

Financial Crisis: Implications for Developing Countries

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KEY FINDINGS

- The main empirical findings are summarised in Table I below. They are based on two measures: (i) the probability that a country will enter into economic crisis as a consequence of the current financial turmoil; and (ii) an indicator reflecting the relevance and vulnerability of countries to negative transmission effects from the crisis.
- The table reveals that some Danida programme countries face a higher than 10% probability of entering a crisis. They are: Vietnam (19%), Egypt (18%) and Nicaragua (12%). This reflects their comparatively deeper global integration in world markets alongside indications of greater macroeconomic or financial vulnerability.
- A watch list of countries is constructed containing countries with high scores across the two crisis measures. Vietnam and Nicaragua are the only two Danida programme countries to enter this list. Specific fragile states such as Sri Lanka, Pakistan, Sudan and Burundi also appear and merit concern due to potential regional and strategic repercussions.

Table I: Crisis measures for watch list and selected Danida programme countries

	Danida	Watch list	Crisis measures	
			Probability	Indicator
Maldives	0	1	80	2.2
Sri Lanka	0	1	58	0.9
Pakistan	0	1	36	0.7
Moldova	0	1	29	1.4
Sudan	0	1	27	0.7
Grenada	0	1	24	1.9
Burundi	0	1	21	1.2
Vietnam	1	1	19	1.0
Egypt	1	0	18	-0.3
Georgia	0	1	17	1.1
Guinea	0	1	12	0.5
Nicaragua	1	1	12	1.2
Kenya	1	0	9	-0.2
Tajikistan	0	1	9	2.2
Ethiopia	0	1	9	0.3
Djibouti	0	1	7	0.1
Bangladesh	1	0	4	-0.5
Honduras	0	1	4	0.3
Mongolia	0	1	3	1.1

1. Introduction

The current financial turmoil has been described as the worst crisis to engulf world markets since at least World War II. September and October 2008 saw some of the largest falls for decades in financial markets across advanced economies, alongside historically unprecedented spikes in volatility and risk perceptions. Neither emerging nor developing economies are immune and a number of countries have already turned to the IMF for emergency assistance. Despite some very recent glimmers of stabilization, fears of a deep global recession are now paramount and substantial uncertainty remains.

In light of the severity and global nature of the current crisis, the present paper seeks to gauge its implications for developing countries. This encompasses three main objectives. First, we attempt to take stock of recent events and identify the relevant transmission channels through which developing countries may be affected by the crisis over both the short- and long-term. Second, we provide a comparative assessment (mapping) of the risks facing developing countries based on the latest available data. Third, we consider the policy issues for developing countries and the international community raised by the crisis. The structure of the paper reflects these three objectives: Section 2 provides background and an overview of the crisis; Section 3 reviews theoretical and historical evidence for crisis transmission challenges; Section 4 presents the mapping analysis; Section 5 discusses policy implications; and Section 6 concludes.

The financial crisis is still unfolding. As such, its scope and implications cannot be determined with confidence. Moreover, current commentary can become obsolete very quickly. Even so, a number of messages from this paper are worth stressing. The main risks to developing countries from the crisis do not arise from immediate financial contagion. Rather the medium-term implications of reduced access to external capital inflows and a slowdown in global growth will be critical. Lower income countries appear to face lower immediate risks due to weaker integration in global markets. However, there is substantial diversity among developing countries, in part due to the divergent effects of commodity price movements and differential access to potentially stabilising aid inflows.

Before proceeding, it is useful to clarify the distinction between emerging market economies and developing countries (DCs). The former refers to (rapidly) industrializing countries such as those found in East and Central Europe, Asia and Latin America. Typically, they are middle income countries with relatively well-developed domestic financial markets and access to private global capital flows. In contrast, developing countries have less diversified economies, lower average incomes and often have limited or no access to global capital markets. Of course this distinction is loose; however the point is that the primary focus of this paper is on developing rather than emerging market countries. Further distinctions can be made within the set of developing countries, such as low income or least developed countries. These finer distinctions are only employed where necessary and are highlighted where relevant.

2. Background

The current financial crisis forms part of a period of major stress faced by the financial sectors in advanced economies, particularly those with significant operations in the United States and Europe. Initially, this was driven by the poor performance of assets associated with domestic real estate markets. Central among these were securities backed by 'sub-prime' mortgages, many of which entered into delinquency or default during 2006 and onwards.

Initially, the effects of the crisis were contained to financial institutions with heavy exposures to the US real estate market. Since September 2008, as the scale of losses became apparent, the crisis has entered a more critical phase. Failures of major financial institutions in advanced economies have given way to a rapid contraction of inter-bank lending, large equity market losses worldwide and substantially heightened risk aversion. Subsequently, large public sector interventions have been announced to stabilise markets and recapitalise weakened banking sectors.

With respect to the causes of the crisis, both longer- and shorter-term factors can be identified. Extensive deregulation of the financial sectors in advanced countries since the 1980s has transformed banking practices. Retail and commercial banks have entered into investment banking activities, enabling traditional banking operations to be funded through international capital markets as well as a growing use of highly complex and often weakly transparent financial instruments. According to Eichengreen (2008), enhanced competition in financial markets associated with deregulation also has stoked an increase in leverage across the financial sector. At the same time, this has occurred in a light-touch supervisory framework founded on the widely assumed ability of markets to correctly price financial risks.

Shorter-term factors also are crucial. The stock market crash of 2001 (dotcom crash) prompted the US to cut taxes and interest rates in order to dispel recessionary pressures. At the same time, the emergence of massive current account (trade) surpluses in China added considerable liquidity to international capital markets, much of which flowed to the advanced economies as presumed safe havens (in light of the Asian financial crisis of 1997/98). This provoked a rapid credit boom across the advanced economies (especially in the US), taking the form of a pronounced real estate bubble. This was pricked, however, by significant interest rate hikes from 2005 driven by concerns over rising inflation, partly associated with global commodity price rises.

The extent to which this crisis differs from previous ones is the subject of debate (Reinhart and Rogoff, 2008a). Two points can be highlighted. Firstly, the current situation bears considerable resemblance to other post-war banking crises in the industrialized economies given the conjuncture of financial deregulation, large capital inflows and rapid increases in real equity markets. Yet, better anchoring of inflation and flexible exchange rates may provide some amelioration. Secondly, contrary to the most recent global financial crises, current problems emanate from the advanced economies. Indeed, it is well accepted that developing and emerging market economies have been enjoying historically favourable macroeconomic conditions in recent years including low external

debt ratios and low inflation.¹ This is confirmed by Figure A1 (Appendix A), which shows that virtually all least developed countries (LDCs) have been able to add to their international reserves since 2004, with a median increase equal to 7% of 2007 nominal GDP.² However, as discussed below, macroeconomic stability has been tested more recently by movements in global commodity prices (fuel and food).

3. Transmission channels

The purpose of this section is to identify the main channels through which the current financial crisis is likely to affect developing countries. Three main types of effect can be distinguished: (i) immediate financial contagion; (ii) financing effects; and (iii) real sector effects. While the discussion in this section is couched largely in theoretical terms, later sections adopt a more empirical approach and seek to identify the extent to which certain channels may be more or less relevant for individual developing countries. Even so, given that certain effects already are visible in developing country markets, supporting evidence of a general nature is presented here.

3.1. Immediate financial contagion

A broad definition of financial contagion is when a market disturbance in one country or market quickly propagates to other countries and markets.³ While a number of different forms of contagion can be distinguished, principal among these is ‘fundamentals-based contagion’ (Calvo and Reinhart, 1996), which refers to both real and financial sector linkages between countries or markets. Where these links are strong (e.g., through trade), asset prices can be expected to move together. In the present crisis, a direct means by which DCs may be at risk of contagion is through cross-border financial investments. DC investors may be exposed to bad assets such as mortgage-backed securities originated in the advanced economies. Also, liquidity problems on international markets and heightened levels of uncertainty may lead institutional investors in advanced economies to deleverage positions and shift portfolios towards perceived safer investments (flight to quality).⁴ Together these effects can be expected to produce a deterioration of domestic and foreign investor sentiment, stimulating potentially large sell-offs of tradable overseas assets (equities and bonds) and associated price reductions. This tendency is likely to be magnified where accompanied by strong fears of negative real sector effects, leading to adjustment of equity valuations and risk perceptions.

In larger emerging market economies such as the BRICs (Brazil, Russia, India and China), which have relatively deep domestic capital markets and significant volumes of foreign investments, such

¹ As one study puts it: “many emerging markets have been running current account surpluses, lending rather than borrowing. Instead, a large chunk of money has effectively been recycled to a developing economy that exists within the United States’ own borders.” (Reinhart and Rogoff, 2008a: 15)

² The same measure for Danida programme countries is 7% of GDP. Many economies in SSA also report favourable macroeconomic and external positions, particularly when viewed in historical perspective (for discussion see IMF, 2008a; Jones, 2007).

³ This has been widely studied in light of the international effects of the Asian and Russian crises in the late 1990s, not to mention numerous historical studies (see Kindleberger, 1995; Reinhart and Rogoff, 2008b).

⁴ Deleveraging refers to a reduction in investment positions financed through borrowed as compared to equity funds. See Schinasi and Smith (1999) for a discussion of portfolio rebalancing and deleveraging as key aspects of financial contagion.

financial contagion effects already have been visible. Figure A2, for example, plots benchmark equity price indices for the G7 economies and emerging markets. Both indices have been severely and contemporaneously affected by the recent turmoil. Over the five months from (mid) May to October 2008, the emerging markets MSCI index lost 45% of its value versus 35% for the G7 MSCI index. For the period illustrated, the correlation coefficient between the two indices is 0.9 (compared to 0.56 for 1999-2008), indicating a high degree of equity market co-variance. This demonstrates that financial linkages between advanced and emerging economies have been significant and that investors may be moving out of emerging market assets due to increased risk aversion and recessionary concerns. Put differently, emerging markets are not immune to the recent turmoil.⁵

3.2. *Financing effects*

A second set of transmission effects refers to the broader financing implications of the crisis for DCs. As already noted, an important dimension of the crisis is a shift in investor behaviour and the adoption of more conservative investment strategies. Typically these go beyond short-term responses and can produce a lasting increase in financing costs for entities located overseas. Eichengreen and Rose (1998), among others, have noted that in ‘good times’ of liquidity surpluses and low real interest rates in advanced economies, investors may often seek higher yields in emerging and DC markets. However, when conditions change, the motivation to invest in these assets can dissipate quickly. This will be more pronounced to the extent that effective yields in advanced economies rise, which can occur even if Central Bank or Treasury policy rates remain low. Not only does increased risk aversion and uncertainty feed into higher inter-bank and corporate lending rates (as has been seen in the present crisis already), but also the significant demand for funds to recapitalise weakened financial institutions is likely to raise yields available to investors at home (Ablan and Zuill, 2008).⁶

Thus, combined with portfolio rebalancing and deleveraging, a likely outcome of the present crisis is a significant reduction in the supply of private capital to less developed countries, both as portfolio flows and direct investments.⁷ Reduced access to (higher costs of) external credit may generate financing or repayment difficulties for both companies and public agencies. Equally, a worsening balance of payments situation caused by sharp reduction in capital inflows can produce significant pressure in foreign exchange markets. To the extent that such problems are material, a debt/banking crisis may ensue and multilateral support may be needed in the form of IMF emergency lending. This prospect already has become a reality for emerging markets such as Hungary and Ukraine.

While it is difficult to predict how long financing challenges will last, the duration of the effects of the Asian crisis suggest they are unlikely to short-lived. Figure A3, for example, illustrates that total net private capital inflows to all emerging and developing countries remained below their 1996 levels for the entire period between 1997 and 2006, despite low real interest rates in advanced economies.

⁵ Many commentators similarly have argued that recent events indicate the weak extent of hypothesised ‘decoupling’ of emerging and advanced economies.

⁶ The same point also refers to investors from the South, who may face more enticing opportunities in channelling funds to advanced economies as compared to other LDCs.

⁷ This point is widely noted by commentators, e.g., Eichengreen (2008).

Although the present financial problems originated in advanced economies, it is plausible this could prolong its impact on DCs. The sheer scale of losses and recapitalization needs of advanced country financial institutions may well depress outflows for an extended period. In addition, future regulatory changes (see Section 5) may act to entrench the home-bias or risk aversion of investors, further reducing the flow of foreign private capital into higher risk overseas markets.⁸

A concrete signal of altered financing possibilities for emerging market entities comes from the bond spread, which is a measure of the risk premium on emerging market debt or the additional costs of financing issuers located in these economies face. As can be seen in Figure A4, which plots the benchmark JP Morgan composite emerging market bond index (EMBI), the spread fell relatively consistently from 1999-2006. This suggests that following the Asia and Russian crises of 1997/98, an increasingly favourable financing environment emerged for emerging markets. Even so, recovery from the Asian crisis was slow. The bond spread declined only gradually over the same period at a rate of around 80 basis points per annum.⁹ Starting from mid-2007, however, the index shows a trend increase as well as a spike associated with the recent crash in equity prices (Figure A2). Consequently, external financing conditions for emerging market firms have worsened dramatically. In addition, it might be unwise to expect any quick restoration of low bond spreads, even if financial conditions in advanced countries improve over the shorter-term.

The bond spread is mainly indicative of external financing possibilities (costs). Domestic financing opportunities may vary considerably, depending both on the depth of local financial markets and access to local savings. Even so, any contraction of the aggregate supply of funds holds implications for domestic markets. For example, on account of the crisis, foreign banks may be unwilling to extend short- or longer-term credits to banks based in DCs. This may constrain domestic credit growth and/or increase competition for domestic savings, leading to a rise in aggregate funding costs.

A final financing effect, especially pertinent for low income countries (LICs), is a decrease in development aid due to fiscal constraints faced by major donors.¹⁰ Historical data confirms this scenario should be taken seriously. Roodman (2008) calculates that after the Nordic financial crisis of 1991, aid from Norway, Sweden and Finland fell by 10%, 17% and 62% respectively (measured from peak to trough and adjusted for inflation). Private contributions from individuals and firms also may decline significantly. Not only are private philanthropic flows now very sizeable, which may have a significant effect in particular areas such as emergency aid and targeted health interventions (e.g., HIV/AIDS).¹¹ In addition, the predictability of aid also may fall as advanced countries adjust to changing fiscal circumstances; and these effects may not be distributed equally across countries due to differences in geo-political importance. Strategically less significant countries, such as some of the poorest African countries, may be relatively more exposed to alterations in aid flows.

⁸ See The Economist (2008a); for a more general discussion of home bias see Lewis (1999).

⁹ Based on a regression of the composite index against a time trend, plus dummies for 2001 and 2002.

¹⁰ This possibility has been raised in the United States; Senator Joe Biden recently argued that as a consequence of the crisis "... the one thing we might have to slow down is a commitment we made to double foreign assistance." (vice-presidential debate, 2 October 2008)

¹¹ Private aid flows totalled approximately US\$34 billion in 2007 (40% greater than US bilateral aid).

3.3. *Real sector effects*

The transmission of changes in financial or monetary variables to the real sector has been analysed extensively by for example Kamin et al. (1998). In the present crisis a key channel for DCs is through external trade. A recession across advanced countries, now widely expected due to the scale of the financial crisis, would have direct income and growth effects on DCs via reduced demand for their exports. Even though South-South trade has grown substantially in recent years, consensus predictions are of a slowdown in growth across Asia also as a direct consequence of the financial crisis (The Economist, 2008b). Thus, continued growth in emerging markets cannot be expected to fully offset reduced demand from the advanced economies. Associated relative price changes may exacerbate the effects of a slowdown. Commodity prices typically are pro-cyclical, meaning that a (global) economic downturn is likely to bring about significant price declines, particularly in primary commodities. These dynamics already have been manifest by recent sharp falls in key commodity prices such as crude oil. As of end October 2008, one month futures contracts for Brent crude have fallen in price by 50% from highs reached in July of this year.

A second channel for DCs is the real effects of reduced access to, or higher costs of, credit and equity funds. At the domestic level this can contribute to a reduction in aggregate demand on top of any decline in exports, with potential knock-on implications for employment. Moreover, reduced external inflows of capital are likely to directly affect investment rates. The availability and cost of credit is frequently found to be a significant positive correlate of private investment in both developed and developing economies. Heightened uncertainty and/or deterioration in asset prices also can prompt agents to hold back on investment decisions. Thus, given that equity and bond prices already have witnessed considerable volatility and losses in many emerging markets, substantial implications for real sector growth cannot be dismissed.¹²

The interaction between negative financial and real sector effects has the potential to become self-reinforcing. This occurs where financial crisis leads to tough credit conditions and lower aggregate demand, which in turn feeds into reduced profitability and potential repayment difficulties for firms, thereby further worsening banks' loan portfolios. Additionally, deteriorating income and employment conditions in the advanced countries can spill-over into lower remittances from migrant workers. This can add to the uncertainty facing economic agents in DCs and feed into deeper contractions in aggregate demand, including investment. The poor typically are hit hardest by negative economic shocks due to the precarious nature of their income sources and their lack of access to savings or credit. Thus, any effect of the crisis on remittances is particularly relevant. It is the poorest segments of the population who are often more dependent on these inflows.

Finally, the combination of financing and real sector challenges can place significant strains on government finances. Slower growth typically leads to a reduction in tax revenue growth while at the same time prompting demands for increased government spending, particularly on social

¹² In Nigeria, for example, domestic banks have been lending heavily against a bullish stock market. However, to date equity markets have lost around over 30% of their value since March 2000. Consequently, both wealth effects and higher repayment burdens may undermine future investment rates.

programmes and demand-stimulating investments. This pressure may be more extreme for lower income countries that rely heavily on commodity exports and have very narrow tax bases. Also, external and domestic financial pressures can increase government borrowing costs making it more difficult to finance budget shortfalls. These challenges suggest a heightened need for prudent and credible macroeconomic and fiscal policies, a discussion taken up in Section 5.

4. Mapping the implications for developing countries

4.1. Methodology

Thus far our analysis has remained at a generic level. Although some evidence for the effects of the crisis on developing countries has been presented, much of this refers to (middle income) emerging market economies and may be less applicable to lower income economies. Moreover, recent shifts in global economic conditions have led to significant divergences between developing economies in terms of their macroeconomic circumstances (IMF, 2008b). This has arisen principally from the divergent inflationary and terms of trade effects of movements in global commodity prices, which have been pronounced since 2005. Differing conditions are evident as much within as between developing country regions and income groups. As a result, the implications of the financial crisis need to be understood in the context of other recent economic changes (dubbed a ‘triple crisis’ of fuel, food and finance).

Case studies based on detailed understanding of local institutional circumstances and historical experiences are indispensable for deriving meaningful policy advice. However, in light of the comparative intentions of this paper, a broader approach is taken. The objective is to try and identify developing countries that may be particularly affected by recent global financial events. This is undertaken through the construction and analysis of a parsimonious set of indicators that seek to capture both the *relevance* of recent global changes for economic developments (conditions) at the country-level, as well as pertinent dimensions of economic *vulnerability*. The approach is motivated by the extensive literature on financial crisis early warning systems (e.g., Goldstein et al., 2000; Hawkins and Klau, 2000).

There are four distinctive aspects of the method used here. First is the focus on the relevance of the crisis. This reflects the point that the origins of the first-round effects of the crisis are external to developing economies such that countries with limited financial or real sector linkages to external markets may face limited impacts compared to those that are deeply integrated with global markets. Second, the concept of vulnerability is not restricted to purely financial or banking system soundness indicators. Rather, broader macroeconomic conditions are included due to the importance of inflationary and current account pressures in some countries. Third, the scope of analysis is not limited to larger emerging market countries with comparatively deep domestic capital markets. Rather, attention is given to developing countries and low income economies in particular. Finally,

based on the constructed indicators, very recent ‘crisis event’ data taken from requests for IMF assistance and ratings agency downgrades are used to predict the probability of crisis.¹³

Before proceeding, a few technical issues merit attention. The core sample of countries selected for the comparative mapping analysis is set out in Appendix B. These are developing countries classified as IDA-eligible borrowers (International Development Association of the World Bank), the vast majority of which are also Less Developed Countries according to the United Nations’ definition. Consequently, high and upper-medium income countries are eliminated. At the same time, in order to cover all Danida programme countries, Egypt is included in the set despite not being an IDA-eligible borrower. Lastly, a small number of specific outliers such as Zimbabwe and Vanuatu are excluded in order to maintain coherency.

As discussed further below, the analysis starts by identifying a set of variables that capture the relevance and vulnerability of countries to the current crisis. To facilitate comparison across variables, they are then transformed into standardized indicators. This is undertaken in usual fashion by subtracting each country observation from the group mean and dividing by the group standard deviation, thereby creating a dimensionless variable with mean zero and standard deviation of one.¹⁴ In addition, aggregate indicators are created by calculating simple averages across individual indicators. These aggregate indicators are standardized in the same way, although typically this involves very minor adjustments to actual values.

We highlight two important aspects of the indicators. First, they are constructed in a consistent fashion such that high values are always a cause for greater concern. With respect to international reserves, for example (see further below), a high indicator value indicates a *low* reserves to GDP ratio. Secondly, the indicators only capture relative rather than absolute differences between countries in the selected set. Specific indicator values do not map into estimated critical thresholds associated with any economic crisis.

Some limitations of the approach also can be noted. Although guided by relevant literature, the choice of indicators here is somewhat subjective. It is also constrained by the availability of recent data, which is most important in the present circumstances. For example, the latest data on fiscal pressures, such as the budget deficit, is not easily available for the full range of selected countries. The same is true for credit expansion and specific financial depth variables. Finally, the crisis event data (see below) is only indicative of a high risk of crisis as perceived by financial markets; it is not an objective measure. As such, the overall approach should be seen as a starting point rather than an end in itself. However, it provides a transparent and rigorous means to differentiate between countries along different dimensions and therefore allows specific countries to be flagged.

¹³ The novelty here is not the prediction of crisis *per se*, but rather the use of most recent event data. As such this approach goes some way to address the critique that each crisis is unique.

¹⁴ The group here is the core sample described in Appendix B.

4.2. Choice of indicators

Concerning the relevance of different transmission channels for individual DCs, there is widespread agreement that extensive and immediate financial contagion is likely to be limited (Oxford Analytica, 2008). Both due to regulatory controls and the limited sophistication of many DC financial sectors, (own-account) investments in international securities and capital market instruments are extremely small, if not non-existent. In turn, minimal direct exposure to collapsed asset prices in advanced economies significantly reduces the risks of an immediate banking crisis. At the same time, while foreign banks do have considerable operations in DCs, these operate principally as subsidiaries and thereby must meet capital adequacy requirements at the domestic level.¹⁵

It is appropriate, therefore, to focus attention on transmission channels which hold medium- and longer-term implications for DCs. Obvious candidates here are the extent to which economies are reliant on (net) external capital inflows, particularly inflows from private entities such as portfolio investment, foreign direct investment and remittances. The prospect of a decline or even reversal in such flows to DCs is a factor with historical pedigree and is widely cited as likely given recent developments (see above). Even for SSA, previously seen as marginalised from global private capital flows, both portfolio direct investment and remittance flows have surged in recent years (IMF, 2008a). Using latest available data, the volume of each of these different flows relative to GDP therefore is used as a proxy for their economic importance. In turn, this provides an indicator of the relevance of changes in the behaviour of such flows at the country-level.¹⁶ An additional dimension is the extent of reliance on export income. Where this is comparatively large, the effects of a slowdown in export demand, as well as knock-on impacts on other domestic sectors and changes in relative prices may be more acute. Consequently, an additional ‘crisis relevance’ indicator is the value of exports to GDP. Taken together, these four components capture the importance of external financing and trade linkages that may act as transmission channels for the crisis.

Numerous measures of economic, fiscal and financial vulnerability have been proposed in the literature (e.g., Hawkins and Klau, 2000; Mulder and Bussiere, 1999). Many of these attend to specific aspects of the financial sector such as non-performing banking sector assets and changes in the supply of credit, as well as alterations in credit ratings. Typically this kind of data is only available in a timely fashion for larger emerging market countries. For low income countries, which dominate the analytical sample here, cruder measures must be adopted. To reflect the importance of recent inflationary and current account pressures associated with fuel and food price commodity rises, four macroeconomic vulnerability measures are used. They capture the *level* of observed pressures in domestic prices and the current account, as well as *recent changes* in these two variables. Movements in the current account are critical because they capture the combined effects of changes in the terms of trade as well as net external financing. Indeed, it is widely recognised that

¹⁵ Foreign-owned banks operating in DCs typically are retail and commercial banks (e.g., Barclays, Stanbic, Citigroup) rather than investment-only banking operations. As such, they are more robust to the current crisis given they have larger retail financing bases.

¹⁶ Further technical details of all indicators and their underlying data sources are given in Appendix C.

countries with large current account deficits and a high reliance on private capital inflows (to finance this deficit) may be particularly badly affected by the crisis.¹⁷

A further set of external financial vulnerability indicators are constructed, reflecting the health of countries' external balances both in terms of liabilities (debt obligations) and assets (reserves). These variables are standard components of financial crisis early warning systems. Consolidated net foreign liabilities to BIS banks, including debt securities, is calculated as a percentage of GDP in order to gauge the relative size of external payment obligations and vulnerability to a sharp withdrawal of funding and/or external deposits. The stock of debt to official multilateral creditors (relative to GDP) also indicates the extent of the external debt burden as well as the accumulation of past vulnerabilities. Finally, both the current stock and recent changes in international reserves provide signals of macroeconomic pressures.^{18,19}

The above indicators are supplemented by additional variables (also detailed in Appendix C) such as net aid to GDP, index scores of economic and overall state fragility and measures of the adequacy of country policy frameworks based on World Bank CPIA scores. These provide further information to assess the ability of individual countries to withstand changes in external conditions and implement prudent policy responses.

4.3. *Mapping results*

This sub-section presents and discusses the main results of the mapping analysis. Given the number of dimensions covered by the individual indicators, it is helpful to explore the aggregate indicators first.²⁰ Table 1 shows pair wise correlations for these aggregate indicators and additional variables of interest, indicating the extent to which different measures are related and, if so, in which direction. A key finding is that the crisis-relevance indicator is associated with other variables in intuitively plausible ways, thereby lending support to the methodology. Given this indicator reflects *de facto* openness to external trade and financial flows, it is no surprise that it is associated positively with real GDP per capita and negatively with both aid flows and the state failure score (for which higher values mean more failure). In other words, and as found in many other studies, successful integration in global markets tends to be associated with better socio-economic performance and a lower reliance on official assistance.

¹⁷ The current account measure used here is not restricted to trade in goods; therefore, it accounts for current income transfers such as (net) development aid and remittance inflows.

¹⁸ The suitability of these macroeconomic and financial vulnerability indicators is confirmed elsewhere. For example, the World Bank states: "The deterioration in external positions over the past year has left many developing countries more vulnerable to external shocks. Countries with heavy external financing needs are most vulnerable, particularly in cases where private debt inflows into the banking sector have fuelled rapid expansion in domestic credit and raised inflationary pressures." (World Bank, 2008a: 3).

¹⁹ The IMF's recent analysis of conditions facing sub-Saharan Africa makes similar points: "There are unprecedented risks to the global economic outlook, and the resilience of growth and macroeconomic stability in the [African] continent is being put to a test. ... Those countries facing inflationary import price shocks, declines in their terms of trade, and lower remittances and private capital inflows face an especially acute challenge; a shortfall in aid would be a further difficult blow. More generally, recent volatility underscores the lesson that countries enjoying favourable circumstances should build an adequate external reserve cushion." (IMF, 2008c: 2)

²⁰ Tables B1 and B2 (Appendix B) present results for individual countries across the aggregated indicators. More detailed country tables are available from the authors on request.

Table 1: Pair wise correlations for aggregate indicators

	Crisis-relevance	Vulnerability	
		Macro	Financial
Crisis-relevance	-	0.111	-0.241*
Macro vulnerability	0.111	-	0.179
Financial vulnerability	-0.241*	0.179	-
GDP per capita	0.474*	0.073	-0.385*
ODA/GDP	-0.212*	0.114	0.123
State failure score	-0.315*	-0.246*	0.301*
Policy index	0.113	-0.035	-0.304*

Obs. = 65; * significant at 10% level (or below)

Note: columns give Pearson correlation coefficients; variables are as described in Appendix C.

Source: authors' calculations.

Table 2: Average indicator scores by country groupings

Indicator	LDC group			Danida programme group		
	No	Yes	prob. /a	No	Yes	prob. /a
Crisis-relevance	0.60	-0.40	0.00**	0.10	-0.31	0.07 ⁺
Macro vulnerability	0.21	-0.14	0.16	0.03	-0.09	0.64
Financial vulnerability	-0.11	0.07	0.45	0.11	-0.34	0.08 ⁺
Overall	0.39	-0.26	0.01*	0.14	-0.42	0.07 ⁺
Number of obs.	26	39	65	49	16	65

Significant at ⁺ 10%, * 5%, ** 1% levels

Note: a. gives the (2-tail) probability of the t-statistic calculated from the difference between the group averages (using Welch correction); variables and groups are as described in Appendix C; equal weights applied.

Source: authors' calculations.

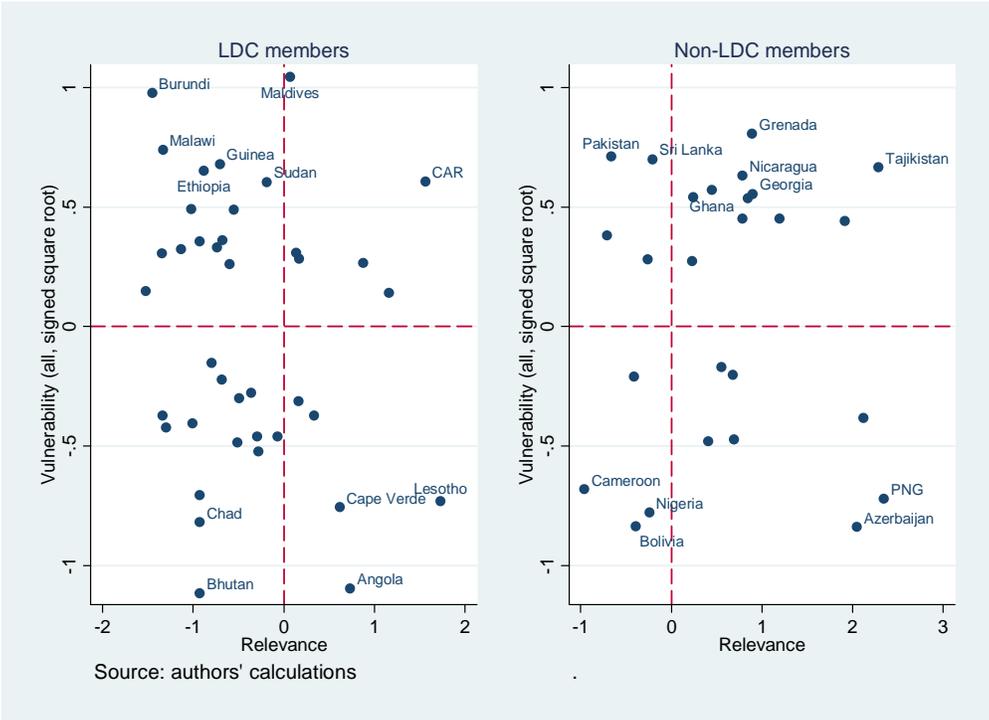
The financial vulnerability indicator tells a similar story; however, here the association is reversed. Broadly speaking, countries with more robust external financial positions are more successfully integrated in global markets, are relatively richer and have better economic policy frameworks. In other words, their economic success is characterised by the combination of integration and sound financial management. The macro vulnerability indicator provides a further dimension to the analysis. Not only is it uncorrelated with both other aggregate indicators, meaning it is providing new information, it also is negatively associated with state failure. This is understandable when one notes that many of the most 'failed' states are low income, resource-rich primary commodity exporters. These have been least adversely affected by recent global commodity price developments and, therefore, have been in a better position to contain their inflationary and current account effects. Thus, as desired, the macro vulnerability appears to reflect pressures in precisely these areas.

Before identifying specific countries that may be cause for concern, it is useful to investigate differences in indicators across country sub-groups. One classification, employed in Table 2, is based on Least Developed Country (LDC) and Danida programme status. As shown by the crisis-relevance

scores, both LDCs and Danida programme countries are relatively less dependent on external flows compared to their non-LDC, IDA-eligible peers. However, while for LDCs there is no significant difference as regards macro or financial vulnerability, Danida programme countries show significantly lower financial vulnerability scores. This may reflect Danida’s focus on relatively stable and non-failed developing countries, many of which have been able to benefit from extensive debt relief. Taking the (overall) average across the three scores, members of these sub-groups appear comparatively less at risk from the negative transmission effects of the current crisis. This is an encouraging result in the sense that LDCs are characterised by higher levels of poverty and lower government capacity and, therefore, may be less capable of addressing negative effects on their own.

Despite the above, group averages can hide significant variation. All countries within these groups do not face similar conditions. Taking the LDC and non-LDC groups separately, Figure 1 plots each country’s crisis-relevance score against its overall vulnerability score (the average of the macro and financial indicators). This confirms that only a small number of LDC countries combine high crisis-relevance and high-vulnerability scores (i.e., few countries are located in the top right quadrant of the left-hand panel). The plot also highlights a number of particularly vulnerable countries, as well as countries for whom the crisis may be less significant. Among the latter group Bhutan stands out as a prime example, characterised as it is by very few linkages to external markets. At the same time, there are a number of commodity exporters, such as Angola, Azerbaijan and Papua New Guinea (PNG), for whom the current crisis appears relevant but who also show reasonably low vulnerability scores which can be traced to low official external debt stocks and strong current account positions.

Figure 1: Scatter plot of crisis-relevance and vulnerability scores, by country



The most vulnerable countries are located in the top half of each figure, with those located towards the right-hand side also exhibiting higher crisis-relevance scores. Among these, a number of fragile states can be found, namely: Burundi, Central African Republic (CAR), Kyrgyz Republic, Malawi, Pakistan, Sri Lanka, Sudan, and Tajikistan.²¹ A pertinent threat for these countries over the medium-term is that negative effects arising from the present crisis act to exacerbate existing vulnerabilities and tensions. Although the crisis may be less relevant for some due to their weaker external linkages (e.g., Burundi), the combination of crisis-vulnerability and high fragility suggests particularly attention and, if necessary, international support should be given to this group.²²

4.4. *Watch list countries*

The previous discussion introduces a difficulty – how should scores along different dimensions be weighted? A simple average of the relevance and vulnerability measures (Table 2) may be less useful than some form of weighted combination. As a result, an additional analytical step is taken which involves using the aggregate indicators, alongside a small number of additional variables, to predict the likelihood of a financial crisis.²³ If the latter were known with certainty, then the current exercise would be futile. However, we do have some indications of countries that are *already* facing financial difficulties due to recent events. This includes countries currently in talks with the IMF for emergency assistance (e.g., Iceland, Hungary), and countries that have received negative outlooks or downgraded credit ratings by major ratings agencies (Moody’s, Fitch, Standard & Poor’s) in recent months. Defining these countries as those facing a current ‘crisis event’, this provides a basis to model the likelihood of a crisis using the aggregate indicators and other variables as predictors. This amounts to a (regression-based) weighting exercise whereby the set of explanatory variables are combined in a linear vector to give individual country scores (fitted probabilities).

Taking the existence of a crisis event as the dependent variable, Table 3 gives the results for two binomial probit models. Considering that the number of observed crisis event countries is small and that ratings agencies typically only cover advanced and emerging markets, the regressions are based on an expanded sample comprising all countries for which data is available (N=161). The two specifications (Models I and II) differ only by their ODA variable. As one can see from Model II, ODA as a percent of GDP has a large negative coefficient. However, this may reflect a selection bias arising from the range of countries covered by ratings agencies; thus, ODA per capita is used in Model I as an alternative. Overall, the two models have a good fit – correctly predicting 70% of observed crisis events on average (also pseudo R-squares are over 40%). Estimated coefficients on the explanatory variables are similar across the models and are in the expected directions. For example, higher state fragility is positively associated with a crisis event. Importantly, each of the aggregate indicators is significant at the 10% level (at least), confirming their predictive value and

²¹ The threshold here is a score of 88 or above on the ‘state fragility’ variable described in Appendix C.

²² In this regard it is notable that Pakistan has requested emergency support from the IMF; as the IMF press release puts it: “The Pakistani authorities have requested discussions with the IMF on an economic program supported by financial assistance from the Fund to meet the balance of payments difficulties the country is experiencing as a result of high food and fuel prices and the global financial crisis.” (October 22, 2008; <http://www.imf.org/external/np/sec/pr/2008/pr08254.htm>)

²³ This approach also provides a means to verify the contemporary validity of the aggregate indicators.

individual distinctiveness. Macro vulnerability, however, has a larger coefficient, indicating it has a higher weighting relative to the other aggregate indicators.

Table 3: Probit model for financial crisis based on ratings agency outlooks

Dependent variable: crisis event	Model I		Model II	
	coefficient	s.e.	coefficient	s.e.
Crisis-relevance	0.29*	(0.13)	0.28*	(0.14)
Financial vulnerability	0.33 ⁺	(0.20)	0.49*	(0.23)
Macro vulnerability	1.12**	(0.26)	1.17**	(0.29)
Fragile state index	0.52*	(0.27)	0.56*	(0.28)
ODA per capita	-0.50	(0.34)	-	-
ODA / GDP	-	-	-2.11*	(1.03)
Population (log.)	0.18	(0.11)	0.17 ⁺	(0.10)
Income group (LIC)	-2.41**	(0.87)	-1.48	(1.04)
Income group (LMC)	-1.12	(0.75)	-0.79	(0.80)
Income group (UMC)	0.58	(0.51)	0.56	(0.58)
Constant	-1.43**	(0.50)	-2.34**	(0.70)
N	161		161	
Pseudo R-square	0.41		0.45	
Chi-square	55.5		40.7	
AIC	95.7		90.2	

Significant at ⁺ 10%, * 5%, ** 1% levels

Notes: all variables and data sources are as discussed in the text; all variables excluding population (log.) and income group (dummies) are stated in standardized form.

Source: author's calculations.

The average of the fitted values from the two models is used to measure the probability that each country will face a crisis. Focussing on the core sample of developing countries only, Figure 2 plots this probability against the un-weighted average of the aggregate indexes (only selected economies shown). From this a watch list of countries can be constructed, constituted by countries that score comparatively highly on *both* measures relative to other countries in the core sample. The cut-off points are shown in the figure and the selected countries also are listed in Table 4, along with their average crisis probabilities, overall and aggregate indicator scores.²⁴ The watch list includes many countries that have been identified elsewhere as a focus for concern. Pakistan, for example, already has sought emergency assistance from the IMF. Others, such as Sri Lanka, Guinea and the Maldives (among others), appear in fiscal vulnerability categorizations such as those undertaken by the World Bank (2008b: Figure 1) and IMF (2008b: Table 6), which focus on vulnerability to rising fuel and food prices. The reappearance of these countries here testifies to the robustness of the mapping methodology.

²⁴ For each variable the cut-off point is the median plus 15% of the standard deviation. Thus, a watchlist country falls above this threshold for *both* the crisis probability measure and the aggregate indicator average. Note that the underlying distributions refer only to the core sample of developing countries.

Figure 2: Scatter plot of crisis probability and overall indicator average for selected countries

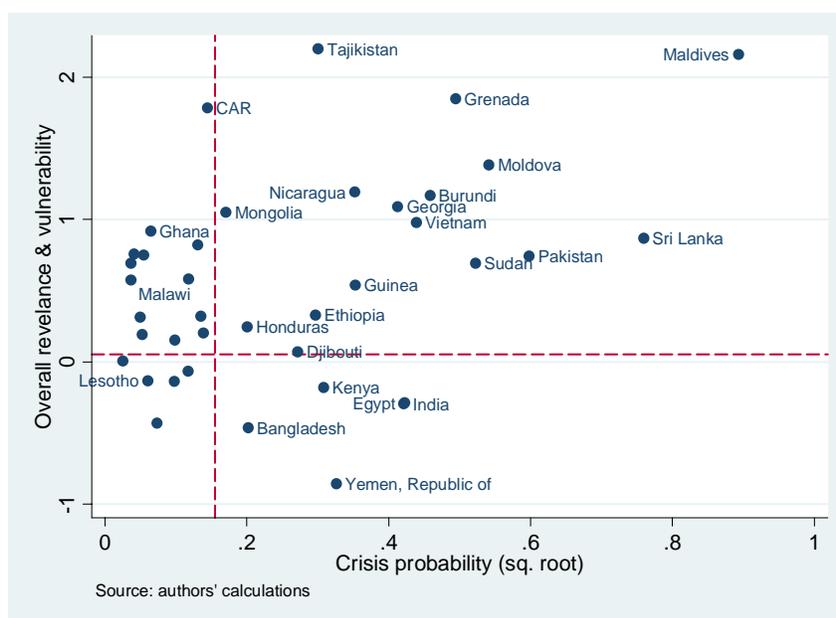


Table 4: Indicator scores and measures for watch list countries

	Crisis prob. /a	Indicator average /b	Crisis-relevance	Vulnerability		ODA/GDP	Policy
				Macro	Financial		
Mongolia	3%	1.1	1.2	0.7	0.0	6.4	3.3
Honduras	4%	0.3	0.7	0.3	-0.6	5.5	3.8
Djibouti	7%	0.1	0.2	1.5	-1.6	15.2	3.0
Ethiopia	9%	0.3	-0.9	1.1	0.4	12.8	3.5
Tajikistan	9%	2.2	2.3	0.9	0.7	8.5	4.0
Nicaragua	12%	1.2	0.8	1.2	0.1	13.9	4.0
Guinea	12%	0.5	-0.7	0.9	0.7	5.8	3.3
Georgia	17%	1.1	0.9	0.9	0.1	4.6	4.5
Vietnam	19%	1.0	0.8	1.2	-0.3	3.0	4.5
Burundi	21%	1.2	-1.5	1.5	2.0	45.1	3.5
Grenada	24%	1.9	0.9	1.2	1.2	4.8	3.0
Sudan	27%	0.7	-0.2	0.3	1.1	5.7	3.3
Moldova	29%	1.4	1.9	1.1	-0.6	6.7	4.0
Pakistan	36%	0.7	-0.7	0.4	1.6	1.7	3.5
Sri Lanka	58%	0.9	-0.2	1.0	0.7	2.8	2.8
Maldives	80%	2.2	0.1	2.8	0.9	4.2	2.8
Average	23%	1.0	0.4	1.1	0.4	9.2	3.5

Note: a. based on probit regressions (Table 3); b. standardized average of relevance and vulnerability indicators; variables and watchlist countries as described in the text and Appendix C.

Source: authors' calculations from relevant data sources (see Appendix C).

The table also indicates there is substantial diversity among these countries. The crisis probabilities, for example, range from 3% to 80% a finding partly explained by the negative impact of low income status and/or higher aid inflows on the probability of crisis. Indeed, the majority of developing countries have a crisis probability lower than 1% and less than a fifth of the LDC sub-group have a probability greater than 5%. Differences across the aggregate index scores point to further sources of diversity. Nicaragua and Vietnam show comparatively low financial vulnerability scores, reflecting their more robust international reserves and external debt positions. Even so, their macroeconomic environments appear to have deteriorated over the past year, which may generate substantial difficulties in formulating appropriate monetary and fiscal responses to further effects from the current crisis. In contrast, Pakistan and Sudan demonstrate considerable external financial vulnerabilities but less weakness on the macro side. Even so, it is notable that the average macro vulnerability score is considerably higher than the averages for the other indexes for watch list countries. This underlines the greater weight attributed to this dimension in the exercise.

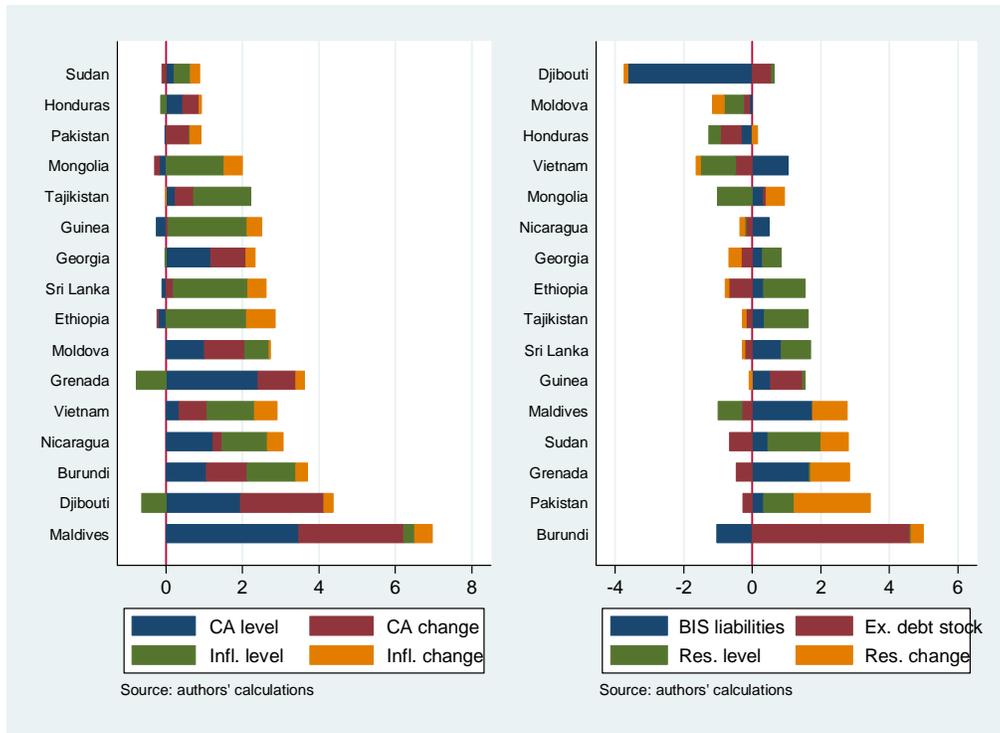
The diversity of the challenges facing watch list countries can be further unpacked by examining the constituent elements of the underlying macro and financial vulnerability indicators. As shown in Figure 3, this reinforces the specificity of country circumstances and policy pressures.²⁵ Again, a few comparisons are illustrative. The high macro vulnerability of the Maldives derives principally from a weak and rapidly deteriorating current account position. Burundi's position on the watch list would seem to be driven largely by high external debt stocks which may generate repayment difficulties. For both Vietnam and Sri Lanka, however, the primary challenge seems to refer to containment of inflationary pressures.

Referring back to Table 4, it also is useful to note significant differences between countries in terms of the aid and policy variables. Where aid levels are relatively high (>5% GDP), it is reasonable to conclude that any material reduction in such inflows over the medium-term could exacerbate observed vulnerabilities and economic difficulties. Nicaragua is a germane example – sustained inflows of aid are likely to be crucial to support its current account deficit and help smooth any adjustment from a possible loss of remittances. Additionally, the macroeconomic and fiscal policy environment varies from the comparatively robust positions of Vietnam and Georgia (score 4.5) to fragility in the Maldives and Sri Lanka.²⁶ One should also note that due to the rapidly evolving nature of the situation as well as data weaknesses, the present exercise is not comprehensive. For example, the latest reports from Vietnam suggest a slowing in inflation compared to the first half of the current year. Fiscal balance data, which is not available on a comprehensive basis, also can be used to provide further insights. Taking the Asian Development Bank's (ADB, 2008) estimates for 2007, Tajikistan, the Maldives and Pakistan also exhibit comparatively high and deteriorating government budget deficits. This serves only to confirm their presence on the watch list.

²⁵ The same figures are provided for Danida programme countries in Appendix A.

²⁶ The CPIA score was not included in the probit analysis as these scores are only available for IDA countries.

Figure 3: Macro and financial vulnerability components for watch list countries



5. Policy issues and challenges

This section discusses the policy issues and challenges for developing countries arising from the current financial crisis. Events are evolving at a rapid pace such that the depth, scope and long-term implications are very difficult to envisage. Even so, three broad policy areas can be distinguished and are treated in turn. The first is domestic responses by developing countries to the effects of the crisis over the short- and medium-terms. Second, current policy challenges for the international community as regards their relations with developing countries are given attention. Finally, the outlines of some of the broader longer-term issues will be reviewed.

5.1. Country-level responses

Compared to more advanced economies, domestic policy responses in developing countries are constrained by a number of factors. At a general level, high-levels of dollarization and weak financial development often render standard monetary policy tools, such as adjustment of policy interest rates, weak instruments to achieve price stability. Perhaps more critical in the current context, inflationary pressures associated with international commodity price movements have been particularly acute in developing economies. This reflects the high share of basic commodities in household budgets, as well as a lack of domestic substitutes to key commodity imports. Where these pressures have been significant (as indicated by the macro indicator; see Section 4), monetary and

fiscal policy flexibility already is likely to have been constricted *before* transmission effects from the financial crisis are taken into account.²⁷

Given the above, standard responses to externally-generated economic difficulties such as expansionary fiscal or monetary policy may be neither feasible nor appropriate. Particularly in countries with more advanced financial sectors (e.g., Vietnam), the loosening of monetary policy could further undermine foreign private capital inflows (prompt outflows) and/or stoke inflation. As a result, the IMF's (2008b: 2) blunt appraisal that "[developing] countries face difficult choices as they seek to facilitate the inevitable adjustment in their economies" remains valid. This is likely to be the case, although to a lesser extent, even if commodity prices continue their current downward trend and stabilise at significantly lower levels than the peaks witnessed in 2007/08. Not only does this reflect the current consensus that real commodity prices will not return to their pre-boom levels; rather, both the accumulated fiscal effects of the commodity price boom, commodity price uncertainty and the possibility of reduced exports and private capital inflows may render expansionary policy responses unsustainable.

Consequently, prudent and credible macroeconomic and fiscal policies are central. In concrete terms, some general 'good practice' principles can be suggested; however, their suitability in any specific case must be examined in light of country circumstances. Firstly, pass-through of international prices to domestic markets must be allowed. Secondly, improved targeting of measures to protect specific sub-groups such as the poorest from adjustment or price shocks must be given priority over generalised schemes. The latter not only are expensive but also typically favour the already well-off. Thirdly, (downward) exchange rate flexibility can be a critical instrument to contain mounting external pressures. However, also as noted by IMF (2008b), many DC governments have been unwilling to allow real depreciation, at least in part because of the effects on import prices and the cost of servicing foreign currency liabilities. While this may be attractive in the short-term, structural imbalances and loss of export competitiveness particularly vis-à-vis larger emerging market economies that are currently under currency pressures (e.g., South Africa, South Korea) should not be dismissed. Fourthly, enhanced supervision of financial institutions and careful monitoring of external capital flows is advisable. In some instances, countries have found temporary controls on short-term external capital flows to be a helpful means to reduce destabilising swings.

To summarise, the current crisis does not represent a fundamentally new set of circumstances for the majority of developing countries. However, it is likely to aggravate pre-existing challenges, including gaining admission to export markets, attracting external investment financing and ensuring access to domestic sources of capital on reasonable terms. As such, a general worsening of growth prospects for developing countries is to be expected, especially for those that are more reliant on external linkages. One should not ignore that the combination of lower (export) growth, reduced investment inflows and tighter local credit conditions plausibly could evolve into local financial

²⁷ The IMF (2008b), for example, estimates that the median fiscal cost of policy measures adopted to ameliorate food and fuel price amounts to 0.7 percentage points of GDP in developing countries (as of September 2008).

sector difficulties.²⁸ To date these are among the principal concerns raised by some of the larger developing countries, such as China and India, and thus reinforce the need for careful financial sector monitoring and prudent fiscal policies over the medium-term.

5.2. *International responses*

The primary focus of the international community has been on advanced economies and the adoption of measures to stabilise domestic financial sectors (see Section 2). However, contagion effects are now evident in larger emerging market economies, among which some may not have sufficient domestic resources to provide credible lender-of-last resort and/or balance of payments support. Thus, in face of large external outflows and currency pressures, recourse to multilateral facilities such as the IMF is increasingly realistic for a substantial number of governments. So far, there appears to be a clear willingness on the part of advanced economies and the IMF to provide emergency concessional lending to affected countries where necessary. As at end October 2008, the IMF has established a short-term liquidity facility to provide quick-disbursing funds for (eligible) countries facing temporary liquidity problems in global markets. The World Bank also has created a \$1.2 billion rapid financing facility to assist country adjustment. There is no doubt that this stance should be maintained and extended. Importantly, however, coordinated efforts should be given priority as the scale of the current crisis has the potential to dwarf even the \$250 billion resources available to the IMF on its own.

As discussed above, many lower income countries do not face material risks of financial contagion due to the limited role of short-term external private capital flows. Even so, this does not mean they should be neglected by the international community. For many DCs, aid inflows are essential to maintain macroeconomic stability and, in the event of reduced private inflows such as remittances, are likely to become even more important. It is therefore critical that official aid commitments are honoured and that aid budgets are not dramatically cut. Efforts should also be ensured to reinforce aid predictability. In this regard it is encouraging that calls to maintain aid flows have been made in numerous international fora.²⁹ However, corresponding actions are required as is the willingness of multilateral institutions to continue to engage and support the poorest countries.

5.3. *Long-term challenges*

Various long-term policy challenges are likely to emerge in the wake of the current crisis. Perhaps most prominent of these is the question of financial regulation. A forceful critique of the present global financial system is that it has become increasingly pro-cyclical in nature. Persuad (2008;

²⁸ As the Governor of the Bank of Uganda recently put it: “Although direct exposure to crisis-related debt is very limited, vulnerabilities in sub-Saharan financial markets may become more exposed. As a result, perceived risks of a protracted US downturn, or even recession, and what that would mean for Africa’s ... growth momentum may be intensified.” (Tumusiime-Mutebile, 24 September 2008).

²⁹ For example, the Joint Ministerial Committee of the Boards of Governors of the Bank and the Fund (the Development Committee) recently stated that: “Poorer countries, with their limited sources of fiscal revenue, will be especially dependent on timely and predictable flows of Official Development Assistance (ODA). In this regard, we emphasized the enhanced importance, in the current context, of donors meeting their ODA commitments.” (Development Committee Communiqué, 12 October 2008, Washington DC).

2000), for example, argues that over at least the last decade, the rise of market as opposed to traditional bank finance, as well as the move to self-regulation based on calculations of asset-specific and market-priced risks, has acted to heighten the instability of national and global financial systems. This has occurred through a reduction of systemic liquidity, which refers to the liquidity available under stressed conditions where decisions to sell/buy assets are not driven by valuations or attributes of particular assets, but rather by the behaviour of other market participants (Laganá et al., 2006). Adrian and Shin (2007) note that standard models of contagion based on sequential defaults are no longer meaningful in modern financial markets where financial institutions actively manage their balance sheets based on observed market prices and volatilities (as per regulatory standards). Rather, due to the complexity of inter-linkages between market institutions, price declines may be sufficient to set in motion a self-reinforcing dynamic of asset sell-offs, deleveraging and contagion. With global financial markets, this can infect emerging and developing markets, exposing them to large inflows of capital in periods of low market volatility followed by rapid reversals as conditions deteriorate. Even the Bank of England (2008) notes that financial markets have mispriced risks and failed to account for systemic factors.

As a consequence of these insights, new regulatory approaches are being advocated. These include applying different regulatory regimes to market participants according to the duration of their funding base, thereby creating greater incentives for some actors to undertake longer-term (stable) asset investments both at home and overseas. Contra-cyclical capital adequacy regulations that impose tougher requirements during ‘good’ periods of rapid leverage growth have been espoused. Goodhart (2008), among others, argues that Central Banks should give greater priority to the overall stability of the financial system rather than on price stability alone. The point here is that increased transparency, use of ‘best practices’ and regulatory coordination, while important in themselves, may not be sufficient to address the fundamental failures of modern financial markets. As is evident from the current crisis, how finance is regulated in the developed world is hardly trivial for developing countries.

Linked to the above is a debate over the international financial architecture. This refers to the roles and objectives of international financial institutions such as the IMF. Prior to recent events, some argued that these institutions had become largely redundant in light of the widespread adoption of flexible exchange rates and open capital accounts alongside the significant expansion of global capital flows. However, today’s landscape is quite different. Not only has the financial turmoil exposed the need for financial coordination and lender-of-last resort capacities at the supra-national level, but it also has brought into question the dominant role of the dollar as a *de facto* global reserve currency. With the rise of sovereign wealth funds and large reserve assets held outside of the advanced economies (e.g. China), there are increasingly loud calls to make concerted moves to reduce the dependence of the global financial system on the vagaries of the American economy and its national currency (Reuters, 2008; Ocampo, 2007). One option would be to reinforce and restructure the IMF as a reserve currency institution.

A final debate concerns the criticisms of globalization and capitalism that are likely to intensify in response to the crisis. Wade (2008), for example, argues the current crisis may represent a fundamental regime-shift away from Anglo-American capitalism and its 'neoliberal' underpinnings. Although not to be dismissed, these viewpoints should be read with caution. Prior to the crisis, numerous scholars questioned the argument that globalization generates unconditional benefits for developing countries (Andersen and Tarp, 2003). Recent events underline the need for a careful examination of the risk-reward trade-offs associated with extensive deregulation and external economic integration for DCs. However, critiques of globalization should not be taken too far. Global integration and competitive markets have been fundamental components of East Asian economic successes. Also, financial markets must be understood as having distinctive weaknesses and systemic features. Even so, the current crisis does serve to illustrate the increasingly complex, inter-connected and rapidly shifting nature of global markets. What this means for developing countries' growth strategies requires further analysis; and it is not a question that should be dismissed.

6. Conclusion

This paper has reviewed the risks and implications of the financial crisis for developing countries. It bears repeating that the present situation continues to evolve rapidly and that there is no prospect of a rapid return to stable market conditions. The threat of further financial turmoil and/or a deep global recession (or depression) is significant. A worst case scenario of sequential sovereign default by advanced country governments cannot be ruled-out. In light of such uncertainty, the analysis of this paper can only be seen as provisional and exploratory.

Ten main messages can be summarised:

- i. The principal effects of the crisis for developing countries do not arise from immediate financial contagion such as exposure to sub-prime assets in advanced economies. Medium- and long-term channels, namely reduced access to (private) external capital inflows as well as real sector effects of a slowdown in global growth, are more important.
- ii. While the severity and duration of effects on developing countries will depend on dynamics at the global level, historical evidence indicates that investors only return cautiously and gradually to emerging and developing country markets following a crisis. The scale of losses and refinancing needs in advanced economies could well reinforce such conservatism.
- iii. Macroeconomic vulnerability, which refers to both the level and changes in inflation and the current account balance, is a critical determinant of the likelihood of a crisis developing.
- iv. An assessment of the risks facing developing countries of negative transmission effects reveals that the sub-group of least developed countries are comparatively less exposed. This can be traced to their lower degree of integration with external

flows (trade and capital) as well as their comparatively stronger positions across key macroeconomic vulnerability indicators (Table 2).

- v. Despite these findings, a watch list highlights developing countries that are more vulnerable to the crisis (Table 4). This list includes countries identified elsewhere as being at high risk – e.g., Pakistan, Sri Lanka, Maldives, and Burundi. However, Vietnam and Nicaragua also feature on the watch list due to evidence of recent deterioration in their macroeconomic environments combined with their comparatively greater dependence on external (private) financial flows. Thus, heightened monitoring of economic developments in these countries is recommended.
- vi. The risk-mapping exercise underlines the substantial diversity between developing countries in terms of potential vulnerabilities and relevant impact channels. For this reason, although broad comparative exercises are useful, they only represent a starting point for country-specific analysis.
- vii. From a policy viewpoint, it is important to emphasise that the crisis does not represent a fundamentally new set of circumstances for most developing countries. Rather, it exacerbates existing challenges and may limit policy options particularly in terms of raising external funds.
- viii. The key medium- and long-term challenge is to create a framework that ensures a stable and adequate flow of finance capital from richer to poorer countries. Changes in financial regulation and the global financial architecture are likely to be necessary.
- ix. The role of aid should not be ignored and will remain critical for the foreseeable future, particularly to support countries that have lost access to alternative sources of external investment finance. In light of the historical tendency of aid flows to fall in the wake of financial crisis in advanced countries (see Section 3), it is more important than ever to honour existing commitments and reinforce aid predictability.
- x. It would be mistaken to interpret the financial crisis as revealing a fundamental flaw in global integration. Certainly it reveals weaknesses, particularly in the functioning of financial markets which are acutely vulnerable to systemic flaws. These should be addressed in a concerted manner, as should the costs and benefits of different forms of integration for developing countries. If anything, however, the crisis underlines the complex and rapidly shifting nature of modern markets. The challenge is to understand how developing countries can adapt to and benefit from this ‘modern’ condition. It is this question that deserves deeper scrutiny and further analysis in country specific contexts.

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Appendix A: Additional figures

Figure A1: Changes in international reserves as % GDP (2004-2007, LDCs)

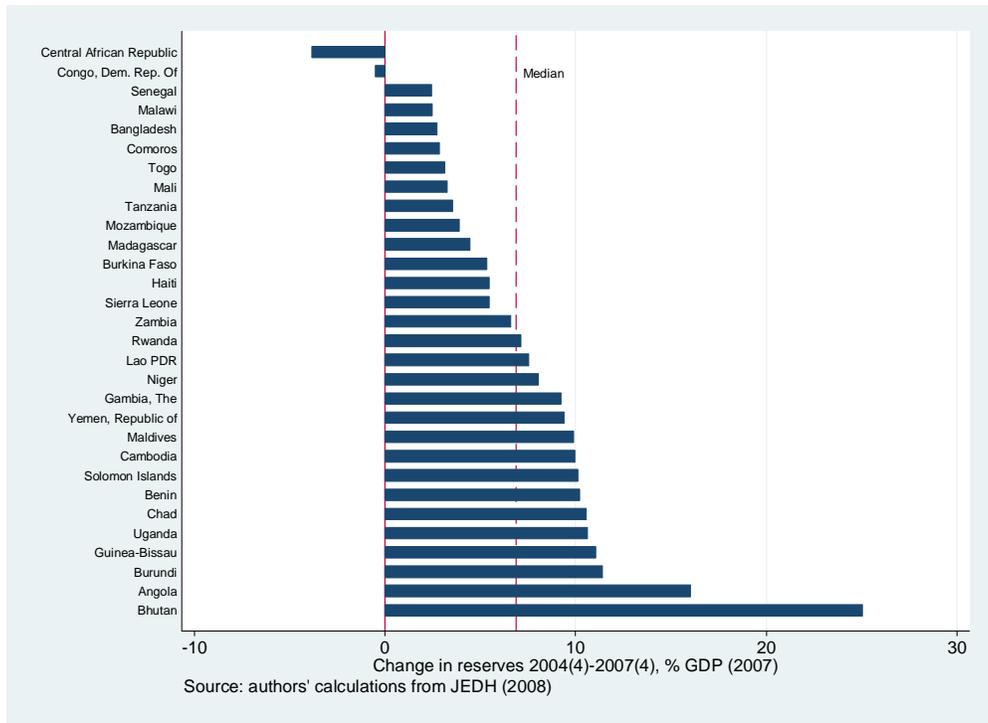


Figure A2: Benchmark equity indices, 01 Jan 2004 – 16 Oct 2008 (weekly, log scale)

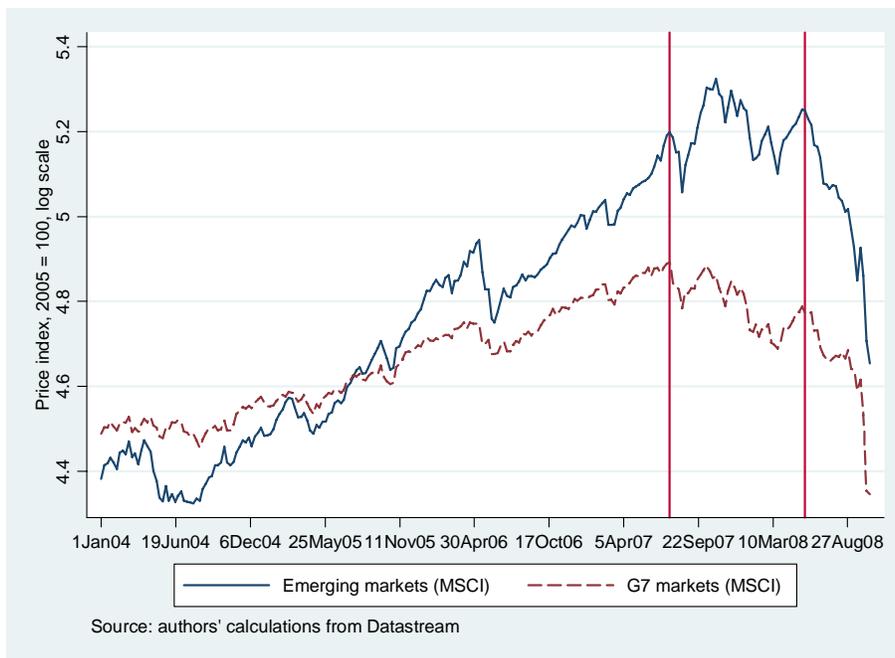


Figure A3: Net portfolio and direct investment flows to emerging markets (1990-2007)

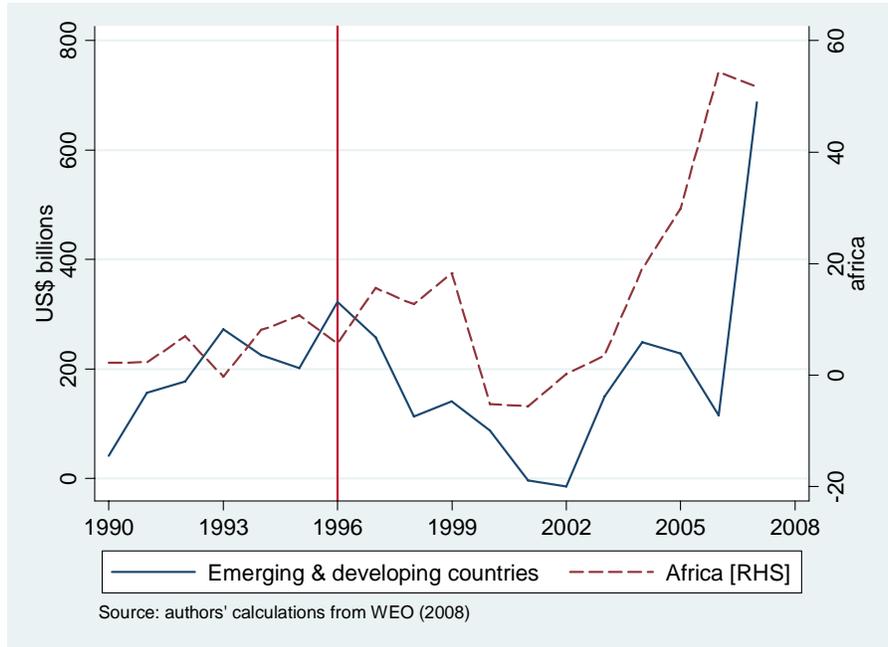


Figure A4: Emerging market bond spread, 15 Oct 1998 – 16 Oct 2008 (weekly)

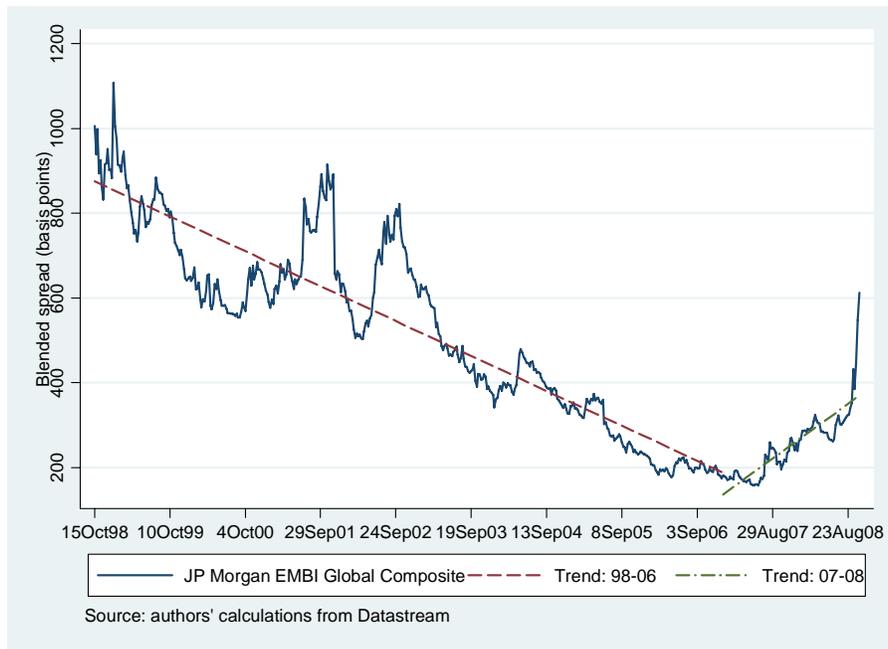


Figure A5: Crisis probability and crisis-relevance components for Danida programme countries

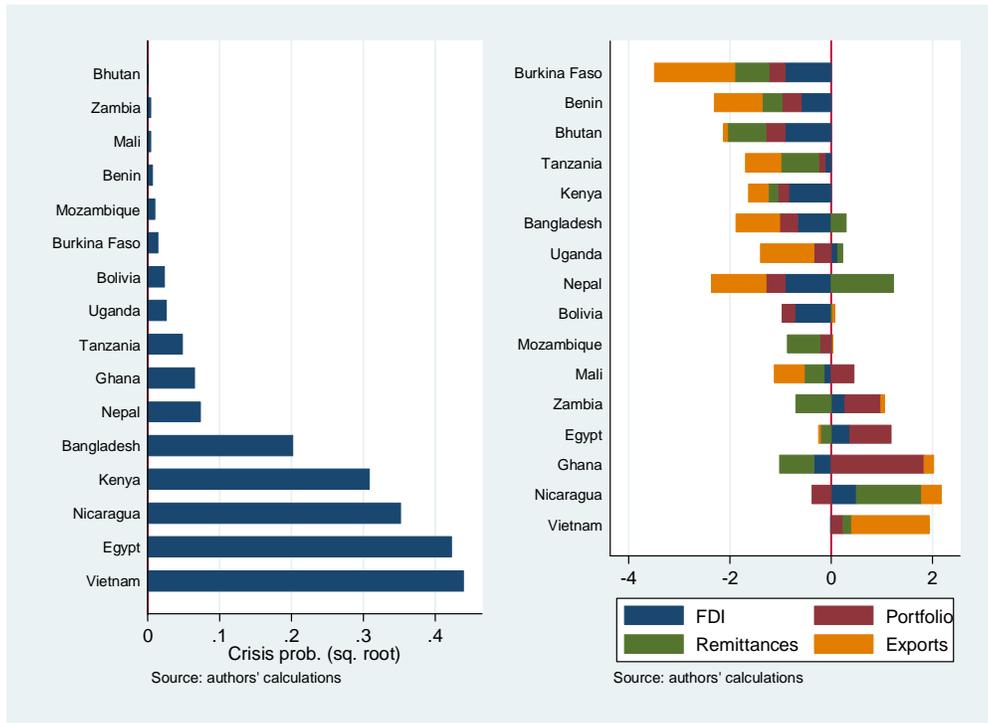
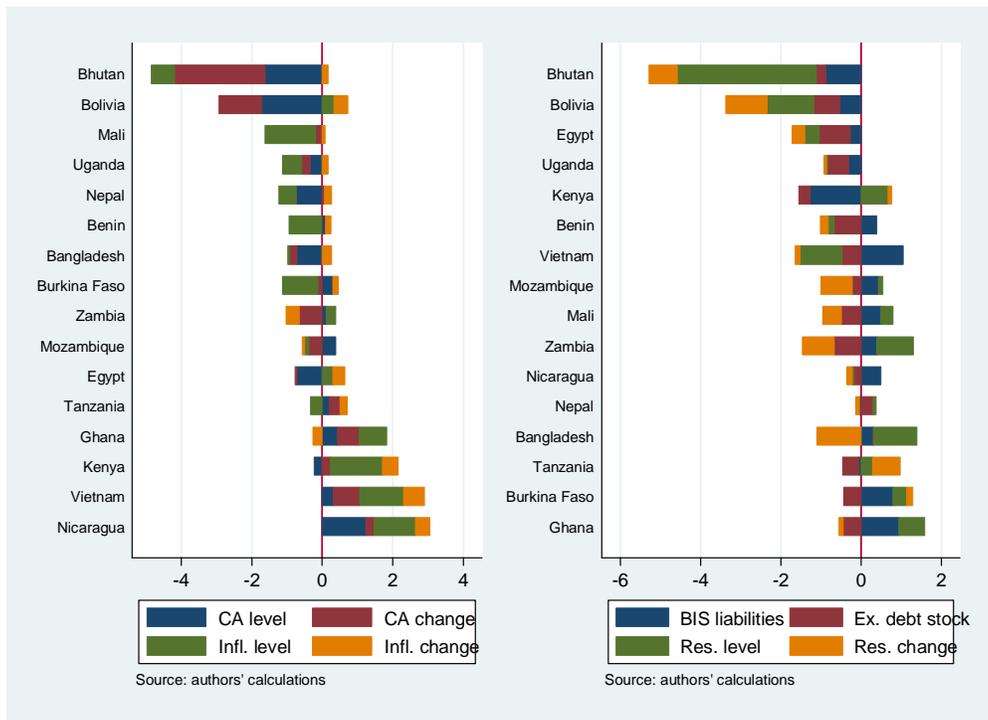


Figure A6: Macro and financial vulnerability components for Danida programme countries



Appendix B: Sample countries and indicator scores

Table B1: IDA-eligible, non-Least Developed Countries included in the sample

Country	LIC	Danida	Indicators		
			Relevance	Macro	Financial
Armenia	0	0	0.23	-0.08	0.42
Azerbaijan	0	0	2.05	-2.03	-0.32
Bolivia	0	1	-0.39	-0.89	-1.71
Cameroon	0	0	-0.96	-0.93	-0.71
Congo, Republic	0	0	0.69	-0.36	-0.44
Côte d'Ivoire	1	0	-0.26	-0.80	1.33
Dominica	0	0	0.55	0.33	-0.53
Egypt	0	1	0.41	-0.05	-0.86
Georgia	0	0	0.90	0.93	0.09
Ghana	1	1	0.44	0.64	0.53
Grenada	0	0	0.89	1.16	1.21
Guyana	0	0	2.12	0.86	-1.66
Honduras	0	0	0.68	0.32	-0.56
India	0	0	-0.41	-0.27	0.17
Kenya	1	1	-0.71	0.79	-0.39
Kyrgyz Republic	1	0	0.78	0.66	0.00
Moldova	0	0	1.91	1.10	-0.58
Mongolia	0	0	1.19	0.69	-0.03
Nicaragua	0	1	0.78	1.24	0.08
Nigeria	1	0	-0.24	-0.73	-1.54
Pakistan	1	0	-0.67	0.36	1.62
Papua New Guinea	1	0	2.35	-1.05	-0.80
Sri Lanka	0	0	-0.21	1.02	0.73
Tajikistan	1	0	2.29	0.89	0.69
Tonga	0	0	0.24	0.40	0.69
Vietnam	1	1	0.84	1.18	-0.30

Note: indicators are as described in the text and Appendix B; LIC refers to low income country (1 = yes; 0 = no); Danida refers to Danida programme country (1 = yes; 0 = no).

Table B2: Least Developed Countries included in the sample

Country	LIC	Danida	Indicators		
			Relevance	Macro	Financial
Angola	0	0	0.73	-3.01	-1.11
Bangladesh	1	1	-0.69	-0.28	0.16
Benin	1	1	-1.01	-0.28	-0.31
Bhutan	0	1	-0.93	-1.90	-2.68
Burkina Faso	1	1	-1.52	-0.28	0.44
Burundi	1	0	-1.46	1.50	2.02
Cambodia	1	0	0.87	0.56	-0.40
Cape Verde	0	0	0.62	-0.24	-2.02
Central African Republic	1	0	1.56	-0.33	1.91
Chad	1	0	-0.93	-2.87	0.88
Comoros	1	0	-0.80	-0.17	0.12
Congo, Dem. Republic	1	0	-0.93	-2.16	0.68
Djibouti	0	0	0.17	1.52	-1.56
Eritrea	1	0	-0.93	-0.09	0.63
Ethiopia	1	0	-0.88	1.07	0.40
Gambia, The	1	0	1.16	0.08	-0.02
Guinea	1	0	-0.71	0.92	0.74
Guinea-Bissau	1	0	-0.68	-0.60	1.29
Haiti	1	0	0.13	-0.11	0.52
Lao PDR	1	0	-1.35	0.08	0.28
Lesotho	0	0	1.73	-0.81	-1.15
Madagascar	1	0	-1.02	0.80	-0.02
Malawi	1	0	-1.34	-0.50	2.85
Maldives	0	0	0.07	2.83	0.90
Mali	1	1	-0.30	-0.62	-0.08
Mauritania	1	0	-1.30	-0.27	-0.39
Mozambique	1	1	-0.36	-0.07	-0.22
Nepal	1	1	-0.49	-0.39	0.13
Niger	1	0	-1.13	-0.30	0.80
Rwanda	1	0	-1.34	0.14	-0.73
Senegal	1	0	-0.60	0.02	0.26
Sierra Leone	1	0	-0.56	0.31	0.58
Solomon Islands	1	0	0.33	0.23	-0.84
Sudan	0	0	-0.19	0.31	1.10
Tanzania	1	1	-0.74	0.15	0.26
Togo	1	0	-0.07	-0.44	-0.31
Uganda	1	1	-0.51	-0.39	-0.47
Yemen, Republic of	1	0	-0.29	0.48	-1.70
Zambia	1	1	0.16	-0.26	-0.07

Note: indicators are as described in the text and Appendix B; LIC refers to low income country (1 = yes; 0 = no); Danida refers to Danida programme country (1 = yes; 0 = no).

Appendix C: Variables and data sources for construction of indicators

Indicator / variable	Period	Unit	Source	Notes
Crisis-relevance				
Portfolio investment	2005-07	% GDP	IMF (2008i)	Equities, bonds & syndicated loans
Foreign Direct Investment	2003-06	% GDP	IMF (2008ii)	Gross inflow only
Remittances	2007	% GDP	WB (2008i)	Gross inflows
Exports	2005-06	% GDP	IMF (2008ii)	Goods and services
Macro vulnerability				
Current account deficit	2007-08	% GDP	IMF (2008iii)	Surplus recorded with a negative sign
Current account change	2000-08	% points	IMF (2008iii)	Average surplus 2000-05 minus average 2007-08 (% GDP)
Inflation level	2007-08	%	IMF (2008iii)	Annual rate
Inflation change	2000-08	% points	IMF (2008iii)	Average rate 2007-08 minus average 2000-05 (percent. points)
Financial vulnerability				
External debt stock	2007(4)-08(1)	% GDP	JEDH (2008)	Official multilateral creditors
Liabilities to BIS banks	2007(4)-08(2)	% GDP	JEDH (2008), BIS (2008)	Consolidated liabilities to BIS banks + outstanding international debt securities – local currency liabilities – cross-border deposits with BIS banks
International reserve stock	2007(1)-08(1)	% GDP	JEDH (2008)	Excludes gold
Reserves change	2008(1)-08(2)	%	JEDH (2008)	Absolute change / average for the same period
Additional variables				
ODA / GDP	2006	% GDP	DAC (2008)	Net ODA
Policy	2007	Score	WB (2007)	Average of macro management and fiscal policy CPIA scores (min = 1; max = 6)
GDP per capita	2008	Log.	IMF (2008iii)	Real PPP dollars
State fragility	2008	Score	FfP (2008)	Combined score of 12 indicators in the Failed States index (max = 120)