusses in connection with portfolio diversification is the fact that an internationally diversified portfolio requires, even more than a domestic portfolio, sophisticated tools (statistical, analytical) to monitor the risk that cannot be eliminated through portfolio diversification or that arises from changing circumstances.

To place risk management into the broader picture of asset portfolio building, it is important to mention that much of the risk a fund manager is willing to take (risk tolerance) is influenced by his/her investors' risk preferences (Culp 2001). Fund managers take into account investors' risk preferences in each of a three-stage process: asset allocation, security selection and market timing. Asset allocation refers to the broad categories of assets in which to invest; security selection involves choosing assets within each category; and market timing relates to the decisions about when it is most appropriate to buy or sell assets.

It is in the third phase – market timing – that risk management takes place. A technique commonly used in risk management is value-at-risk (VAR) analysis. This, along with judgement, guides investors in their portfolio management activities. A VAR analysis measures the probability of having a certain quantity of earnings at risk. More precisely, it measures the loss probability of a portfolio of assets that will be exceeded, say, 1 per cent of a specific time period.[9] For that purpose, it estimates the distribution of returns of each asset (i.e. their variance) and their covariance, using historical data (Jackson, Maude and Perraudin 1998).

Culp (2001) notes that in its simplest form VAR assumes the hypothesis of normal distributions of risks. However, if this hypothesis is not observed, more advanced statistical techniques that allow for different types of return distributions can be used within the VAR framework. The problem with these alternative techniques is their degree of complexity, which reduces the feasibility of their application.

Knowledge seems thin on how really important VAR models are in fund managers' risk assessment process, and how much their own judgement is a key input. The degree to which each of these elements affects their risk analysis may vary widely across different investors. In Part II we provide information based on interviews on whether – and if so, to what extent – lenders and investors rely on VAR models in risk management. The use of VAR models may be an important source of volatility of capital flows to developing countries and even herding, which is an important concern in this work. Given that and the fact that the proposed new Basle Capital Accord (Basle II) wants to encourage banks to adopt such models, in what follows we look specifically at their use by banks, for which some empirical evidence has been gathered. In addition, we discuss in some depth the role these models may play in exacerbating credit crunch, particularly to low-rated borrowers, and contributing to pro-cyclicality of bank lending and herding behaviour.

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[9]   The loss may be associated with default or with a change in the economic value of the assets.

2.1 Banks' risk management

A recent assessment of how banks evaluate credit risk has revealed that there is no single model or methodology used for that purpose. Instead, banks use different assessment procedures, ranging from judgement of expert personnel to the sole reliance on statistical models (Basel 2000).[10] However, a gradual increase in the use of statistical models to assess risk has been observed.

A basic approach, believed to have been increasingly adopted by banks and elsewhere, but which our interviews do not confirm (see below), has been the VAR analysis.

In assessing credit risk, banks rely on different types of VAR models.[11] The available evidence suggests that these models tend to deliver very different results, though these results tend to converge when the models are parameterised in a similar fashion (see Jackson, Nickell and Perraudin 1999, based on Crouchy and Mark 1998 and Gordy 1998). This may be seen as a problem as it indicates that models are not very robust to a change in parameters.[12]

Another major problem among the parametric VAR models is that the variables used are assumed to be stationary, normally distributed and independent over time. However, these assumptions usually do not hold, suggesting that these models might tend to generate biased and even inconsistent estimates. For example, in a number of cases the assumption that returns on a given asset have normal distribution is not observed in practice. According to Danielsson, Shin and Zigrand (2001) of the LSE Financial Markets Group (FMG), these models thus tend to perform poorly in measuring risk.

One example given by the LSE FMG of poor risk measurement arising from violation of the normality assumption is that the principle of sub-additivity is no longer observed. According to this principle, the maximum VAR of a portfolio of assets will be determined by the sum of VARs of the individual assets comprising that portfolio. But when non-normal distribution is the case, the VAR of a portfolio may turn out to be greater than the sum of the VAR of the individual assets, and the latter will no longer serve as a reliable indicator of the maximum risk faced by an investor. The authors therefore wonder why other, more reliable measures of risk, are not used instead. These shortcomings suggest that at least some of the banks (and investment funds) using these models do not assess risk accurately.

The current Basle II proposal aims to incentivise financial institutions to use these statistical models to assess risk and assign ratings for each type of risk for the purpose of capital requirements – the internal ratings-based (IRB) approach. In order to ensure these models can provide more accurate measures of

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[10] In Basel (2000), basically three approaches to assessing risk and rating borrowers are identified: the 'statistical-based process'; the 'constrained expert judgement-based process'; and the 'based on expert judgement process'. With the first approach, rating assignment is based solely on quantitative tools; with the second approach, quantitative tools are used, but the final rating is adjusted by judgement; using the third approach, rating assignment is essentially based on expert judgement alone. It is noted that whilst the statistical approach has a more prominent role in assigning ratings to small corporates, expert judgement becomes more relevant in large corporate lending.

[11] Jackson *et al.* (1999) identify at least four main types of publicly available models, which have been developed in the past few years: the Merton-based models, Ratings-based models, Macroeconomic models and Actuarial models.

[12] On that point, see also Danielsson *et al.* (2001), who tested for the robustness of different models, failing to find consistent risk forecasts, for example across different assets and time horizons.

risk, the Basle Committee intends to promote common practice in the use of these models, including the use of historical data and correct model parameterisation.[13]

A number of criticisms have been made in relation to the proposal to encourage banks to rely on these models for assessing risk and assigning ratings. At least three negative effects can be identified: credit reduction to low-rated borrowers; procyclicality; and more herding.[14]

Credit reduction to low-rated borrowers

The proposed regulation can result in credit reduction to low-rated borrowers, partly because of the way it has been designed to account for the shortcomings of the statistical model it aims to promote. That is, being aware that VAR models lack accuracy, the regulation proposes that banks should incur additional capital charges if they do not perform back tests correctly (which is likely, given the complexities involved in running the tests), and that a multiplier should be applied to the VAR estimate.[15] The latter will certainly affect low-rated borrowers disproportionately.

Pro-cyclicality

As the downturn phase of a business cycle starts, the loss probability estimated by the models will increase, and as a result the assets of a portfolio will be downgraded. This phenomenon has been referred to as migration. Due to migration, more capital will thus be required, but given that banks would have difficulty in raising capital in a context of recession, this may create a credit crunch and thus contribute to the further deepening of the downturn of the business cycle. Current estimates indicate that the additional capital required in response to portfolio asset migration, would be considerable – in the order of 60 per cent, compared with an increase of 7 per cent under the current system. The same sequencing of events would take place during the upturn of a business cycle, which could thus cause an excessive, and therefore unsustainable, economic boom.

A key fact underlying the phenomenon of migration is that banks tend to assign ratings using the "point-in-time" approach, rather than the "through-the-cycle" approach. Under the "point-in-time" approach, borrowers are assigned ratings in the light of their current (or over a specified time-horizon) status, whereas the "through-the-cycle" approach takes into account borrower status over the whole business cycle, including the worst scenario. Thus, whilst under the former approach ratings change as conditions change during the business cycle, under the latter approach ratings remain the same. A survey of bank practices carried out by the Basel Committee on Banking Supervision (see Basel 2000) reports ambiguous findings regarding which approach financial institutions adopt. A member of the Basel committee, however, expressed quite forcefully the view that banks indeed adopt the "point-in-time"

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[13] The latter includes the time horizon to be used.
[14] For a comprehensive critique of the current Basle II proposal, see Griffith-Jones and Spratt (2001).
[15] The proposal requires capital to be equivalent to the highest of either the current VAR measurement or the average VAR estimate over the preceding 60 days, multiplied by three (Jackson *et al*. 1998: 10).

approach and seem strongly opposed to changing this practice.[16] This point is important because the use of the "through-the-cycle" approach could quite significantly reduce the pro-cyclicality of lending.

Herding

Herding behaviour could be encouraged through the dissemination of VAR techniques among financial institutions and the homogenisation of procedures accompanying the use of these techniques. This is because, as these institutions increasingly start to rely on the same methods to assess risk, they will tend to behave similarly at times of increased risk, and the herding that already occurs during periods of euphoria and crises would be intensified (this is a hypothesis discussed in more detail in Part II). As the LSE Financial Markets Group (FMG) puts it in its comments to the current Basle proposal '[o]f special concern is how the proposed regulations would induce the harmonisation of investment decisions during crises with the consequence of *destabilising* the global financial system' (Danielsson *et al.* 2001: 3).

Persaud (2000) provides a very compelling example of how the use of statistical models to manage risk can increase herding. Using historical data on return volatility and correlation, banks first estimate the distribution of future returns. They next calculate the daily earnings at risk (DEAR) – how much they expect to lose the next day with, say, 1 per cent probability. They then impose a limit on what they are prepared to lose. As volatility and correlation of returns of specific assets increase, the DEAR of those banks with higher exposure to those assets increase and eventually hits their loss limits. This event will induce the banks to sell these volatile assets, which will further reduce their value and increase volatility. This will in turn make the DEAR of banks less exposed to these assets to also hit their limits, thus igniting a second wave of selling, which will just reinforce the falls and so encourage further selling.

Thus, the actions of one bank based on its DEAR analysis end up contaminating the DEAR of other banks and therefore their actions. If herding already occurs because lenders and investors have a tendency to mimic other agents' actions, such behaviour could be intensified, particularly in times of crisis, if all agents adopt similar models. Persaud believes that the practice of DEAR limits largely explains the numerous financial crises that characterised the 1990s. Thus, a major problem with the current regulatory proposal is that it will encourage further convergence in behaviour which may in turn intensify herding and thus lead to increased systemic risks. Developing countries would be particularly affected by these developments.

Following the same reasoning, Danielsson *et al.* (2001) of the LSE FMG have stressed the potentially destabilising role of VAR models and how they can contribute to crashes. This is because, as is suggested in Persaud's example, volatility – and therefore risk – is an endogenous process, affected by the interaction between players, rather than exogenous as usually assumed by the models. Danielsson *et al.* further argue that in times of crisis, these models become strongly impaired in their ability to predict risk accurately. As players unify their strategies, the data that reflects this process suffers a structural break, and can no longer be relied upon by the models.

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[16] Interview material.

The LSE FMG has recently carried out research that provides empirical evidence relating to some of these issues. For example, the hypothesis that similar behaviour patterns among lenders and investors can aggravate a crisis is tested in Danielsson and Zigrand (2001) and Danielsson *et al.* (2001). Their findings are that herding causes the value of a particular asset to fall sharply and liquidity to dry up – events likely to lead to market collapse. It is important to note at this point that, as similar techniques are adopted by all actors, the intensification of herding would not be restricted to one group of actors (e.g. banks) but would extend to all of them.

3 The role of human psychology in determining herding

A key issue to be addressed in the context of this discussion is that herding in financial markets has been prevalent since long before statistical models were created. Moreover, herding is such a prominent feature during euphoria and crises that one should question whether using statistical models in risk management can possibly have any further negative impact at all.

The two most common explanations for herding have been investors' impulse to exploit other investors' information implied in their trading actions, and the fact that investors prefer to lose together with their peers than to lose alone (due to peer pressure, prestige, performance criteria, the fact that it would more likely for them to be bailed out, etc.).

The behavioural finance theory has in turn highlighted psychological features of human behaviour that can also contribute to herding. An example is overconfidence. Empirical research suggests that individuals tend to be overconfident in their ability to predict events. This overconfidence arises from their perception that their successes are due to their own skills, and failures to bad luck.

Interestingly, overconfidence in the ability to predict events may be most strongly manifested during times of euphoria, when uncertainty about the future dissipates and gives way to bold predictions (Bernstein 1998). Thus, euphoria may simultaneously stimulate overconfidence and market euphoria. Moreover, as Gervais and Odean (2001) point out, even if an investor realises that other investors are overconfident and thus driving prices too high, they may still be discouraged from taking short positions on the basis that prices may increase even further.

It is also believed that as investors start comparing their predictions with actual outcomes, they become more realistic over time. However, even so, new, inexperienced and overconfident investors lacking the judgement of more established investors enter the markets, perpetuating overconfidence.

Another human characteristic that can fuel a financial boom is the tendency to categorise simple events, or see them as representing a broader phenomenon. This characteristic, known as representativeness, may result in investment errors when events do not actually represent what they at first seem to (Barberis 2001). In financial markets, a classical case is when investors see patterns in events that are just random. That is, investors commonly see trends in random walks, or expect events that are actually short-term to persist in the long term (Shiller 2001). These perceptions may translate into actions

that feed booms or crises. For example, financial market players invest in stocks that are going up in the short run, thus sustaining their growth for a while until, eventually, prices collapse.

Shiller (2001) also highlights other human characteristics, believed to underpin booms and busts. These include excessive optimism, trust in others' judgement, conformity pressures (i.e. tendency to follow group behaviour in order to maintain status), pressures (from clients, or committees) to follow fads, and the reliance on popular theories that actually lack substance. Finally, Shiller also highlights the role of institutional and social phenomena. Examples of these include: the prudent person standard, according to which a person should invest "according to conventional wisdom", or "in a way seen as prudent"; and the media, which, by producing a well-written story, "can have powerful impact on public thinking".

4 Conclusions

We have seen that the business literature puts forward two main arguments in favour of international portfolio diversification – risk reduction (due to the relatively low degree of correlation between assets across countries) and the possibility of outperforming world markets given that the latter are less than efficient. On these two accounts, diversification towards developing countries would be even more justified, as asset correlation between developed and developing countries is still relatively low, and market failures, which lead to lack of efficiency, are even more acute in developing countries than in the world as a whole.

However, we have also seen that investors face a number of constraints in investing internationally, and in particular, in developing countries. These constraints are related to host country factors and supply-side factors. The latter factors, which are the main concern of this study, include home bias and overconfidence, the use of domestic benchmarks and the fact that these are used for performance assessment, and restrictions of different sorts, ranging from the use of derivatives to national regulations biased towards home assets.

With respect to home bias and overconfidence, a possible policy response would be to educate investors about the advantages of investing in developing countries and work towards providing better and less costly access to information relating to these countries. However, such a course of action, although important, may not be sufficient. For such barriers to be significantly reduced, regulatory incentives would have to be provided. These could take the form of tax incentives for example, and could be justified on the grounds that they were dealing with international market failures. As regards the use of benchmarks and performance assessment, regulators could encourage the markets to change the criteria and time period used to assess investors' performance. And national regulations that restrict investment abroad, where these are still in place, could be relaxed or totally removed.

Policy responses to some of the other restrictions should be considered with care, as their removal could have a negative rather than a positive effect on developing countries. For example, allowing investors to use derivatives freely could exacerbate financial volatility in the economies of developing countries, as discussed below.

To the extent that portfolio diversification towards developing countries is encouraged, an issue that should be addressed concerns the use of more sophisticated techniques to manage the complexity of and risks associated with international portfolio diversification. A particular risk-management technique currently promoted by regulators are the VAR models. The more widespread use of these models would reduce the divergence that still exists today in the selection of risk-management models – by banks and investors – as confirmed below. These models are parameterised differently and thus deliver different results. As is argued by Persaud (2000) and the LSE Financial Markets Group, from the perspective of financial stability and of developing countries, the use of different criteria should not be discouraged, since it has the benefit of reducing the likelihood of polarisation of positions. Promoting similar statistical models for risk assessment would increase convergence in behaviour, with the possible undesirable effect of increasing herding. Moreover, such a convergence would increasingly rely on statistical models whose ability to assess risk, already poor in normal times, tends to collapse in times of crisis.

Part II

Part I of this paper discussed the rationale behind international portfolio diversification, and the constraints lenders and investors face when investing internationally and in particular in developing countries. With respect to constraints, both host country and source country factors were identified. A key factor constraining lending to and investment in developing countries is the availability, cost and comparability of information. A possible policy recommendation is to increase the flow of information about developing countries to international lenders and investors. However, while there seem to be clear benefits associated with the provision of information, in the second part of the paper we ask how information is fed into the portfolio allocation process, how beneficial it is in reality and what the associated costs are likely to be. More generally, the second part of the paper identifies new constraints facing international lenders and investors looking to operate in developing countries, in particular those constraints that emerged after the financial crises of the late 1990s.

Part I of the paper also discussed the adoption of VAR techniques to manage portfolio risk. It was pointed out that the increasing use of VAR models among international lenders and investors could exacerbate herding behaviour. However, as noted earlier, herding in financial markets has been prevalent since long before statistical models were created. So what other factors are behind herding? Could the generalised use of such models really increase volatility and herding? Would capital flows to developing countries become more volatile as a result, thereby reducing the promised benefits such flows are expected to bring to these countries? How important are these techniques really in fund managers' risk assessment processes today? How much is their own judgement a key input and how receptive they are to the idea of adopting VAR? What other arguments are put forward in favour of diversification in the use of risk-management techniques? What can regulators do in this respect?

To throw additional light on these and related issues, this part of the paper provides further information on, and insights into, lenders' and investors' behaviour. It takes a broader perspective by examining the following issues: investment (and lending) strategies of different financial actors; allocation decisions, with a discussion of the three-stage process that characterises such decisions; the degree of risk aversion by lenders and investors; the role of information; herding behaviour; and constraints on investing in developing countries. It draws mostly on interviews with different financial players, including fund managers, pension funds and bankers, based in London, New York, Chicago and other smaller US financial centres.[17]

5 Investment (and lending) strategies

It is a common view that the greater majority of investors do not attempt to attain an absolute level of performance, but a relative one, by comparing their performance with a chosen market index, which is used as a benchmark.

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[17]   The list of interviewees can be found in Appendix I.

Yet, investors that follow benchmarks can be active or passive. Passive investors attempt to match the market portfolio performance. Active investors, on the other hand, try to outperform market indices; they may adopt specific investment strategies, associated with different categories of assets. These strategies may be labelled in a number of ways, such as growth, momentum, and contrarian strategies.[18] Active investors may also adopt a combination of investment strategies and rely on historical returns as a guide in their investment decisions.

A number of reasons have been brought forward to explain why investment management funds adopt particular investment strategies. These can be associated with legal constraints, their liability structure, the mandates they receive from their client base and the pool of skills they hold. In what follows we will be looking at the investment strategies of investment management funds and pension funds. In addition, we will also discuss the lending strategies international banks are adopting towards developing countries. As regards investment and pension funds, it will be seen that global funds tend to adopt momentum strategies ("buying the winners and selling the losers"), whereas dedicated funds, along with pension funds, have more scope for investing long term. To the extent that funds dedicated to emerging markets are disappearing, this would clearly have a negative impact on developing countries, as the result would be a predominance of funds with a more volatile behaviour investing in such countries.

5.1 Investment management funds

Investment management funds adopt investment strategies set by the decision-making body of the firm. The decision-making body (or structure) is fairly complex in most cases, differing widely between funds. Some have committees, made up of people with different expertise (can be financial market professionals, lawyers, academics), while others hold less formal consultative groups, in some cases formed by (in-house or sub-contracted) country teams, and in others by corporate analysts specialised in specific sectors that cut across countries. A key component of this overall structure is their client base, which is usually broad, and includes pension funds and other institutional clients, charities and retail. As will be seen below, clients can play an important role in setting the guidelines governing how fund managers should invest.

Investment funds manage different sorts of asset portfolios. Broadly, these can be opportunistic (or crossover) and specialised portfolios. Crossover portfolios usually cover a wide range of asset categories, which may include the emerging markets as a specific asset category. Specialised portfolios, on the other hand, are focused on specific asset categories. Of interest here are the dedicated emerging markets portfolios, which can be global, regional or country-based.

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[18] Dimson, Nagel and Quigley (2001) have identified a number of different investment strategies, each of which is associated with a specific asset category. These include: value (assets with a low ratio of market to book price); growth (assets with a high ratio of market to book price); momentum (stocks that have performed very well in the recent past); contrarian (stocks that have performed poorly in the recent past, but which are expected to perform better over the long term); small-caps (companies with small market capitalisations) and large-caps (big companies, known as blue chips).

Within these broad categories (of crossover and specialised funds), it is possible to identify the following: benchmark funds, which tend to be the majority, and total return funds.

Benchmark funds are often (though not always) informed by clear mandates established by clients, who set the targets to be achieved. The degrees of freedom funds have to manage assets vary, however. For example, managed balanced funds are given a specific peer group benchmark fund to beat, but have freedom (though the degrees vary from fund to fund) to take general asset allocation decisions. In other cases, clients specify that a specific benchmark (peer group, index) should be beaten, and set the guidelines on how general asset allocation should be. Clients may also impose restrictions on specific asset categories (e.g. derivative instruments, countries, level of liquidity or maturity, etc.). Within these general guidelines set by the client, a fund manager has some freedom to take allocation decisions, and deviate from the benchmark the client sets (tracking error). This is exercised with caution, however. As recent events have shown, the fund manager can be sued if he or she underperforms.[19]

Passive funds, in turn, just track an index, with little or no room for asset management.[20]

Finally, total return funds do not follow a benchmark; they may be small but very active, they may act globally and deal with emerging markets. Although some market participants associate total return funds with crossover funds, this may not necessarily be the case. Dedicated funds can also adopt total return strategies, with the possibility of acting as contrarians by holding value assets for long periods of time.

In principle, one may expect total return funds to be more volatile than benchmark funds, because these funds face fewer constraints. However, this may not necessarily be so. A fund manager could argue that actively following or trying to beat a benchmark may result in too high a turnover and, therefore, higher volatility, than searching for total return. The latter strategy may allow an investor to hold an asset until it matures (thus acting as a contrarian), and, as a consequence, be less volatile. What emerged from the interviews is that those funds less attached to benchmarks claim to invest more long term, and that it is the objective to invest long term, reflecting the clients' preferences, that influences the investment strategy, rather than the other way round.

The issue of volatility is more commonly raised regarding global investment funds versus dedicated emerging market funds. According to a market participant, the latter may be seen as more long term, for having more long-term liabilities and for being more committed to value assets. In addition, they invest more in information and thus have more knowledge about their asset holdings (i.e. information

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[19]   See, for example, the Unilever-Merrill Lynch case, in which the Unilever Superannuation Fund sued Merrill Lynch Investment Managers (MLIM) for underperforming an agreed benchmark index by 10.5 per cent in one specific year, when the downside threshold specified in the contract was no more than 3 per cent (*Financial Times*, 'Merrill faces payout to avoid court action', 8 October 2001: 29).

[20]   Today, more than 30 per cent of US institutional investors have their assets managed by funds that track indices, while in the UK this figure is around 20–25 per cent. On the other hand, retail investors worldwide have only about 3 per cent of their assets managed by index funds (see Skorecki, A. 2002 'Trade plays active role in passive investing', *Financial Times Fund Management Supplement*, 29 April: 3).

advantage). This gives them more confidence about their actions, and reduces the need to follow herds. Dedicated emerging market funds, however, are visibly declining in number, with investments in emerging markets being increasingly made by global funds.

Our interviews also revealed that an investment house operating globally on both sides of the Atlantic has been pursuing quite dissimilar investment strategies in its different investment divisions. For example, a division working mainly with bonds, and managing both global and dedicated emerging market portfolios, essentially follows benchmarks, with performance being assessed (informally) on a daily basis, with a yearly average turnover between 200 and 300 per cent. At the same time, another division dedicated to emerging market equities adopts an active strategy that does not follow benchmarks. Their view is that 'benchmarks change and following a benchmark would, therefore, imply too high a turnover'. They prefer to invest long term, with rolling periods from three to five years (average annual turnover between 20 and 30 per cent). This shows that different investment cultures can be found in the same investment house, a phenomenon that could be explained by mergers of hitherto independent investment firms operating in different segments of the market.

More generally, some investment houses – whether managing global or dedicated portfolios – are more aggressive than others in their asset allocation decisions (and are therefore more short term), thus taking the initiative of switching asset allocation and "being at the forefront of the herd". Other players tend to be more conservative, and act cautiously particularly with respect to emerging markets, being relatively more careful in moving away from a neutral position, as they perceive higher risks involved. (The neutral position regarding emerging markets is in most cases around 2 to 3 per cent, within a range of 0 to 5 per cent. – see below).

Other characteristics shared by investment funds can be summarised as follows. Their portfolio of assets may comprise bonds (sovereign, corporate), equities, property and cash. Performance is often assessed on a quarterly basis (though this may vary – some assess their performance on a daily basis, as mentioned above). Turnover varies widely across investment funds; in a few cases the average annual turnover is between 20 and 30 per cent, while in others it may be around 300 per cent, or even higher. The horizon for holding an asset may be six to nine months amongst momentum investors and three to five years amongst contrarians. Funds operate with different vehicles, which can be pooled (open-ended, close end) or segregated (individual). Table 5.1 summarises some of the points made above for different types of fund.

5.2 Pension funds

As with investment management funds, the decision-making structure of pension funds is fairly complex. But it differs from other funds in a fundamental way: it is the trustees[21] who are charged with determining the overall asset allocation of a pension fund. However, because they lack sufficient expertise, and, even more important, because they may face legal responsibility for their actions, having to respond with their

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[21] Trustees can act like a corporate board, but they represent the clients of the fund (interview material).

personal assets in order to protect themselves, they rely heavily on the advice of consultants, who ultimately set overall asset allocation.[22] This is particularly true in the Anglo-American world. On the Continent, trustees are absolved of personal responsibility, and are therefore less in need of advice from consultants.

Table 5.1 Main features of different types of fund

Fund type		Main features	Risk
Total returns		Often small and very active; generally they are crossover, but can also be dedicated. The latter can draw on detailed information provided by their own research departments, and tend to adopt a bottom-up approach in their allocation decisions. Room for acting as contrarians, with relatively low turnover, though they can be very aggressive as well.	Risk takers
Bench-mark funds	**Peer group benchmark (balanced funds)**	Clients specify the benchmark to follow, but the fund manager has degrees of freedom (though these vary) to take general asset allocation decisions.	Risk neutral
	Index benchmark	They can be specialised in different categories of assets, including emerging markets (EMs). Have clear mandates; try to outperform the index benchmark, by having tracking-error targets; this may lead to high turnover and volatility. Managers may deviate from benchmarks, but not excessively.	Risk cautious
	Index tracking	Mimics a chosen index; can be very volatile.	Risk averse

Source: interview material. Shaded areas: passive funds.

In countries like the UK and the US, consultants play a major role not only in asset allocation, but also in manager selection (though in the US there has been a gradual shift towards defined contribution schemes in which individual investors have a bigger say in investment decisions). More specifically, consultants take decisions on how to allocate funds between different assets (e.g. equities, bonds), and how to distribute them geographically. Also, they choose which investment fund manager to hire, and which mandates to give them.[23] Finally, consultants choose the benchmarks the fund manager should follow for bonds and equities.

There are instances, however, of pension funds that act more independently, with much less reliance on the advice of consultants. For example, one major UK pension fund has an investment committee (formed by financial professionals and other experts) that advises the trustees on how to allocate their fund across different assets and countries. Moreover, the committee gives advice on which fund managers

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[22] Trustees' reliance on consultants is an aspect of the decision-making structure of pension funds strongly emphasised in the Myners report (2001). The report points to trustees' lack of expertise as the main reason for this reliance.

[23] According to some of our interviewees, in the US mandates tend to be global, whilst in the EU they are becoming increasingly specialised (e.g. global equity mandate, emerging market equity mandate, etc.).

to hire to run the funds, and which investment strategy each fund manager should follow. They still have consultants, but do not rely heavily on them. It is not clear, though, how trustees would, in this case, protect themselves against hostile litigation, to which they would have to respond with their personal assets. Asked this question, an investment manager of a fund operating in this way answered that their long-term liabilities permit them to be more long term and take risks, and even to underperform, and that their clients should accept this.

It can be seen from the above that, on the whole, the investment strategy a pension fund chooses is largely determined by its consultants, who tell them where and how to invest. In the UK, a few large consultancy firms dominate the market. As a consequence, pension funds follow similar advice and investment patterns, resulting in limited diversification. An observed characteristic of their investment pattern is the small proportion of developing country assets in their overall portfolio of assets (see below).

Given pension fund long-term liabilities, one would expect the establishment of long-term portfolios. However, like other types of investors, their fund managers are locked into a system of short-term performance assessment, which operates as a major constraint to more long-term asset holding. The recent trend amongst pension funds from defined benefit to defined contribution schemes is giving more power to individual investors. They have, however, acted rather conservatively in their investment decisions, partly because risks are not pooled (Myners 2001). According to a consultant, it is important that they become more informed and educated in order to be able to take on more long-term investment strategies. Also, it is important that they learn about the benefits of portfolio diversification and in particular of investing in developing countries.

5.3 Banks

Bank lending strategies have been changing in important ways in the past few years. They are moving gradually from cross-border lending to within-country lending in developing countries (Lubin 2001). This has implied a substitution of domestic lending for foreign lending. According to some figures provided in Hawkins (2001), whilst net foreign lending to developing countries has declined dramatically in the past few years, becoming net negative, within-country lending has almost doubled over the same time period.[24]

To the extent that developing countries permit foreign ownership of their local banks, and that, as a result, foreign banks take them over, it would be natural to expect an increase in their on-shore exposure. However, given the decline in foreign lending at the same time that in-country lending has increased, we wonder whether these two trends are inter-connected. Some market participants argue that they are not, and that actually cross-border lending by a bank may be facilitated by the presence of affiliates in that country, as 'the affiliates have the advantage of knowing the country better'. Thus, one type of lending would complement, rather than replace, the other.

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[24]   Between June 1998 and December 2000, international bank loans by subsidiaries in local currency to local residents increased 75 per cent (see Hawkins 2001, Table 8).

Intra-country lending has been based on local deposits, which are being used mainly to provide personal financial services. At the same time, there is a tendency to withdraw from corporate lending in developing countries. The alleged reason for that is 'they do not get the same returns as in the past'. Also, they do not get paid in crises.

Banks, of course, still provide foreign lending to developing countries, but not long-term lending, as was the case in the past, especially during the 1970s. Today this lending is short-term (even so, in net terms such lending is negative for many developing countries). They lend to the big domestic banks, as these are believed to be too big for the government to let them fail when a major crisis hits. Long-term loans are becoming rare. The risks involved are perceived as too high. Long-term debt, in the form of bonds, through the trading desk, could be an alternative. But, again, according to one of our interviewees, bonds are seen as 'too risky and extremely volatile'.

6 Allocation decisions

As seen earlier, investment funds take into account investors' risk preference over each of a three-stage process: asset allocation, security selection and market timing. In this section we will see how investors and lenders allocate their assets and undertake security selection. Market timing will be discussed in the section on risk management.

6.1 Asset allocation

As with the fund investment strategy, the general guidelines on how to allocate funds across different asset classes are set by a decision-making body (or structure).

In the case of pension funds – and the same applies to investment funds that have pension funds as their main clients – the pension fund consultants set the general guidelines governing asset allocation. For that purpose, they use the asset-liability match (ALM) approach. They take into account their clients' preferences and characteristics. For clients such as mature pension funds, which tend to be more averse to risk, they normally recommend holding fewer equities (and less emerging market assets). Younger funds with more cash flow are given the flexibility to invest more in value assets, with capitalisation gains expected to be reaped in the long term (over 10 years).

The Myners report clearly notes, however, that a majority of pension funds still outsource management functions to their fund managers. For example, most fund managers of peer group benchmark funds retain the authority (though to varying degrees) to take general asset allocation decisions. According to the report, of a sample of 275 UK pension funds managing £407 billion of assets (taken for the year 1999), 191 were classified as some sort of peer group benchmark fund. Although they are the majority, their numbers have declined steadily in the past several years (see Myners 2001: 54, Figure 3.2).

Asset allocation patterns seem to vary considerably across investment and pension funds. For example, a big UK-based investment fund (with pension funds amongst its clients) has informed us that it

allocates 50 per cent of its funds to bonds, 30 per cent to equities and 20 per cent to properties. In contrast, a major UK pension fund invests around 75 to 80 per cent in equities, 5 to 10 per cent in bonds, 10 per cent in properties and 0 to 5 per cent in cash. The latter roughly reflects how UK funds build the asset portfolios of their pension fund clients. According to a survey from Russell Mellon Caps, in 2001 balanced funds' asset portfolios consisted of 80.3 per cent equities, 13.6 per cent bonds and 4.7 per cent cash.[25] The current market trend is to gradually switch from equities to bonds, as the latter outperformed the former over the past five years. More recently, this move from equities to bonds has also been in response to the steep fall in equity prices. However, as hinted earlier, it is not unusual for relatively young pension funds to stick with the strategy of investing mainly in equities rather than bonds.

For our purposes, an initial important question is to ask what proportion of total assets held by investment (and pension) funds is represented by emerging market assets. For this asset category, figures seem to converge. Global investment funds and pension funds based in the UK claim that of their total asset portfolio, only around 2 to 3 per cent are emerging market assets.[26] Before the Asian crisis, emerging market asset shares in total assets were higher, having reached 5 per cent, but have declined to the current levels since then. For certain funds, levels have declined even further, to around 1 per cent or less. According to fund managers, today there are no lower limits in terms of emerging market assets, while upper limits tend to be around 5 per cent.

A second, and more important, question to address is why so little – around 2 to 3 per cent – is allocated to emerging markets. This question is a crucial one in view of the promised benefits of international portfolio diversification, as discussed above. According to a fund manager who mainly has pension funds in his portfolio of clients, consultants adopt a mathematical model to allocate assets, and they look at aspects such as inherent return and risk characteristics; this could explain lack of investment in emerging markets.

However, the use of models in the allocation process is not sufficient to explain why different funds converge in the proportion of emerging market (EM) assets they hold. It seems that not technical, but other reasons better explain the current levels of asset allocation to EMs, in addition to a variety of more general obstacles faced by investors operating in developing countries (see below). For example, these funds started investing in EMs in the late 1980s and early 1990s from near zero levels, and from then on gradually increased the share of EM assets in their total asset portfolio until this trend was interrupted (and somewhat reversed) by the East Asian crisis.

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[25]   Information taken from Budden, R. 'Second poor year in row for fund managers', *Financial Times*, 23 January 2002.

[26]   Information based on interviews; FitzGerald and Cobham (2002); Trustnet (www.trustnet.com).

6.2 Security selection

This sub-section will focus on security selection by investment (and pension) funds in regard to the emerging market asset class. We will first look at the types of assets they choose to hold and, second, at the geographical distribution of such assets.

With respect to types of assets, funds hold emerging market assets mainly in the form of bonds (sovereign and corporate) and equities. Some funds split their emerging market assets evenly between bonds and equities, while others are skewed strongly towards either of these two asset categories. Whether to hold more of one type of asset than another depends on a variety of factors. These include their investment strategies (e.g. preference for value or growth assets), the expected returns on each type of asset, risks involved (including exchange risk), degree of liquidity, whether their liabilities permit them to hold long term, and on which asset category they have more accumulated expertise.

To illustrate some of these points, in the case of bonds, since the Asian crisis some fund managers have searched for greater safety and, therefore, have strongly skewed their holdings towards sovereign bonds as opposed to corporate emerging market bonds. Corporate bonds are viewed with caution. Investors are prepared to acquire corporate emerging market debt only if the issuers are of high quality, and with dollar or euro earnings. The flight to safety is a phenomenon that always follows every crisis.

Regarding the choice between equities and bonds, another fund manager, when asked to explain his fund's preference for emerging market equities, cited accumulated expertise in equities (and insufficient knowledge of bonds), and the fact that equities have 'a built-in protection against currency devaluation', as devaluation can lead to improved performance. Of course, such a preference for equities should not be taken to be widespread among investors, as capital flows to developing countries have gone mostly to bonds rather than equities.

As regards geographical asset allocation by funds (and by banks) in emerging markets, investment (and pension) funds adopt different strategies, and rely on very specific decision-making structures for that purpose. Some funds adopt a top-down approach and others a bottom-up approach. The top-down approach initially involves setting overall allocation across different asset categories. Next, limits for emerging markets may be set, first on a regional basis, then once EM countries within each region are chosen, further limits are set for each country. Some investors do not categorise EM countries on a regional basis, but by economic characteristics instead (e.g. whether they are oil-exporting or oil-importing countries). Others, like the banks we interviewed, do not impose overall regional limits, but set them country by country. According to one bank, however, limits can be set according to loan maturity (that is, the greater the maturity, the lower the limit).

The bottom-up approach means, in the words of a fund manager who adopts this approach, looking at the company with little regard to the country information. This approach might imply more stable flows to developing countries, as the investor is less inclined to react to changes in a country's circumstances. This approach seems rather unusual, however. It is more common for investors to look primarily at the country level, setting country limits (although some do not), and to look at the economic fundamentals. In addition, in their allocation process, they look at returns, risk and liquidity. To the extent that the bottom-

up approach implies more stable flows than are offered by other approaches, it would be advisable to provide more information at the micro/sectoral level to encourage investors to adopt such an approach.

Common to all funds are the constraints they face, such as concentration limits. For example, the top five stocks cannot be more than 40 per cent of the total portfolio, and no single stock can be more than 10 per cent of the total portfolio. These limits, which are imposed by the Institut Monetaire de Luxembourg (IML), make funds underperform, as they cannot hold much of a big EM company's asset that has done well.

7 Risk management and the use of models

Once a portfolio is built, investors start managing risk, an activity that essentially requires the ability to recognise the best time to buy and sell assets. For the purpose of risk management, a well-known technique is the value-at-risk (VAR) model, as discussed earlier. VAR can have a critical role in asset changes in response to changing circumstances. The current Basle II proposal aims to incentivise banks (and other financial institutions) to use VAR models to assess risk (see discussion above). This initiative seems to reflect a belief by regulators that markets are increasingly adopting VAR analysis in their risk-management activities, and that the new proposal can be a move towards adjusting regulation to current market practices.

Surprisingly, our interviews reveal that the VAR analysis is less common than we have been led to believe. This applies not just to investment and pension funds, but to banks as well. In fact, some banks have reported that they do not use VAR models, nor is it their intention to use them in the future. In their view, these models have no real application. A banker went further to say that VAR 'could even distract . . . from what matters'. If these interviews are representative, this would mean that VAR models are not as responsible for volatility as has been believed. This was pointed out by Persaud and the LSE Financial Markets Group (see above). However, if VAR is pushed by the regulators, then it is possible that volatility may intensify.

A major international bank investing and lending in emerging markets reported that it assesses country risk based on qualitative analysis, and for that purpose draws on various pieces of information relating to the country's economic and political structures. In addition, it has its own rating system to quantify economic and political information and arrive at a country risk score. Other banks also have their own rating system, constructed on the basis of economic variables, and in which political variables are also used as inputs.

Investment and pension funds, for their part, use a wide variety of models for the purpose of risk management, some of which are similar to VAR.

For example, a fund manager informed us that his investment fund uses a dynamic risk model (as opposed to the more static models), which bears little resemblance to the VAR model. The purpose of this fund's model is to offer a range of possible outputs in terms of tracking errors. This is possible because the fund does not attempt to beat a specific index. In other words, 'they do not want to have a

tracking error target', which means that this fund behaves differently from the more common balanced managed funds. A balanced fund manager, on the other hand, reported that he assesses risk using a model similar to the VAR. The idea is to assess what returns would be in the event of failure.

Another fund manager informed us that they use their own in-house models; one example is the risk assessment model, which requires quantification of a wide range of variables such as solvency, liquidity, vulnerability, socio-economic fragility, governance, transparency, politics, etc.

So far, what emerges from the above is, first, that the decision-making process is complex, consisting of different phases, each of which deals with specific issues (e.g. allocation, risk management); moreover, different actors are involved in the process (e.g. consultants, managers, specialised consultants, clients). This complexity poses difficult dilemmas to policy-makers, as it is not clear where to target their intervention in order to change behaviour patterns so that more funds are channelled to developing countries. Second, in each phase of the decision-making process, systematic forms of assessment are often employed; these can be quantitative and/or qualitative. And third, there is no homogeneity within or across classes of investors and lenders, in terms of the models they use. More importantly, few of them claim to use VAR models. Each uses a specific model, and the choice seems to be more related to the firm's history (and culture) of asset allocation and management risk, than to the nature of the business in question.

Having said that, homogeneity can be found in the basic principle underlying the portfolio allocation process; for example, the use of a mean-variance analysis seems to serve as a basic guideline to different portfolio investors. Econometric work conducted by Disyatat and Gelos (2001) shows that mean-variance optimisation is an important factor in explaining how dedicated emerging market funds manage their portfolios over time, although benchmark-following behaviour plays an even more important role.

In addition to risk-assessment activities, investors and especially banks have been adopting risk-management practices that increasingly include the use of hedging. International banks are at present hedging the total capital that goes to a specific country. The purpose is to protect them against exchange-rate risk, which has become a major source of concern since the EM currency crises of the late 1990s. According to a banker, hedging takes place equally in countries with fixed and floating exchange regimes and is achieved through, for example, holding dollar-linked government bonds.

Among investors other than FDI, hedging is less common. According to a consultant, in the case of pension funds, foreign exchange risk is seen as a major concern, but hedging this risk, though permitted, is seen as somewhat complex. A further problem is that some hedging practices may be interpreted as "trading", and therefore may be taxed.

Hedging is an important risk-management practice to highlight, given its major macroeconomic implications. First, the widespread use of hedging by lenders and investors may result in lower net inflows to developing countries. And second, when a crisis threatens, it may lead to major outflows, which can

exacerbate a country's foreign exchange problems and contribute to triggering a currency crisis.[27] These possible developments pose a major challenge to policy-makers in developing countries, as it is difficult to avoid them or to cope with their potentially destabilising effects.

8 Degree of risk aversion

As suggested above, hedging is a risk-management practice that has been adopted increasingly by lenders and investors dealing with emerging markets in response to the volatility of exchange rates associated with the frequency of international financial crises. More generally, hedging has been undertaken in response to increased risk aversion.

Increased risk aversion has been associated with a deterioration in investor perception of what emerging markets can offer in terms of returns and risk. As a fund manager sees it, in the emerging markets 'the decade of the 1990s was characterised by two halves: a first half of high returns and low assets' correlation, and a second half of low returns and high correlation'. In addition, a further concern that has been repeatedly mentioned by all types of investor is the lack of liquidity in emerging markets.

This change in perception has affected all types of investor and the way they look at the different asset categories. On the whole, the response to increased perceived risk by investment and pension funds has been a retreat from emerging markets, and amongst those remaining in emerging markets, a shift from emerging equities to emerging bonds. The response by banks, in turn, has been in the form of reduced cross-border lending to emerging markets. At the same time, they have acquired domestic banks in these markets, which have been on offer at relatively low prices. This contributed to an increase in within-country lending.

As regards investors, their response to increased perceived risk (which can be regarded as a cyclical phenomenon) has come in the form of structural changes in the nature of investment funds. The EM crises of the late 1990s have led to a significant reduction in investment funds specialising exclusively in emerging markets; at the same time, global investment funds have taken over the role of investing in EMs. To the extent that the latter have less knowledge of developing countries, this may have had a negative impact on such countries, in terms of volume of flows and their volatility.

A further possible change in connection with increased risk perception and risk aversion (for a given level of risk) refers to a growing preference for index-tracking funds as opposed to balanced managed funds or even total return funds. This seems to be due to increased fear of underperforming, given the context of higher uncertainty surrounding returns and risks.

In this new context of increased risk aversion, how much has the role of information changed regarding investors' and lenders' decision-making processes?

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[27]   See Dodd (2001) for an analytical discussion of hedging activities and their macroeconomic impact; see also Moguillansky (2001) on hedging by multinational corporations in Latin America.

9 The role of information

It is not easy to define the precise role information has, or can have, in the decision-making process of lenders and investors. In a previous paper, Gottschalk (2001a) observes that investors claim they attach high importance to information, but also argues that in crucial moments of the investment decision process, information tends to have a rather marginal role. This is because in such a process performance assessment is the variable that matters. Performance assessment is usually based on how close an investor gets to a pre-established target, set in turn in relation to a specific benchmark index. Given that investors do not want to deviate too much from their benchmarks (as the penalties for that are very high), information ends up having little room to influence the decision-taking process.

However, the story is somewhat more complex. As seen earlier, decision-taking can be observed in different phases of the investment cycle: in general portfolio allocation, security selection, and market timing. Apparently, market timing is the phase in which balanced fund managers and index trackers, which constitute the majority of investors, face the most binding constraints. However, relatively more room for considering alternative investment choices seems available in portfolio allocation and security selection phases when, therefore, information can play a more important role.

Our interviews reveal that as risk perception and risk aversion went up following the crises of the late 1990s, lenders and investors started investing more in acquiring and systematising information about developing countries, that could be used in qualitative and/or quantitative analysis. This did not imply, however, employing more research analysts but, as put by a fund manager, having the same analyst covering more ground, in terms of sectors and countries. Given the reduction in the number of dedicated emerging market funds, the total net result has been less people collecting and analysing developing country information, not more. This is not good as it takes time to re-build expertise in developing countries.

An international bank that undertakes qualitative analysis using a wide range of information reported that it intends to design a new model that will take into account the following broad areas: transfer risk; domestic/economic environment; financial sector environment; and political environment. The latter includes corporate governance and rules of law. In order to make their model feasible, they are looking for information on Codes and Standards (C&S). Their expectation is that such information can be made available in a quantifiable way.

For policy purposes, though, developing countries may see that as a problem. Officials in developing countries fret about market demands for quantifiable C&S information. They believe that this information will prove harmful if the markets start to judge and compare sovereign and corporate risks using scores, as seems already to be the case. In their view, this would mean oversimplifying the complex C&S process that is aimed at achieving greater transparency (Gottschalk 2001b).

The banks' interest in C&S information contrasts with the more general market indifference to C&S. It would be interesting to know whether the banks' interest in C&S reflects an emerging trend within the markets or whether it is just an isolated phenomenon. This is an important issue from the policy

perspective, given that developing countries have been strongly encouraged to invest heavily in implementing C&S of international best practice, with the promise that by doing so they may be rewarded by the markets.

As regards information sources, some investors have in-house research. Others rely on outside sources of information, including outside consultants, academics and international organisations like the IMF. Some investors cultivate contacts with policy-makers and also travel to an area of potential investment in order to have a more accurate idea of that area's real problems.

A fund manager also noted that the EM investment community constitutes another key source of information. The community is relatively small, and therefore everybody knows who the major players are (amongst investment funds, hedge funds and local investors) and what assets they own. This enables them to detect their peers' intentions, in terms of buying or selling a specific asset of a given EM country, and therefore anticipate the impact of their intended actions on the asset's price.[28]

More available information may be helping investors to discriminate amongst EM countries, with less contagion happening as a result. However, from the perspective of the country under severe scrutiny by the investment community, too much information may prove counter-productive and anticipate a crisis. This is the opposite of what one would expect – that investor awareness of potential problems early on could induce a country to take corrective action in order to avoid a crisis.

According to our interviews, all types of lenders and investors seem to take due account of information during the different phases of the investment-decision process. However, momentum investors usually focus their attention on prices analysis, while investors that follow contrarian strategies do seem to hold a more solid information base and rely more heavily on fundamental analysis in their decision-making process.

International banks, in turn, should be seen as a category apart. In normal times, for the purpose of lending they assess country information carefully (and benefit from information their affiliates can provide on EM countries). Thus, their actions are more similar to those of contrarian investors. However, the crises of the late 1990s have shown that in moments of distress they seem more prone to herding behaviour, thus acting like momentum investors. Nonetheless, Fraga and Gleiser (2001), based on their experience with Brazil's crisis in 1999, argue that if bank creditors are provided with accurate and credible information about a country's situation and crisis-management strategy, and about the intentions of other banks, a stampede to the exit door can be altogether avoided.

Finally, it is important to address the following issue. Increased flows of information may indirectly contribute to herding, through lenders' and investors' risk-management activities. That is, information (provided in large quantities and at high frequency) may induce lenders and investors to adopt quantitative

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[28] Analogous to Keynes' beautiful contest story.

techniques to manage risk. If they all tend to adopt similar techniques, due to new regulations such as the proposed Basle II, which wants to encourage the use of VAR models, our interviewees agree that herding behaviour could be intensified (see discussion above).

10 Herding behaviour

However, as seen earlier, our interviews reveal that lenders and investors diverge quite considerably in the techniques they use to manage risk. Thus, other factors may still be more important to explain herding.

Most analysts seem to agree, and our interviews confirm, that a major factor underlying herding is performance assessment and its frequency. This is because the penalty it imposes on an investor erring alone is much higher than on that imposed on groups of investors acting collectively. In the case of erring alone, the penalty may come in the form of a job loss. But the penalty may go beyond that. Legal constraints may further exacerbate the problem. As the Unilever case has recently demonstrated (see above), fund managers can be sued for underperforming, or not meeting targets.

An additional factor that at present contributes to herding is increased risk aversion amongst lenders and investors. As mentioned earlier, risk aversion has increased as a result of the crises of the late 1990s, especially the Russian crisis. As one investor put it,

> the Russian experience taught many investors that when there is a problem in a country, you simply abandon it entirely, and explain to your clients immediately that the country in question could be a repeat of Russia. In this way, clients do not blame you if you underperform relative to an index.

Moreover, investors argue that a further reason for panic today is the lack of a lender of last resort. Thus, today, if a country is facing difficulties, investors will simply pull out. The consequences of their actions, however, will be that spreads will go up sharply and then banks will cut their credit lines and pull out as well. This spreads contagion across different actors, a phenomenon already observed during the Asian crisis (see Gottschalk and Griffith-Jones, 2003).

Finally, in addition to peer pressure, performance criteria and legal threats, human psychology may play an important role in determining herding (see discussion above).

11 Constraints on investing in EMs

This section complements previous discussion of the possible constraints affecting investment in developing countries, and which inhibit capital flows to these countries despite the promised benefits of international portfolio diversification.

For all types of lender and investor, today's low returns and high risks constitute the main problem for lending to, and investing in, emerging markets. These reflect, at least in part, the economic downturn the global economy is experiencing, and the corresponding slow growth prospects amongst most emerging market economies.

Other macroeconomic factors concerning EM economies that have inhibited capital flows to them are lack of investor confidence in the policies pursued and in their sustainability. Nowadays, investors express caution about countries that adopt rigid exchange rate regimes (in the pre-East Asian crisis period they would have probably expressed the opposite view). On the political front, concerns include election cycles, lack of good governance, and so on.

As regards EM capital markets, the main problems international investors face relate to lack of liquidity and size of the market. As some financial market analysts put it, 'liquidity is key', and in emerging markets, 'there are some liquidity holes'.[29]

At the regulatory level, a constraint that affects portfolio flows are the limits to OECD pension fund investment abroad. For example, German pension funds face upper limits for investing in non-EU equities and bonds of 6 and 5 per cent; and Switzerland and Sweden impose limits on foreign assets of 30 per cent and 5–10 per cent, respectively (Davis 2002: Table 7). However, these types of restrictions are not generalised amongst OECD countries. Countries such as the US, UK and Japan impose no restrictions on foreign investment.

Other regulatory constraints that affect UK pension funds in particular, are the recently implemented Minimum Funding Requirement (MFR) and the new accounting standard FRS17, introduced to encourage a closer matching of assets and liabilities. Because these regulations compare assets and liabilities at a given point in time, they may be inhibiting risk-taking and portfolio diversification (see Kimmis *et al.* 2002).

In addition to the general constraints mentioned thus far, the interviews have also made clear that each category of flows – equities, bonds and lending –faces specific problems at present.

As regards equities, an important structural change that has been mentioned earlier is that companies in EMs are raising capital in New York and other stock exchanges through ADRs and GDRs. Although this is in itself a mechanism to attract foreign flows, it contributes to emptying local stock exchanges. Moreover, big companies have already been acquired by foreign capital, so investors think there are only a few companies left that can offer adequate risk/return characteristics; and in East Asia in particular, many companies are still family-controlled. A further structural change that is affecting equity flows to emerging markets concerns the trend, pointed out above, towards the increasing predominance of global funds and a decline in exclusively dedicated funds. Global funds are in search of liquidity – a key problem in EMs as just mentioned – and suffer from information asymmetry. These factors tend to make such funds focus on big markets in detriment to the emerging markets.[30]

In relation to what is nowadays known as Codes and Standards (C&S), investors point to information asymmetries, poor corporate governance and levels of disclosure, and poor settlement

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[29] Persaud (2001) presents an interesting analysis of possible causes of liquidity holes in emerging markets, in which the current trend in international capital markets towards lack of diversity amongst investors is highlighted (see further below).

[30] These funds, of course, also invest in bonds.

systems as obstacles to investing in emerging market equities. With specific reference to corporate governance, legislation is unfavourable to minority shareholders' rights.

As regards bonds, investors claim that lack of a lender of last resort, the official sector inclination towards supporting PSI initiatives and orderly debt workouts are factors that can potentially negatively affect new flows to emerging markets. A further problem relates to liquidity. Investors normally avoid trading with bonds that are less than US$300 million when issued. This is a problem that particularly affects small countries.

In the case of banks, a key regulatory issue is the Basle II proposal. International lenders agree with the view that although the level of bank lending to developing countries is already very low, such rules, if implemented, could crystallise this situation.

Table 11.1 summarises the specific factors constraining lending to/investing in developing countries faced by different financial actors.

Table 11.1 Lending to and investing in developing countries: constraints specific to different actors

	Constraints on investing in EMs
Pension funds	Some OECD countries face restrictions on foreign investment; asset-liability structure.
Global investment funds	Lack of liquidity and information asymmetry.
Dedicated investment funds	Problems with investing in EM stock markets that increasingly lack depth and breadth.
Banks	Problems with personal security.

Source: interview material.

Finally, in addition to the constraints affecting investment in EMs, investors see specific problems regarding poor countries. These include acute lack of liquidity, lack of companies in which to invest and problems with personal security. The latter was a factor mentioned by various interviewees. Furthermore, poor countries suffer from 'information failure' more acutely than medium-income developing countries do. Lack of information that can be appropriately quantified by potential investors is seen as an additional deterrent to investment in this category of country. In India – a large poor country and a major recipient of investment – an investor mentioned problems including continuing restrictions on foreign capital and taxes on capital gains.

Discussing the possible constraints faced by investors in poor countries, it is really important to understand why sub-Saharan Africa, comprising a large number of poor countries, is perceived as having been largely unaffected by international capital flows. The question, to which we now turn, is whether this perception is accurate and, to the extent that it is, what the constraints are that inhibit greater lending and investing in the region.

12 Capital flows to sub-Saharan Africa

Recent research indicates that private capital flows to the region during the 1990s were considerably greater than believed (after the crises of the late 1990s some decline has been observed). Part of this gap between perception and reality is explained by the inadequacy of data published by international organisations, that has been obtained from national sources and which underestimate capital flows to the region (Bhinda, Griffith-Jones, Leape and Martin 1999). Data gathered by senior officials of selected sub-Saharan African countries show that these flows were much greater. In any case, overall data information, whether national or international, indicates that capital inflows to some countries amounted to 10–15 per cent of their GDP at some points during the last decade, having a significant impact on their economies.

If it is true that substantial capital has flown to sub-Saharan Africa, what can explain this phenomenon?

As regards portfolio equity flows, push factors have been identified as important in explaining the flows to Africa in the 1990s, particularly the decline in the US interest rate and the cyclical downturn in developed countries (see Bhinda *et al.* 1999). That is, investors searched for higher returns through portfolio diversification. Moreover, shares in these countries were seen as undervalued, which increased expected returns and compensated for perceived higher risks. A further reason for investing in these countries' stock exchanges was that these markets were seen as bearing a relatively low correlation with developed markets, certainly much lower than the correlation between developed countries' markets and those of Latin America and other developing regions. However, as argued above, as flows increase, correlation is expected to move up as well, as the degree of stock volatility returns. Thus, in so far as the region becomes more integrated into the world capital markets, some of the factors that had attracted flows to the region may disappear.

Perceptions of the region vary considerably among investors (Bhinda *et al.* 1999). Dedicated fund managers are generally better informed, whereas global ones have rather volatile perceptions, being euphoric in good times (e.g. positive performance in stock exchanges) and very pessimistic in bad times. An interesting point is that as investors diversify their portfolio, they have less information to support their decisions (Calvo and Mendoza 1995, cited by Bhinda *et al.* 1999). This is mentioned as a cause for less investment in the region. As seen above, the business literature supports this hypothesis. In addition, managers are subject to short-term assessments (every three months), which works as a disincentive to invest in the region, since its economic volatility is perceived as higher, jeopardising short-term returns and therefore performance.

What about the role of national factors in affecting the investment decision process?

Table 12.1 displays the national factors (compiled by Bhinda *et al.* 1999) that are seen by investors as important in their decision-making process. They range from purely economic factors, such as growth performance and exchange rate prospects, to institutional factors such as private ownership, to more political ones (e.g. political stability).

Table 12.1 National factors underlying investor behaviour in sub-Saharan Africa

Macro	*Structural*	*Institutional*	*Sectoral*	*Political*	*Others*
Growth performance; other macroeconomic variables; economic policy co-ordination; exchange rate prospects.	Soundness of domestic financial system; regional economic integration; availability of natural resources; transport and telecom networks.	Private ownership; common regional regulation and supervision in banking; development of stock exchanges.	Low cost, volume-driven primary sectors.	Political stability.	Levels of corruption; bureaucracy; motivated labour force; donor support for portfolio investment.

Source: author's elaboration, based on Bhinda *et al.* (1999).

Table 12.2 Factors inhibiting lending to and investing in developing countries

Factors related to:	
Supply-side	Prohibition of the use of instruments that may facilitate portfolio diversification (e.g. derivatives); slow-moving governance structure of funds; industry restrictions on investment abroad; performance assessment based on domestic benchmarks; regulatory constraints.
Information	Information asymmetry; predominance of global funds (which suffer particularly from information asymmetry); insufficient information for forecasting and analysis; cost of information; information comparability.
Risk	Perception of low returns and high risks since the Asian crisis; currency risk; sources of risk: shallow markets; lack of liquidity; high level of concentration; multitude of existing financial instruments; risk between home and foreign assets assessed differently.
Costs	Cost of international management; international custodian costs; commission and transaction costs.
Psychological	Home bias; investors' overconfidence.
Host country factors	Lack of confidence in policies and their sustainability; rigid exchange rates; election cycles; lack of good governance; market characteristics (patterns of share ownership); degree of government regulations; tax effects.
Equity-specific	Emptying local stock exchanges (due to companies raising capital through ADRs and GDRs); few companies left following privatisation; family-controlled firms (esp. in East Asia); C&S-related (poor corporate governance and levels of disclosure; poor settlements systems; legislation biased against minority shareholders' rights).
Bonds-specific	Lack of lender of last resort; official sector inclination towards supporting PSI initiatives and orderly debt workouts; liquidity-related (avoiding trading with bonds that are less than US$300 million when issued).
Investment Banks-specific	Lack of lender of last resort; PSI initiatives and orderly debt workouts; problems with personal security; Basle II: may crystallise low levels of lending.
Poor country-specific	Acute lack of liquidity; lack of companies to invest in; acute 'information failure'; lack of information that can be quantified; personal security.

Source: the business literature (see Part I); interview material and Bhinda *et al.* (1999).

12.1 Bank lending

Bank lending to the region has been mainly associated with the presence of foreign banks. In the case of short-term and medium-term lending, the level of risk involved and the existence of risk-mitigation mechanisms have been key in explaining these flows to the region. For example, short-term lending has been linked to better export performance; medium-term lending, in turn, has been made possible with reduced risk through guarantees and co-financing by IFIs (WB, IFC, EIB). FDI involvement in a project is pointed out as another important risk-reducing factor.

On the other hand, important factors deterring lending are: provisioning guidelines banks have to follow; the fact that export credit agencies have suspended guarantees against non-repayment of loans in most of SSA since the 1980s; and the external debt burden.[31]

Table 12.2 summarises all the factors mentioned in the literature review, the interviews and in this section that may have been inhibiting lending to and investing in developing countries, including the poorest ones.

13 Summary and policy recommendations for lending and investing more in EMs

This section summarises some of the findings reported in this study and attempts to outline a set of policy proposals aimed at encouraging more capital flows to developing countries.

A key finding that deserves further analysis is the fact that investor behaviour is not so homogeneous as we have been led to believe. Diversity can be found among investors, between investors and lenders, and among lenders as well. According to our interviews, even the same investment house adopts different investment strategies within different investment divisions. How does this fit with our pre-conceived idea that investors behave very similarly?

As we have seen, the decision-making process is complex, consisting of different phases – asset allocation, security selection and risk management. These phases together comprise what we call here the "investment cycle". During the first two phases of the investment cycle, diversity in investment behaviour may be indeed the case. Moreover, this diversity may have had positive, though limited, implications for developing countries. In normal times, some lenders and investors seem to have been inclined to invest in such countries more than others, through an allocation process in which alternative investment choices are considered and information can play an important role.

However, in times characterised by high uncertainty, lender and investor behaviour tends to converge very rapidly, particularly in their risk-management activities. This convergence takes place not only within the same categories of financial player, but across different categories of player. Thus,

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[31]   Annex Table A.1 summarises the recent characteristics of different types of player.

although some degree of diversity may also be found during the risk-management phase, this diversity collapses and is replaced with herding behaviour – a key factor underlying financial crises in developing countries.

This leads us to the issue of information. During periods of high uncertainty, which may lead to herding, the role of information tends to become very limited (although some investors may argue that it may be useful in discriminating between countries, and this could help reduce contagion effects). This is because risk-management systems tend to collapse in the face of uncertainty and, as a result, information, which is a key input to such systems, becomes irrelevant.

In normal times, information seems to have ambiguous effects. On the one hand, information can have a very positive role, when it is used to inform lenders and investors in their allocation and security selection process. Given that the lack of information (which leads to problems of information asymmetry), and in particular the cost of information, have been highlighted as major contributors to limited portfolio diversification towards developing countries, providing information about these countries could effectively promote the channelling of lending and investment funds to them.

On the other hand, the use of information may turn out to be problematic. An increase in the availability of information, which has been amply encouraged as a way to reduce the occurrence of crises in developing countries, may actually accelerate a crisis. It could even contribute to the occurrence of a crisis that could perfectly well have been avoided. This hypothesis, which is not confirmed by a recent study by Gelos and Wei (2002),[32] should be investigated further.

Moreover, to the extent that information becomes available on a continuous basis (e.g. high frequency data), it may make possible the use of VAR techniques that could not be used before due to lack of quantifiable information. The generalised use of similar techniques may intensify herding. Again, this is a crucial hypothesis that deserves further investigation. If true, it poses serious dilemmas for policy-makers. While increasing the flow of information to markets may encourage the adoption of VAR models, it may well be the case that the markets will in any case adopt such models sooner or later, and those countries unable to provide information may be excluded from investors' portfolios.

Another important aspect of the decision-making process is that it involves various actors – investors, consultants, trustees, fund managers, analysts, and so forth. This poses a major challenge to policy-makers, as it is difficult to know whom to target in order to encourage more capital flows to developing countries.

As regards the constraints on investing in developing countries, we have seen that, in addition to information, the obstacles to investing in such countries can be: country-specific (e.g. related to macroeconomic conditions, corporate governance, etc.), supply-side related (industry restrictions on overseas investment, investment performance based on domestic benchmarks); risk related (e.g. currency risk, different risk assessments for different countries, liquidity); and psychological in origin (home bias,

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[32]   Gelos and Wei (2002) show that those countries most transparent (through the provision of information) are less likely to suffer a financial crisis.

overconfidence). Problems relating specifically to poor countries include lack of liquidity, lack of companies in which to invest, acute "information failure" and personal security issues.

Drawing on the above, in what follows we provide a set of preliminary policy recommendations designed to encourage more private capital flows to developing countries, in addition to those already suggested in Part I. Some of these recommendations were discussed with financial market participants, and thus incorporate their suggestions for improvement. Others are drawn from the market participants themselves.

Market participants emphasised the need for developing countries to promote sound macroeconomic policies; moreover, in their view it is important that these countries improve their legal and political systems. They put much emphasis on the need for the rule of law and corporate governance, and more business-friendly conditions. Although these recommendations are very important, in what follows our focus will be on those policy measures and initiatives that can be implemented in the source countries.

As suggested earlier, taxation is one area that we believe should be addressed in order to encourage more private flows to developing countries and overcome psychological barriers such as "home bias". For example, tax incentives could be offered to pension funds, and eventually to other investors. In the view of one fund manager – a view apparently shared by many others – these incentives would have to be generous to be effective. Therefore, more consultation is needed for the design of a scheme likely to have maximum impact.

A further helpful measure might be the provision of guarantees, as a way to at least partially deal with the problem of risk, since this has been repeatedly mentioned by lenders and investors as a major barrier to investing in developing countries, especially the poorer ones. These guarantees could be provided in normal times to encourage flows to those countries that otherwise do not have access to international financial markets, and also at times of risk aversion. Providing guarantees in a context of high risk could help influence investors' appetite for risk. As seen above, tackling risk aversion is crucial, as it has been a major factor behind the decline in flows to developing countries since the East Asian crisis.

As seen earlier, a key problem discouraging investment in developing countries is lack of liquidity. In this regard, it is interesting to note that Persaud (2001) calls attention to the link between investor behaviour and the creation of liquidity holes in developing countries. He believes that this has to do with the fact that investors use similar models, leading them to act in similar ways in the face of changing circumstances in developing countries. If a negative event takes place, they may overreact collectively thereby creating acute liquidity problems in specific markets. He suggests international regulators should encourage more diversity in terms of the models used by investors. Each model could be tailored to investors' specific needs, inducing them to react to given events in different ways. This, Persaud believes, could reduce the likelihood of market liquidity drying-up.

Moreover, diversity in risk management should be encouraged in order to reduce herding, thereby helping to reduce the occurrence of financial crises in developing countries. More generally, diversity should be encouraged in all phases of the investment cycle. If diversity during the asset allocation phase

increases, developing countries would have a greater chance of access to capital flows, as some investors would be more inclined to invest in such countries.

The measures just mentioned may be useful to different asset categories. In what follows, we will consider measures that would be useful to specific kinds of investor/categories of assets.

In relation to bonds, one financial market participant suggested the creation of a Latin American Borrower Authority. It would be an entity that would pool countries of the LA region (of course, this idea could be also applied to other geographical areas), and would issue bonds on behalf of the member countries. These bonds would be issued at AA credit rating, and would be supported by collaterals. The authority would also be able to raise money in the international financial markets as an AA borrower, and thus lend to member countries at reasonable interest rates. In addition, the authority would be able to set limits on the amount of money a country could raise, in the form of bond-issuing or through borrowing, in order to avoid the excessive flows that tend to occur in good times. The authority would, of course, particularly benefit those countries too small to raise money in the international capital markets. The suggested authority would be very similar to existing institutions that have already proved successful in raising capital for a group of countries. The Corporación Andina de Fomento (CAF) is a case in point.

A regional approach could be also applied to equities. For example, several market participants suggested that developing countries should try to create regional stock exchanges. Some players, however, view this prospect with a degree of scepticism. They believe that the current trend towards increasing reliance on major stock exchanges based in developed countries is inevitable, and that it is hard to combine this with stock exchanges in developing countries. The latter would suffer greatly from acute liquidity problems – an issue of significant concern to investors.

Given the current tendency to raise capital in developed countries' stock markets, it might be helpful to make it easier for companies of a certain critical size to raise funds in developed stock markets. Local markets could be reserved for small companies.

Finally, in light of the problems indicated throughout this paper concerning the constraints imposed on fund managers by benchmarks and the pressures they are under not to deviate too far from them, several policy recommendations to investors (particularly pension funds), follow.

- Pension funds could change the way in which they look at the asset-liability match. Developing countries would particularly benefit from this change, because pension funds tend to have long-term liabilities, while developing countries can offer long-term rewards, even when the short-term gains look uncertain.

- Given the power consultants hold at present, it would be important to try to influence them. Alternatively, as suggested in the Myners (2001) report, trustees could be trained to become more skilled in the investment management field (or to delegate their work to an expert); they should in particular learn about the benefits of diversification and of investing in developing countries, and give more long-term mandates. In addition, they should invest more in in-house research and set up investment sub-committees, as has already been done in one major UK pension fund (see above).

- One could draw on the idea of socially responsible investment (SRI) to propose something similar for developing countries. That is, institutional investors could be encouraged to invest in developing countries for moral and economic reasons, in the same way they may be encouraged to do so for social, ethical or environmental reasons.

Appendix: Interviewees' institutions

Place	Occupation/Institution
London	**HSBC**
London	**State Street Bank**
London	**Bank of England**
New York	**JP Fleming Asset Management**
Boston	**Putnam Investments**
Chicago	**UBS Asset Management**
Newport Beach	(**PIMCO)**
New York	(**MSIM**)
New York	**Fidelity Management and Research**
London	**F&C Management**
London	(**IPMA**)
London	**Cross Border Capital**
London	**HSBC**
London	**BBVA**
New York	**Salomon Smith Barney (SSB**)
Reigate, UK	**Watson Wyatt**
New York	**JP Morgan Chase**
London	**JP Morgan Fleming Asset Management**
London	**American Express Bank (AMEX)**
London	**Rexeter**
London	**Rothschild Asset Management Limited**
London	**Barclays**
London	**Universities Superannuation Scheme Limited (USS)**
London	**Capital International**
London	**Mercer Investment Consulting**

Annex

Table A1 Lenders' and investors' recent traits

	Lending/ investment strategy	Allocation decision	Degree of risk aversion	Role of information	Use of models	Herding behaviour	Constraints on investing in EMs
Pension funds	Contrarians	Consultants play a major role	Moderate	Important	Little	Below average	Some OECD countries face restrictions on foreign investment
Global invest-ment funds	Momentum strategies	Top-down approach	High	Moderate	Yes	Yes	Lack of liquidity and information asymmetry
Dedicated invest-ment funds	Contrarians	Bottom-up approach	Moderate	Crucial	Little	Below average	Tend to be equity investors that are facing problems in investing in EM stock markets that increasingly lack depth and breadth.
Banks	Increasing within-country lending and declining cross-border lending	Top-down approach	High	Important	Some do	Yes	Lack of lender of last resort; PSI initiatives and orderly debt workouts; problems with personal security

Source: interview material.

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