

COPING WITH GLOBALIZED FINANCE:

— Recent Challenges and Long-term Perspectives —



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COPING WITH GLOBALIZED FINANCE: Recent Challenges and Long-term Perspectives

Edited by

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INTRODUCTION

Globalization, the modern process of integration of world markets, has delivered uneven outcomes both across and inside economies. It has been a source of convergence for some and of divergence and increasing inequality for others. Indeed, there have been different ways of integrating into the world economy reflecting alternative development strategies and alternative development theories.

The evidence shows that the move towards a regime of across-the-board unrestricted trade of goods and capital does not provide “per se” the expected gains in living standards. A better resource allocation, the mantra of the neoclassical theory, is not sufficient for longer-run productivity growth that leads to sustained catching-up. The first chapter shows that this is not only an empirical reality but also a case of theoretical importance once we acknowledge the pervasiveness of market imperfections, the role of objective uncertainty and the progressive unfolding of economic events in historical time.

Modern neoclassical theory has extended the “allocative efficiency” paradigm of internal and external liberalization from the space to the time dimension. In this view, openness allows market “arbitrage forces” not only to generate allocative efficiency via cross-country trade in goods and financial assets, but also via savings allocation over time and across economies. The first chapter pro-

vides a critical review of conventional wisdom and suggests different ways of interpreting the complex dynamics affecting the outcomes of economic integration. A reality check is given to the traditional case for financial liberalization by looking at some broadly shared empirical evidence. The complex, dynamic interaction between institutional change, policy determination and economic performance, relating the sources of development with the issue of integration and of local determination of institutional forms, is analysed along with the macroeconomic determinants that can lead to lasting developmental effects.

The results are sobering: economic performances are permanently affected by short-run outcomes arising from monetary shocks and policies as well as price and returns misalignments. Institutional design and policies should not rely blindly on the power of the arbitrage mechanism of fully open and liberalized markets to obtain efficiency gains; nor can we expect market openness to deliver the institutional change and policy constraints able to foster growth in living standards.

Chapter II analyses the main features and implications of a very straightforward, yet highly profitable, form of cross-currency speculation that has been generating substantial profits and has induced huge pressure on exchange rates in the last decades. “Currency carry trade” is

a class of financial operations that involves borrowing and selling a low-yielding/funding currency to buy and lend in a high-yielding/target currency. The ensuing cross-currency speculative positions are typically highly leveraged and may generate a large and continuous stream of profits as long as interest rate differentials between the target and the funding currency are not offset by a sudden exchange rate reversal. The relative size of the funds involved in this class of operations may be such as to trigger a cumulative effect on the exchange rates, inducing an appreciation of the target currencies and a depreciation of the funding currencies.

National monetary policies become increasingly affected by pressures on the exchange rates and inflows of short term capital. Indeed, mounting evidence on the effects of carry trades shows the absence of strong stabilizing forces on the capital market which would tend quickly to remove any arbitrage gain and lead to cross-currency uncovered interest parity.

Carry trades not only exist due to a systematic deviation from the parity condition, representing a clear violation of the market perfection hypothesis, but also generate two distinct destabilizing cumulative effects on the currency involved. In the winding of carry trades speculative positions pile up, feeding into a pattern of real appreciation for deficit economies and real depreciation for surplus economies,

providing a substantial contribution to the widening of global imbalances. In the unwinding of the positions, fears of currency reversals generate sales and depreciation of the target currencies, while players' loss-minimizing strategies generate cross-country contagion and volatility. Carry trades as well as many other forms of speculative behaviour can be interpreted from Hyman Minsky's perspective.

Chapter III provides another and more detailed perspective on the shortcomings of modern global finance by analysing the summer of 2007's turmoil on the financial markets. During that summer, after several years of relative calm, uncertainty and apprehension among market participants prompted aggressive action by policy makers in a number of developed economies following the shock waves of the so-called sub-prime mortgage crisis in the United States.

That crisis, originating in a highly sophisticated financial market, shows more than anything else that something fundamental is wrong with a financial system that cannot survive for more than three or four years without facing a damaging or at least unsettling crisis. Apparently, recurrent episodes of financial volatility are driven by financial firms' attempt to extract double-digit returns out of a real global economic system that manages to

grow only at rates in the lower single digit area. This kind of financial alchemy is based on massive leverage and opaque instruments that confuse naïve market participants about the risks they take. Time and again a reality check, normally triggered by central banks through rising interest rates, leads to recurrent crises driven by the need to realign the value of financial assets with that of underlying real assets.

While the short-run response to the recent financial turmoil has so far proven appropriate, long-run policy responses for developed and developing countries alike require wider and deeper reflection. Obviously, lack of transparency is at the root of the current crisis. This is mainly due to the fact that instead of spreading risk in a transparent way, as foreseen by economic theory, market operators chose ways to "securitize" risky assets by spreading high yielding assets without clearly marking their risk. Additionally, credit rating agencies failed to understand these products, and the fact that they were rarely traded led to a situation where even the approximate value of these structured financial products was not known.

The chapter emphasizes that the current light regulatory stance creates a bias in favour of "sophisticated" but opaque financial products and encourages banks

to operate through lightly supervised affiliates and "special purpose vehicles". Such a bias should be corrected by adopting regulations that favour simpler and more transparent financial products and do not allow banks to engage in risky off-balance-sheet activities. Certainly, recent events should give developing countries pause to reflect on what path of financial sector development and what level of sophistication is most suited to their overall level of development.

The chapter also discusses the role of credit rating agencies. Financial regulation makes rating decisions important in establishing what assets can be held by certain types of financial intermediaries. The need to obtain a rating shields rating agencies from market discipline that would force them to increase the accuracy of their ratings. At the same time, rating agencies cannot be held legally accountable for their decisions because they claim that their ratings are only opinions and not accurate predictions of the risk of a given instrument. This problem could be solved by establishing a regulatory agency that would supervise the role of credit rating agencies. So, just as federal food and drug authorities have to certify the safety of a given pharmaceutical product, such an agency would certify that AAA assets have indeed a minimal probability of default.

Heiner Flassbeck and
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November 2007

I. GLOBALIZATION: “GETTING THE PROCESS RIGHT” FOR CONVERGENCE AND RISING WORLD INCOME¹

Heiner Flassbeck and Massimiliano La Marca

A.

Introduction: the age of diverging integration

The process of economic integration has recently gained a global dimension as well as unprecedented depth. This has involved a large number of diverse economies and a variety of newly-traded final and intermediate goods, services and financial instruments. Trade and financial integration is not a new process if we consider the large flows between European nations as well as, until the early 20th century, between those nations and their colonial extensions. However, it was the modern revolutions in transportation and communication systems, along with new possibilities for delocalizing productive processes arising from modern manufacture and service production, which enabled the recent change in the scale and scope of trade and financial exchange among sovereign nations.

Indeed, the most salient feature of modern globalization appears to be the combination of policy reforms, market deregulation and liberalization undertaken almost simultaneously by many developing countries and transitional economies during the last decades. Post-socialist economies and countries that once relied on heavy protective measures while pur-

suing an import-substitution industrialization strategy underwent a process of domestic and external liberalization. As part of a larger package of policy and institutional “market friendly” reforms, the process of external liberalization aimed at improving efficiency by redirecting resources from uncompetitive tradable and inefficient non-tradable production and government spending toward sectors of supposed comparative advantage. In addition, capital market openness was expected to provide finance for development and poverty reduction for poorer economies and more profitable investment opportunities for richer, aging countries.

Another striking feature of globalization is the emerging radical divide between those economies that are narrowing their income and technology gap with the most industrialized ones as compared with those that are not. Indeed, the phenomenon of “falling behind” rather than catching up has been the most common experience of latecomers (UNCTAD/TDR, 2003; Pritchett, 1997). We are experiencing an age of “diverging integration”, where alternative approaches to opening up to trade and financial flows, associated with more broadly-defined alternative development, seem to explain the differences in countries’ success in reaping potential gains from globalization.

Figure 1.1 shows the income dynamics of some single economies, groups of

countries and regions, relative to the most industrialized countries. It provides some striking evidence with regard to the outcomes of alternative integration patterns. The impressive converging trend of the first-tier newly industrializing (mostly South-East Asian) economies (NIEs) and the diverging pattern of Latin American economies, both sharing the same relative starting income in 1970, are accompanied by lower volatility of the former group compared to the latter, with the exception of the large swings of the late 1990s Asian financial crisis. The second-tier NIEs and China have improved their relative position, although starting at a much lower income level. Where traditional policy reforms were instituted the most, notably in Latin America and in some sub-Saharan countries, relative income worsened.²

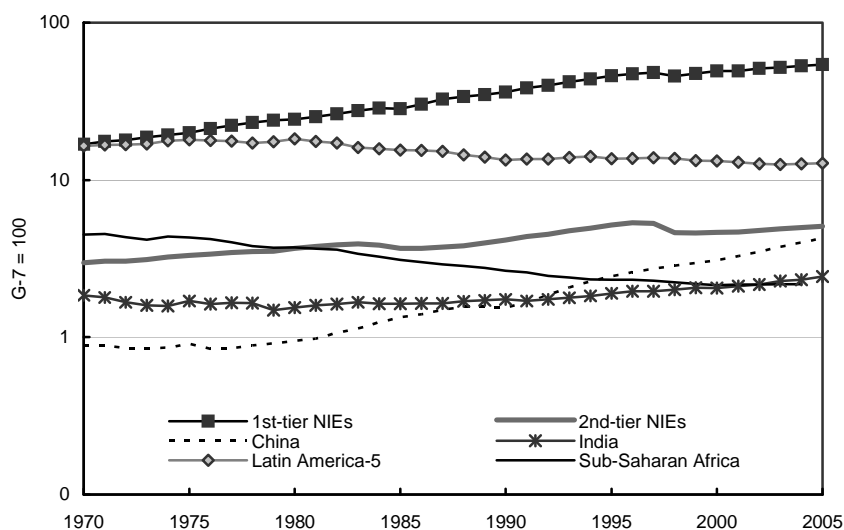
Therefore, there is a need for defining an alternative model for integrating a

¹ An earlier version of the chapter has been published as “Offene Weltmärkte sind nicht genug” in WSI Mitteilungen 12/2006 (59), Frankfurt, Hans Böckler Stiftung.

² As pointed out in the *Trade and Development Report, 2006*, the outcome of the liberalization strategy is generally judged to be disappointing (UNCTAD/TDR, 2006 and 2003; World Bank, 2005). In any case, the annual rate of real economic growth averaged about 2.0–2.5 per cent in Africa and Latin America during the 1980s and 1990s (i.e. a level only about half that of these countries’ growth performance during the 1960s and 1970s).

Figure 1.1

GDP per capita (log scale) in selected developing countries and regions compared to the G-7, 1970–2005



Source: UNCTAD and United Nations with the exception of sub-Saharan Africa whose source is World Bank, *World Development Indicators 2006*. Calculations are based on constant GDP (1995 US\$).
Note: Latin America-5 comprises Argentina, Brazil, Chile, Colombia and Mexico; the first-tier NIEs comprise Hong Kong (China), the Republic of Korea, Singapore and Taiwan Province of China; the second-tier NIEs comprise Indonesia, Malaysia, the Philippines and Thailand. South Africa is not included in sub-Saharan Africa.

country into the world economy that does not rely on indiscriminate liberalization of the current and capital accounts. It has been shown widely that today's most developed economies achieved industrialization by relying on heavily protectionist measures and other kinds of unorthodox policies (e.g. Chang, 2002). In the same way it has been shown how the first-tier NIEs pursued outer-oriented strategic trade and industrial policies that selectively oriented resources toward dynamic industries with a mix of incentives and discipline, rendering them more competitive internationally (Amsden, 1989 and 2001; UNCTAD/TDR 1996 and 2003). First-tier and second-tier NIE economies and China appear to have found sustainable ways of narrowing the income gap with developed economies; Latin America and sub-Saharan Africa have not.

Though historical experience cannot be emulated tout court due to constantly changing world political and technological conditions, historical evidence should help us shape our common wisdom on viable development and integration processes.

In order to identify and explain the reasons for the failure of internal and external liberalization in realizing sustainable integration into the world economy, we have to reconsider our traditional economic wisdom and take a critical perspective. Some logical structures, deeply rooted in orthodox economic knowledge, appear to be ill-suited to help us understand the complex dynamics of prices and quantities in an integrated world economy, raising more "puzzles" than explanations.

Section B of this chapter provides a critical review of conventional wisdom and suggests different ways to interpret the complex dynamics affecting the outcome of economic integration. In section C the traditional case for free trade and financial liberalization is given a reality check by looking at some broadly-shared empirical evidence. Section D underlines the complex dynamic interaction between institutional change, policy determination and economic performance, relating the sources of development with the issues of integration and local determination of institu-

tional forms. Section E sheds some light on how macroeconomic determinants can lead to lasting developmental effects. Section F draws some conclusions regarding the design of a new multilateral system.

B.

The integration process in the traditional view

In its most popular and quoted definition, the core of economic activity in market economies would consist of actions that "rationally" lead to "efficient allocation of scarce resources under alternative uses." This simple view, which appears quite intuitive in modern economics, captures the essence of received standard theory built during centuries of overlapping contributions and systematic reinterpretations. Obviously, to a large extent it shapes the methodology underlying the way one sees the world from an economic perspective.

The resource allocation mechanism

Traditional trade theory, for instance, explains the patterns of free international trade, along with associated gains derived from international production specialization and labour division, by assuming that the existing methods of production, consumption and input supply preferences are given at any point in time, along with the "relative scarcity" of given resources (typically unskilled and skilled labour or capital). This leaves economic actors the scope to determine, by action based on individual preferences within existing market structures, the composition of goods produced and exchanged as well as their relative prices. Growth theory in this context explains per capita income differences and changes by focusing mainly on changes in the "relative scarcity" of production factors and resulting productivity dynamics. Open economy macroeconomics explains trade in goods, services and financial assets

as the outcome of resource allocation driven by the relative real returns of the production of tradable or non-tradable goods and services, along with consumption, and saving as well as portfolio and real investment.

The efficiency and optimality results characterizing the working of market economies emerging from such a theoretical setting basically rely on arbitrage arguments in their broadest connotation: the natural economic activity of an “atomistic rational utility-maximizing” agent, ultimately concerned with his/her consumption possibilities, is to reallocate real and financial resources from lower to higher-return employments up to the point where rates are equalized. The equalization of returns across productive sectors and across space (regionally or internationally) and time (with the decision to allocate resources from present consumption to future consumption through saving) indicates that there are no opportunities for welfare improvement left to be exploited, which represents the perfect coordination of self-interested market participants towards consistent and Pareto optimal plans.

The arbitrage logic not only unifies the various branches of economics having differing objects and scopes of investigation, but it also provides an immediate rationale for the main theoretical prediction regarding global economic integration through external liberalization, i.e., that economic openness fundamentally broadens the possibility of efficient resource allocation and therefore the scope for arbitrage gains that can be readily captured by market participants. The “integrated economy” is the locus where market forces can replicate the efficient outcome of a domestic liberalized economy on a global scale. As repeatedly pointed out by prominent academics and policy makers: “... fundamentally, the case for free trade is the case for the market system. The benefits come in the form of greater realization of the efficiencies available from specialization, from more rapid technology transfer and more productive allocation of resources, from comparative advantage and from the spur of competition. They show up in higher rates of economic growth, leading to higher wages and higher returns

to capital, leading to higher standards of living” (Summers, 1999: 7).

The conditions for market efficiency, and lack thereof, have been widely addressed by the theory of market failure as well as by welfare and second-best economics. Although preserving the general equilibrium framework, they emphasize how an insufficient degree of information and rationality, the presence of increasing returns to scale, lack of perfect competition and the role of institutions can affect the outcome of market forces and lead to suboptimal outcomes. Market failures and the role of aggregate demand, for example, are at the core of the traditional argument for industrial policy as expressed in the classical works of Young, Rosenstein-Rodan, Hirschman, Myrdal, Kaldor and, more recently, in the empirical studies of late industrialization (e.g. Amsden, 1989 and 2001; UNCTAD/TDR 1996 and 2003). As emphasized in UNCTAD/TDR (2006), a proactive industrial policy designed to support productive dynamism and technological upgrading becomes necessary when (i) there are significant dynamic economies of scale and learning that give rise to increasing returns at the firm level; (ii) complementarities in investment, production and consumption can result in market failure; (iii) information externalities associated with investment in goods or modes of production exist that are new for the respective economy.

A more radical reconsideration of conventional economic wisdom is required if we acknowledge that short-term outcomes, shocks and monetary conditions have permanent or long-run effects. While neoclassical theory is fundamentally “atemporal” and relies on a comparison of “static” production and trade configurations, completed by the stable operation of market forces through the “arbitrage” mechanism, the alternative view insists that “path dependence” and “hysteresis” effects are ubiquitous in real economies.

As pointed out in Flassbeck (1988) and Palley (2003), any comparative advantage configuration needs to be supported by a well-behaved nominal adjustment process able to equilibrate the absolute competitive advantages among economies.

In a high-productivity country for instance, that would otherwise enjoy absolute competitive advantages in all sectors, nominal wages and prices need to rise to the point where the country will find it convenient to import the goods in which it has a comparative disadvantage and vice versa. Prices and/or exchange rates need to be consistent with the relative price configuration of the trade equilibrium. However, if price and wage changes are not consistent with economic activity in this way, and if exchange rate volatility can lead to persistent misalignment, then the necessary nominal adjustment failure can have permanent real consequences. Flassbeck (1988) points to the inherent flaws of the information-generating process of capital markets to explain these phenomena and Palley (2003) presents a number of other possible sources of hysteresis such as (i) habit-based consumption; (ii) fleet investment principle; (iii) lock-out through increasing returns; and (iv) destruction of organizational capital. All of these factors can favour the persistence of contingent outcomes due to short-term and/or monetary conditions. In other words, if some productive activities face temporary competition, then these activities and the associated know-how can get lost forever regardless of their original availability in technology and factor endowment, even if the unsustainable competition - based on the Walrasian arbitrage logic - is temporary in nature.³

3 Walrasian general equilibrium theory is nowadays the prevailing methodological approach to explain the working of competitive markets as a system of interdependent exchange loci. It assumes that atomistic self-interested agents make their decisions on consumption, production and on any endowment allocation on the basis of a complete quotation of prices (commodity prices, rates of return and factor remuneration) given by a non-fully-specified “auctioneer” that allows transactions only if the market-clearing equilibrium is obtained. The no-arbitrage global condition of returns equalization is therefore nothing but a specification of a market-clearing general equilibrium price system.

If valid, price and real return equalization as the equilibrium outcome of arbitrage forces should form the basis for the empirical manifestation of the efficiency of the market allocation hypothesis. Hence, the law of one price (LOP) and purchasing power parity (PPP) are the single most important rules that have to hold if the neo-classical theory can justifiably claim to hold the key to our understanding of globalization and international integration. The former states that for any single commodity, prices are equalized across borders. If the LOP holds for a sufficient number of goods, nominal exchange rates are tied to PPP, an equilibrium condition that, in its strongest version, requires cross-country equalization of traded goods price index levels expressed in the same currency and, in its relative version, simply requires that price inflation differentials across countries be offset by nominal exchange rate change. While the LOP rules out price competition by assuming that price differentials in similar goods are readily arbitrated away, PPP represents the simplest real equilibrium, money-neutral condition in the trade literature and a building block of most monetarist macro models. A failure of the former can be interpreted as the manifestation of a constant tendency of trade in single goods to be affected by exchange volatility and monetary shocks. In this case, production and trade strategies have lost the almost natural setting of comparative advantage equilibrium. In the same way, a failure of the latter implies the relevance of nominal exchange rate fluctuation and overall monetary conditions on the relative aggregate price of goods and therefore the relevance of terms of trade shocks and consumption switching effects.

According to Froot and Rogoff (1995), Rogoff (1996), and Sarno and Taylor (2002), the “consensus” empirical evidence is that the real exchange rate tends to PPP only in the very long run, while single-traded goods analyses show very high volatility and persistent deviations from LOP parity; in both cases large and volatile deviations are of the same order of magnitude as those of the nominal exchange rate. Thus the persistence of the deviations cannot be explained by the tem-

porary effects of price stickiness and, even more importantly, the short-term volatility of real exchange rates cannot be ascribed to real shocks.

Therefore, while PPP and LOP can preserve a central role in explaining arbitrage-based models, the puzzling evidence for both may form the surface of a more complex explanation of real economic dynamics, where production structure and trade are constantly changing due to contingent economic conditions.

Under this perspective, it is clear why unregulated market forces often appear unable to coordinate arbitrage-seeking actors and do not automatically lead to the optimal configuration of production on a global scale. However, if capital flows have adverse effects on exchange rates or influence monetary policies in a way that permanently affects production and trade patterns – regardless of the existing potential for specialization and world welfare improvement – globalization is not such a smooth exercise as envisaged by the traditional mainstream approach.

C.

Integration through liberalization of the capital account?

The traditional case for financial integration is based on the benefits of pooling and allocating savings toward the most productive uses across countries. The principle of comparative advantage and mutual gains from free trade in goods is extended to the trade in financial assets along three main dimensions. Countries can benefit from financial integration if: (i) they have different capital endowments and different risk-free returns to capital and benefits (neoclassical convergence argument); and/or (ii) have desired consumption and savings time patterns not “in line” with their available income (inter-temporal trade argument); and (iii) face different potential fluctuations of production that affects their consumption possibilities (risk-sharing argument).⁴

1. Capital integration in theory

The standard open economy neoclassical-Solow-Swan model has provided the first and the most resilient argument for capital account liberalization and financial integration (Summers, 2000, being an example of its lasting influence). If technical knowledge is diffused across countries and if technology displays its traditional decreasing returns to capital, then risk-adjusted return on investment is a decreasing function of capital endowment. Under financial openness, the real interest rate differential between capital-abundant developed countries and capital-scarce developing economies would ignite spontaneous arbitrage forces and generate a flow of funds that would provide developing countries with the additional foreign savings required for new investment and growth. The convergence in the asset returns, capital intensity, technology and per capita incomes would be assured through temporary current account deficits or net capital inflows.

Standard neoclassical theory, therefore, implies a strong correlation between capital inflows, new productive capacity and convergence. Given the absence of any form of relevant uncertainty concerning the profitability of capital, savings generate their own investment by direct “transmutation,” as in the open economy-Solow model. Similarly, foreign savings inflows are supposed to reduce the risk-free rate and the equity premium through better risk diversification. Lower cost of equity capital would in turn stimulate investment. In both cases, financial openness would directly induce capacity building and growth through capital accumulation (Fischer, 1998; Henry, 2003).

A second argument for financial liberalization rests on the mentioned inter-temporal approach to the current account,

⁴ Economists such as Bhagwati (1998) and Rodrik (1998) have criticized this naïve analogy by arguing that while free trade in commodities is naturally beneficial, free trade in capital is inherently unstable and prone to crises.

where free trade in commodities and in financial assets are the most efficient ways of “buffering” expected and unexpected income variations and of “smoothing” consumption through net lending and borrowing between countries. Free capital flows in this framework not only permit better productive allocation of financial wealth but also a reduction of the effect of real shocks on consumption and therefore improve overall aggregate welfare. In the inter-temporal approach of the current account, popularized by Obstfeld and Rogoff (1995 and 1996) for instance, current and capital account imbalances are the intentional means of transferring income over time. Countries would arbitrage away the “returns” of having “consumption today instead of tomorrow” by allowing “desired misalignments” between income and spending. In this world, the pattern of trade is passively determined by capital flows.

Global financial integration would also allow countries to share the production risk associated with exogenous idiosyncratic shocks. The “risk sharing” argument in international finance is basically a global scale extension of the well-known portfolio allocation theory: national productive capital is conceived of as a risky asset, whose return depends on volatile production, which can be sold abroad in the form of shares of domestic firms. Countries with different production structures, which are therefore subject to uncorrelated shocks in production, can improve their national welfare by trading assets, reducing the asset return volatility and consequently reducing the volatility of their consumption levels.⁵ If risk is perfectly shared among economies, any country’s gross national product (GNP) is uncorrelated with its gross domestic product (GDP) and depends only on global production. Consumption growth rates are correlated across countries and less volatile than domestic output. If output volatility becomes irrelevant for welfare, national production can even become more specialized and benefit from scale economies and comparative advantages. From this perspective, developing countries could be advised to reduce further their production diversification in order to increase and stabilize their consumption levels!

Beyond these main arbitrage arguments there are less direct channels by which trade and financial integration through liberalization is supposed to stimulate growth and convergence: (i) technological spillovers generated by foreign direct investments (FDIs) that are undertaken after a more informed evaluation of their intrinsic profitability and are more stable than bank lending and portfolio flows; (ii) the positive influence of openness in the development of domestic financial markets through competition, enhanced liquidity and introduction of new forms of financial intermediation; and (iii) the discipline (a “tie-your-hands” policy) that markets would impose on a lax public sector by restraining monetary arbitrariness and stimulating investment-friendly tax reforms. The last two arguments share the same logic, e.g., that external competitive pressures can discipline and improve the efficiency of institutions and policies and that efficiency gains will largely offset any eventual adjustment costs (Gourinchas and Jeanne, 2003).

2. *Some empirical evidence*

However, the supposed outcomes of financial liberalization do not find much support even in the “consensus” empirical evidence. Prasad, Rogoff, Wei and Kose (2003) sum up the existing literature and assess that “...an objective reading of the result of the vast research effort undertaken to date suggests that there is no strong, robust, and uniform support for the theoretical argument that financial globalization per se delivers a higher rate of economic growth...[and] the volatility of consumption growth has, on average, increased for emerging market economies in the 1990’s” (Prasad et al., 2003: 3) so that “... while there is no proof in the data that financial globalization has benefited growth, there is some evidence that some countries may have experienced greater consumption volatility as a result” (ibid.: 1).

A weak association of better growth performance with financial openness between groups of countries (industrialized compared to developing and more financially-open developing countries com-

pared to less-open countries) does not provide any causal relation between integration and growth, nor does the former seem to be a sufficient condition (as in the cases of Venezuela, South Africa, Jordan and Peru) or even a necessary condition for the latter (as in the cases of China and India). Financial openness could be an advantage for mature or already sound and stable economies. Prasad et al. show that even correcting for initial income, schooling, average investment-to-GDP ratio, policy instability and regional location, there is basically no association between capital account openness and growth rates.

According to Mody and Murshid (2002), “... the weakening, over time, of the relationship between aggregate capital flows and investment is consistent with an increase in the share of portfolio flows in long-term capital ... [and] ‘merger and acquisitions’ – as distinct from the traditional ‘Greenfield’ foreign investments – have become more prominent, implying that more of the foreign capital is being used to purchase assets rather than finance new investments.” (Mody and Murshid 2002: 5). However, a positive association of FDI and growth cannot be taken for granted: it has been pointed out that FDI can be associated with crowding out “domestic” private investment, while human capital and knowledge accumulation through FDI spillovers can be of a second order magnitude. Indirect negative effects on investment can also be generated by the current account difficulties a country may incur by the repatriation of profits and intermediate input imports associated with the FDI (UNCTAD/TDR 2003).

A large body of evidence also finds an increase in macroeconomic volatility, which represents a failure of the risk-sharing effect of global diversification and

5 Any country can diversify its portfolio and reduce its GNP risk by selling part of its GDP in the form of shares of productive capital and buying parts of other economies’ GDPs through capital outflows. The assets’ extra returns would offset each other so that bad production years in one country would be compensated by good “harvests” in the others.

financial integration. Indeed, the implications of the theory have never found support in the data, giving rise to another “puzzle” in international finance: there is a higher correlation of aggregate consumption to domestic output than to global production and consumption, while national outputs also tend to commove (Tesar and Werner, 1995; Backus, Kehoe and Kydland, 1992; Obstfeld, 1994). Moreover, Kose, Prasad and Terrones (2003) show that the volatility of consumption relative to output increases with financial integration, while O’Donnel (2001), using data ranging from 1971 to 1994, finds that OECD countries seem to benefit from further integration while non-OECD countries experience higher output volatility. Obviously, output and consumption volatility measures were affected by the episodes of banking and financial crises of the 1990s that hit relatively more financially-open economies. Those currency crises led to large and persistent output and consumption contractions (Calvo and Reinhart, 2002).

D.

The role of policies and institutions in the development and integration process

The dismal evidence relating financial integration, growth and income volatility and the overall disappointing economic performances of many reforming countries have induced a radical rethinking of the relevance and effectiveness of standard policy reforms. Macroeconomic stability, privatization and both domestic and external liberalization were regarded for a couple of decades as the key reforms able to realign actual economic performance with the undistorted incentive structure of an ideal self-regulated “market economy”.

It has been claimed recently that the Washington consensus reform policies did not work because of poor regulatory and supervisory institutions, inflexible labour markets, ineffective judiciaries and poor governance in the reforming countries. It is claimed that reform policies did not find

the proper institutional environment to deliver the expected results. The “institutional prerequisites” that make external trade and financial liberalization work would come about with a broader agenda of “second generation” reforms including major changes in economic, political, and judicial institutions.⁶

Policies and institutions are indeed the fundamental determinants of economic change and their mutual interaction is a fundamental analytical key for explaining alternative experiences in the development process.

For instance, it is quite uncontroversial to say that capital inflows are sterile or can even increase macroeconomic volatility if not coupled with national institutions and policies that are able to channel them into investment or technological improvement. Questions arise as to what kind of financial institutions should be developed in order to gain from financial openness and whether financial openness should follow, or is instead a precondition for, implementing sound macroeconomic and financial institutions.

A standard argument is that the domestic financial market should be developed to allow a more effective channelling of portfolio flows and bank lending into productive investment. The institutional set up should therefore allow for more “absorptive capacity” and induce a more favourable selection of financial flows capable of producing technological spillovers, reducing volatility and increasing growth.

Moreover, financial liberalization would represent a catalytic factor able to induce institutional reforms and policy discipline (Kose et al. 2006). External liberalization would provide “potential collateral benefits” that would outweigh the traditional positive effects of capital mobility by *forcing* a proper policy and institutional environment. The latter argument reflects traditional economic categories such as creative power arbitrage in the allocation of resources to competing ends. Institutions and well-behaved policies would act as pre-existing articles to be picked up from existing menus under the pressure of international competition in the

same way that pre-existing technologies are chosen through market signals and driven to efficiency through competition.

Unfortunately, the evidence that economies with sound financial institutions enjoy benefits from openness does not provide any causal direction between outcomes and preconditions. Institutional analysis has shown the impossibility of clearly detecting either a one-to-one correspondence between desired economic outcomes and institutional setup or a set of institutional “blue prints” generally applicable to developing countries (UNCTAD/TDR, 2006). Institutional soundness, economic performance and effective integration appear to be linked in a virtuous circle, with strong evidence that industrialized economies benefited more from financial integration, while even the most integrated and more industrialized developing economies suffered from increased volatility.

Thus, financial openness is not a precondition for setting off a catching-up process. This is due not only to highly systemic global financial instability but also to the fact that capital accumulation, product differentiation and technological upgrading are induced by forces other than simple arbitrage.

The endogeneity and the dynamic role of policies and institutions in determining short-run outcomes with long-run consequences are analysed next.

Functional relations between determinants of growth and structural change

A detailed account of the possible interaction between institutions and other direct and indirect factors affecting one country’s economic performance and structural change cannot neglect the cultural and

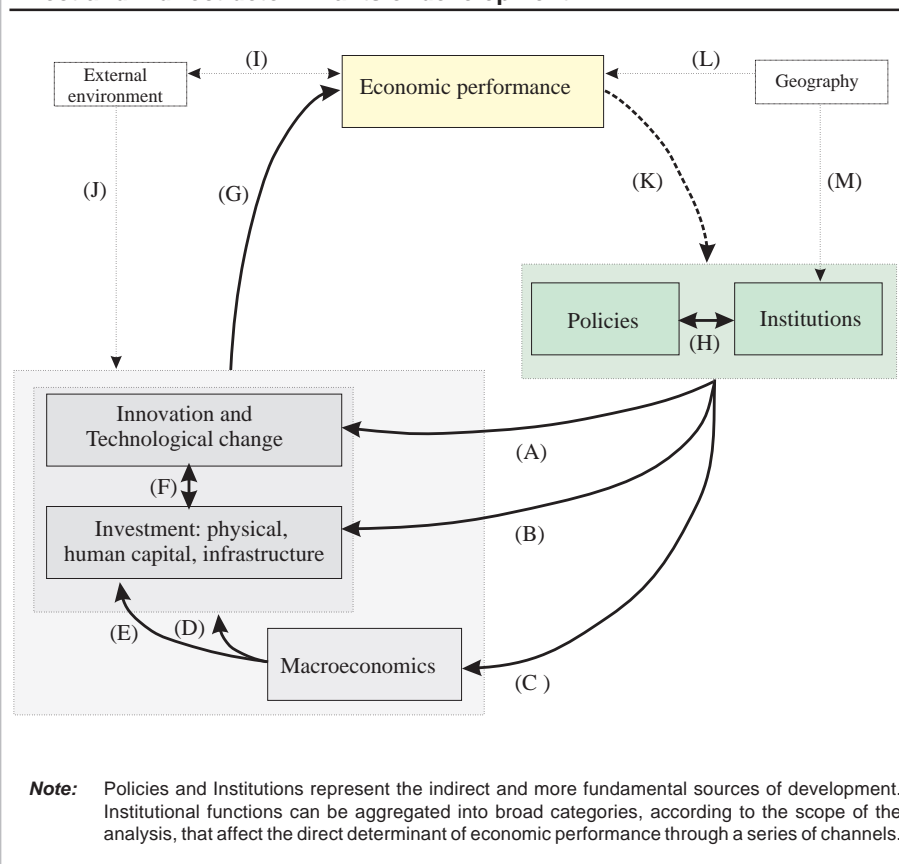
6 (1) corporate governance, (2) freedom from graft, (3) flexible labour market, (4) WTO agreements, (5) financial codes of standards, (6) capital account opening, (7) non-intermediate exchange rate regimes, (8) independent central bank inflation targeting, (9) social safety nets, (10) targeted poverty reduction.

historical specificity and complexity of each single economy. However, a general diagrammatic representation of the main causal linkages between the main determinants of institutional change and economic performance may highlight some common salient features of institutional functions along with internal and external constraints to economic change, providing a guideline for the following analysis (figure 1.2).

As emphasized in various issues of the *Trade and Development Report*, long-run economic growth and the associated sustained catching-up of developing economies are characterized by a rise in labour productivity and productive dynamism achieved through technological change and innovation embodied in new investment in physical and human capital (channel F, figure 1.2). Technological upgrading, productive dynamism and restructuring allowed by new investments are the main direct sources of economic performance, providing the source of productivity gains and income growth (channel G). Factor employment, accumulation and the process of technological change, under the influence of overall macroeconomic conditions – the original central focus of growth and development analysis – are however proximate causes or even manifestations of growth itself. In fact, as described more extensively in the following section, investment and technological progress are not passively generated by macroeconomic stability and exogenously-given saving behaviour but are mostly affected by the perception of the opportunities induced by the incentive structure that institutions and policy jointly provide (channels A, B and C).

For instance, industrial policies favouring productive dynamisms, technological upgrading and the system of institutions consistent with them may jointly allow for overcoming information and coordination externalities and other barriers due to dynamic scale economies (UNCTAD/TDR 2006, chapter VI) both directly and indirectly favouring macro and market conditions. The appropriate system of institutions *includes* the functions of property definition, market access regulation and price stability. The role of macroeco-

Figure 1.2
Direct and indirect determinants of development



nomical factors and their employment patterns (D) on the combined process of resource accumulation, along with the more direct role of macroeconomic variables in fostering investment (E), have been the object of a number of policy controversies during recent decades and will be dealt with in the following section.

The quantitative influence of geographical factors, directly on performances (L) and indirectly through institutions (M), have also been extensively explored and appear to depend strongly on country-specific natural and historical conditions. Conceptions of the nature and role of institutions merge with those concerning societal evolution in the understanding of the process of institutional change (K) as well as understanding how policies can affect institutions and the role of the latter in determining the effectiveness of the former (H).

Global interdependence is represented by the interaction of the external environment/rest of the world and the domestic economy both through the effect of competition affecting directly economic performance (I) and possible external shocks (exchange rate, diverse capital flows and FDIs) affecting the macro environment, investment, innovations and structural change conditions (J). International institutions can provide global public goods such as international economic and financial stability, reducing the effects of financial crisis, preventing contagion and limiting negative international spillovers, beggar-thy-neighbour and any other self-interested policies undertaken by large, relatively influential economies. Moreover, international institutions can influence the effectiveness of domestic policies, both by influencing economic performance and by constraining domestic policies directly at the source.

Competing models of development entail alternative ways of defining the relevant functions that institutions perform, their relation to policies and how they drive the incentives leading to accumulation, productivity increase and economic restructuring.

Evans (1998) has grouped the main competing ways of characterizing economic policies into (i) the “market-friendly model”, (ii) the “industrial policy model”, and (iii) the “profit-investment nexus”. The first approach would characterize the previously-mentioned process of “development by means of external liberalization” (World Bank, 1993) as an application of the rule of “getting the fundamentals right”. This is achieved through institutions and policies able to preserve macroeconomic stability, predictability, the transparency of market dynamics and the rule of law, while avoiding market-distorting subsidies and preventing rent seeking activities.

The second model would interpret the successful industrialization experiences of East Asian countries as the outcome of a performance-based control system of regulation and price distortions, along with the existence of organizational entities capable of providing industry-specific incentives for shifting resources to sectors of higher return and higher growth potential (Amsden, 1989). The third model focuses more on increasing the overall level of investment by fostering institutions and implementing policies for raising profitability through temporary and selective protection against international competition and by diverting profit from consumption and speculation (UNCTAD/TDR 1996, chapter II; 2003, chapter IV; and 2005, chapter I).

These partly competing, partly overlapping models can be analysed in terms of the functions performed by policies and instructions, their mutual relationship (channel H, figure 1.2) and their joint contribution to technological change and productive restructuring (channel A, B and C). This analysis of institutions and policies as means for shaping the incentives of actors, as well as shaping their constraints and their objectives, is the object of the

following sections, along with the existing scope and degree of freedom for formulating policies and reshaping institutions consistently with the external dynamic environment.

E.

Getting the “macro prices” right: short-run conditions for long-run development

To grasp the complexity of economic systems under Keynesian “objective uncertainty” we have to drop the assumption of the representative agent’s maximizing behaviour and Walrasian adjustment. “Expenditure changes” and “expenditure switching” due to price shocks in traded goods and internal relative prices, wage determination and overall profitability are instead critical factors for one country’s competitiveness and the incentive for investment and for building capacity. There has been an increasing awareness of the need of including into the theoretical framework the complex interactions of economic groups such as workers, firms and shareholders in a world of uncertainty that is permanently bombarded by unforeseen shocks.

For instance, in the saving-determined-growth and current-account-balance theory, if saving falls short of desired investment, “... foreigners must take up the balance, acquiring, as a result, claims on domestic income or output.” (Obstfeld and Rogoff, 1995: 1734). Thus in this world, an increase in the saving rate of private households and a corresponding drop in consumption demand do not lead to an immediate fall of companies’ profits and accumulation. However, real world experience is that firms do not invest more if they have already piled up unsold stock as involuntary inventories (and therefore incurred in larger costs) and/or capacity utilization is lower than before as an immediate outcome of falling consumption demand. In a world of money and uncertainty, the decision to save more and consume less can have grave repercussions on

the goods market before it impacts on the capital market.

The decision, as Keynes has put it, “not to have dinner today” depresses the business of preparing dinner today without immediately stimulating any other business. If the saving rate of private or public households suddenly rises, companies, faced with falling demand and falling profits, will react with falling investment if they do not possess more systemic information than just the information about the drop in demand. That is why the secular decline in the saving rate of private households in the industrialized world that started at the beginning of the 1990s – the savings rate of the G-7 countries almost halved, falling from around 9 per cent in 1992 to 4.5 per cent in 2005 – is mirrored in the secular rise of the savings of corporations from 8.5 per cent to 11.5 per cent. Hence thrift of private households is not a virtue per se but has to be analysed in the context of all the other forms of saving by other agents, including the saving of companies.

The failure of market participants to coordinate and clear markets in a Walrasian fashion brings to the fore the role of the independence of savings and investment decisions and the role of profits as the savings of companies. It also highlights the importance of the exchange rate on the one hand, and of labour market conditions and labour productivity changes on the other. For example, in a world of differing productivity performances of companies and the rule of LOP on the labour market, prices are sticky but profit rates vary with the level of economic activity. Moreover, the relocation of production to low-wage countries in most cases takes place by moving the existing capital-intensive technology of the high-wage country to a low-wage location. Thus it is not the smaller quantity of capital and the reduction in overall capital costs that determine the relocation but rather the chance to realize a temporary monopoly rent, which is higher when the capital importing country’s wage levels are lower and when its overall productivity and growth rates are smaller.

In this world, a current account deficit or a growing “inflow of foreign saving”

can emerge in the wake of negative shocks on the goods market, for example due to falling terms of trade or a lasting real appreciation. A real appreciation directly diminishes the revenue of companies if market shares are protected by a pricing-to-market strategy. If companies try to defend their profit margins, a fall in market shares and a swing in the current account towards deficit is unavoidable as a rule. Higher net inflows of foreign savings that correspond to an increase in net imports do not automatically lead to higher investment, which is instead negatively affected by falling real income and profits. In that case, net capital flows would be the symptom of a negative shock. On the contrary, if current account surpluses are the result of growing exports and rising market shares, with profits fuelled in the export sector, there can be second-round positive effects in the domestic sector's output and investment. Crucial, therefore, are the effects of the emergence of a current account surplus (induced by rising exports, import substitution or an improvement in the terms of trade) on profits and jobs for the creditor country, and vice-versa.

The nature of short term capital flows and the role of interest rates and exchange rates (nominal and then real) as the main transmission channels is the most important source of consumption and output volatility. There is no monetary autonomy in an open economy. The traditional "impossible trinity" (fixed exchange rates, open capital accounts and monetary autonomy) has to be replaced by an "impossible duality" (Flassbeck, 2001). Reserves and liquidity increase under a pegged exchange rate or under a managed float when, facing a flush of capital flows in the domestic financial system, monetary authorities intervene to prevent excessive appreciation. Obviously, no intervention means leaving the capital inflows "excessive", and that implies unwanted appreciation of the domestic currency, with all its effects on growth and income generation. Appreciation means to stimulate the consumption of non-tradable goods and imports. The competitiveness of production and the current account is weakened; capital formation is penalized by falling profitability and the borrowing risks in-

crease until a "sudden stop" of flows and devaluation become inevitable again.

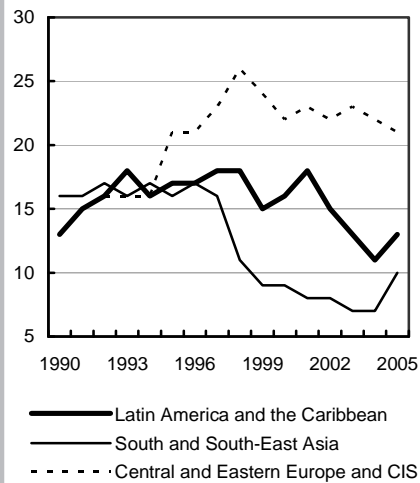
If interest rates are fully used to respond to external shocks, they cannot perform their adjusting role between saving and investment and guarantee full employment. Additionally, the industrialized world has seen other cases of external shocks. During the oil-price shocks, interest rates did not fall despite falling capacity utilization as monetary policy was fighting higher inflation induced by the ensuing negative supply shock. Interest rates may even go up in a cyclical downturn if financial markets dictate higher interest rates to a developing country due to increasing risks of a default. The negative effects of falling private demand on profits may be aggravated by pro-cyclical fiscal policy in developing countries if "the markets" expect a quick reduction of public budget deficits.

Income growth can therefore be achieved only by constantly managing the dynamics of open economies to achieve investment plans exceeding saving plans ex-ante. In such a world, even with the private incentive to "thrift" left unchanged, the economy as a whole may expand vigorously. The "savings" corresponding to increased investment are generated through investment and the original investment may be "financed" through liquidity created by bank credit based on expansionary central bank policy. Increased investment stimulates higher profits, as temporary monopoly rents of the company sector rise. These profits provide for the macroeconomic savings required from an ex post point of view to "finance" the additional investment (or repay the bank credit).⁷

Some of these lessons have been learned by developing countries the hard way. Figure 1.3 shows the change in the number of economies, grouped by region, that are running a current account deficit. In 1996, before the financial crises in Asia and Latin America, South Asian and South-East Asian economies were experiencing large net capital inflows and 17 out of the 22 countries of the region had a current account deficit, while in 1998 all 19 Latin American countries had an external deficit. After the 1997 and 1998 crises

Figure 1.3

Number of developing and transition economies with current account deficit in selected regions, 1990–2005



Source: UNCTAD secretariat calculations, based on WEO April 2006 database.

Note: For Central and Eastern Europe and CIS, the number of new reporting countries increased from 24 to 25 in 1995, then to 27 in 1998.

that respectively affected the two regions, the number of deficit countries has sharply declined and each region is running a current account surplus as a group. This can be interpreted as a fundamental change in the perception of globalization and of development strategy regarding these two crisis-stricken regions. From a strong reliance on foreign capital inflows, they moved towards a policy of preserving favourable monetary conditions such as slightly undervalued exchange rates and low interest rates, thereby favouring growth by stimulating export demand, competitiveness and productive investment.

This solution has to be seen as a self-defence mechanism against the most important threat of the globalized economy:

⁷ This is the position UNCTAD, in its *Trade and Development Reports*, has called the "profit-investment-nexus".

the systemic financial instability arising from short term volatility of capital. The accumulation of reserve in surplus countries, from a very narrow perspective, may be suboptimal but it is the necessary outcome of the lack of a global financial system that could complement and make more effective the global trading system (UNCTAD/TDR, 2006). A reasonable global financial architecture that would set rules for the management of capital flows and exchange rates would not only allow for larger international financial stability but also for smaller global imbalances, which means smaller current account surpluses in emerging market economies and a smaller deficit in the United States.

F.

Conclusions

Although world output has been expanding vigorously during the last four years, with a 6.2 per cent growth rate for developing countries and a 2.7 rate for developed ones (UNCTAD/TDR, 2006), only a few economies are actually closing the gap between the two groups. World

economic integration, on the contrary, has been a much more widespread phenomenon and has been tried under various historical circumstances and with various forms of policy reform. The results have been disenchanting for an overly simple view of the world, the pure market approach. Those countries that have undertaken an indiscriminate lowering of barriers for trade and financial flows and have abstained from any proactive policy of industrialization and integration strategy have fared the least well. Conventional wisdom provides us with predictions about the nature and gains from free capital and trade flows based on well-established and self-consistent basic principles of arbitrage and flexibility of prices. However, the power of these principles to explain real world markets is clearly limited. Indeed uncertainty, the general scarcity of knowledge and information, as well as the influence of contingent conditions, institutions and history seems to nullify the role of reallocating resources as compared with the adoption of new technologies and new investment in permanently changing structures of production.

Moreover, the lack of instantaneous and well-behaved nominal adjustment renders any underlying real equilibrium

configuration irrelevant because comparative advantages are not realized, real investment returns are not equalized and prices do not settle to their parity level before new shocks set in. On the contrary, temporary nominal and real outcomes of monetary policies, exchange rate misalignment and external shocks permanently affect the direction and quantity of economic change. Hysteresis and path-dependent features of real market economies, together with the existence of market failures, call for a role of proactive policies in industrial, trade and macroeconomic management at both the domestic and global levels. Competitiveness of countries is extremely relevant in such disequilibrium dynamics, but it has to submit to international scrutiny to avoid “races to the bottom” and international trade wars.

The “right process” of integration is one of effective outer-oriented development in combination with a growth strategy. It requires a clear understanding of the limits and potentialities of market forces, the effectiveness of national macroeconomic and industrial policies and the right balance between discipline and flexibility in multilateral global governance. ■

II. CARRY TRADE AND FINANCIAL FRAGILITY¹

Massimiliano La Marca

A.

Introduction: strategy, players, financial returns and real losses

“Currency carry trade” is a class of financial operations that involves borrowing and selling a low-yielding currency to buy and lend in a high-yielding currency. The ensuing cross-currency speculative positions are typically highly leveraged and may generate a large and continuous stream of profits as long as the interest rate differentials between funding/low-yielding currency and target/high-yielding currency are not offset by a sudden exchange rate reversal.² Expected exchange rate movement and volatility, together with cross-currency interest rate differentials, play a key role in inducing a build-up of such speculative positions and their sudden unwinding. On the other hand, interest rate differentials and exchange rate movement cannot be considered exogenous to this form of speculation. The relative size of the funds involved in such a class of operations may trigger a cumulative effect on the exchange rates, inducing an appreciation of the target currencies and a depreciation of the funding currencies. A persistent trend toward appreciation has been experienced by the Icelandic krona, the Australian and New Zea-

land dollars, the Brazilian real, the Turkish lira, the South African rand and the Korean won, as well as the currency of some transition economies such as Hungary, Romania, Bulgaria and the Baltic states. Funding currencies, such as the Japanese yen and the Swiss franc, demonstrated an opposite trend.

According to McGuire and Upper (2007) and Galati et al. (2007), hedge funds and commodity trading advisors (CTAs) have been the main players and beneficiaries of trades using the yen and the Swiss franc as funding currencies for buying some short-term assets (bank deposits and short-term government papers) in the target currencies.

Speculative flows are difficult to identify and monitor. As noted in the studies at the Bank for International Settlements, measuring the volume of the carry trade is problematic because of the lack of data and the variety of forms that these flows can take. However, a comparison of carry-to-risk ratios (the 3-month interest rate differential divided by the implied volatility of the currency option) provides further evidence that there is a clear tendency for the currencies of some developing countries, like the Brazilian real and the Turkish lira, to become increasingly more attractive than traditional carry trade targets such as the Australian and New Zealand dollars and the pound sterling.

National monetary policies become increasingly affected by the pressures on the exchange rates and inflows of short term capital. Monetary authorities seeking to contain the inflationary pressures and the overheating induced by capital inflows would keep interest rates high. The fear of a sudden stop of inflows, of depreciation and of a consequent inflationary shock would also induce central banks to preserve high interest rate differentials and accommodate the increasing appetite of carry traders.

1 This chapter draws in part on Heiner Flassbeck's and the author's contribution to the *Trade and Development Report, 2007* (chapter I.B). The usual disclaimer applies.

2 “For example, an established speculator such as a hedge fund might borrow 12,000 yen in Japan, buy 100 dollars in the United States, invest this amount in United States bonds and obtain an interest revenue equal to the difference between the borrowing rate in Japan, say 0.25 per cent, and the higher lending rate in the United States, say 5 per cent. Exchange rate changes between the time of borrowing and paying back the funding currency can add to the gains, or induce smaller gains or even losses. But with stable exchange rates, the *interest rate gain* amounts to 4.75 per cent. However, both gains and losses are largely magnified by high leverage ratios, since traders typically use huge amounts of borrowed funds and very little equity. For instance, owning a capital of \$10 and borrowing 10 times the equivalent of that value in yen, the leverage factor of 10 leads to a net interest return on equity of 47.5 per cent”. (UNCTAD/TDR, 2007: 15)

Indeed, the mounting evidence on the effects of carry trades shows the absence of strong stabilizing forces on the capital market that would tend quickly to remove any arbitrage gain and lead to cross-currency uncovered interest parity (hereafter UIP).

The UIP states that capital flows find equilibrium when the expected devaluation of a currency compensates for the interest rate differential obtained by investing in that currency and represents a fundamental tenet of our theoretical conventional wisdom and a building block of standard macroeconomic models. Capital inflows and outflows would find equilibrium if the incentive to buy a currency and invest abroad, driven by an interest rate spread, is completely offset by the potential loss of the currency value, that is, if the positive interest rate spread is compensated by an expected devaluation of the exchanged currency. This implies that assets denominated in a different currency should have the same return so that *no extra profit* can be made by exchanging them. On the other hand, it also implies that it should not be profitable to short-sell or borrow in a currency and lend uncovered in another. The uncovered interest parity condition is therefore an equilibrium condition that rules out excess demand in the international market. Coupled with the assumption that expectations are formed in a fully rational way (market participants use *efficiently all the information* available), it becomes a manifestation of the market efficiency hypothesis that states that any security prices (exchange rate included) reflect all available information, and that no unexploited extra profit is possible.³

The carry trade phenomenon, as well as many other profitable speculative activities, not only clearly violates the parity condition but also gives additional support to its related “forward-premium puzzle” (Burnside et al., 2007). The evidence that currencies at a forward premium tend to depreciate, while currencies at a forward discount tend to appreciate, implies that positive interest rate differentials are systematically associated with appreciation.

Carry trades not only exist due to a systematic deviation from the parity con-

dition, representing a clear violation of the market perfection hypothesis, but also generate two distinct and destabilizing cumulative effects on the currency involved: In the winding of carry trades, speculative positions pile up, feeding into a pattern of real appreciation for deficit economies and real depreciation for surplus economies and providing a substantial contribution to the widening of global imbalances. In the unwinding of the positions, fears of currency reversals generate sales and depreciation of the target currencies, while players’ loss-minimizing strategies generate cross-country contagion and volatility.

Carry trade may therefore constitute a significant amplifying factor for global imbalance and financial turmoil and be a direct source of financial fragility and instability. This chapter aims at framing the carry trade phenomenon within the broader issue of systemic financial fragility and real economic costs for the countries concerned. In section B we explain some salient episodes of large cross-currency interest rate returns, currency gyrations and volatility as the outcome of carry trade position build-up and unwinding respectively. In section C, the real effects of these speculative flows are interpreted from Minsky’s perspective that underlines the asymmetric nature of the building up of the economy-wide systemic fragility and of breakout of a crisis.

B.

Asymmetric effects: winding and unwinding

As described in the UNCTAD/TDR (2007), over the past two years, yen- and Swiss franc-funded carry trade operations appear to be responsible for the large volatility and gyrations of some of the high-yielding currencies, such as the New Zealand and Australian dollars, the Hungarian forint, the Brazilian real, the Korean won and the Icelandic krona. The target currency, for instance, experienced what has become the typical currency speculation pattern: prolonged periods of steady

appreciation and capital inflows, disrupted by shorter periods of sharp devaluations as carry traders unwound their positions. Figure 2.1 shows past carry trade potentials driven by the nominal exchange rate dynamics and the interest rate differentials between the Japanese yen and the Icelandic krona (left panel) along with those between the Japanese yen and the United States dollar (right panel). The thick line represents a 3-month interest rate differential between a krona- and a yen-denominated asset; the thin line is the exchange rate change of the krona vis-à-vis the yen for the same period, while their sum (the shaded area) is the return on a 3-month (uncovered) lending in the Icelandic market by borrowing in Japan in local currencies. Since this return carries the risk of exchange rate changes, it is hereafter called “uncovered interest return” (UIR).

Indeed, the dollar itself has been the target of “yen carry traders” and, to a lesser extent, of traders borrowing in Swiss francs, at least since the rise of the fed funds rate between 2004 and 2006.

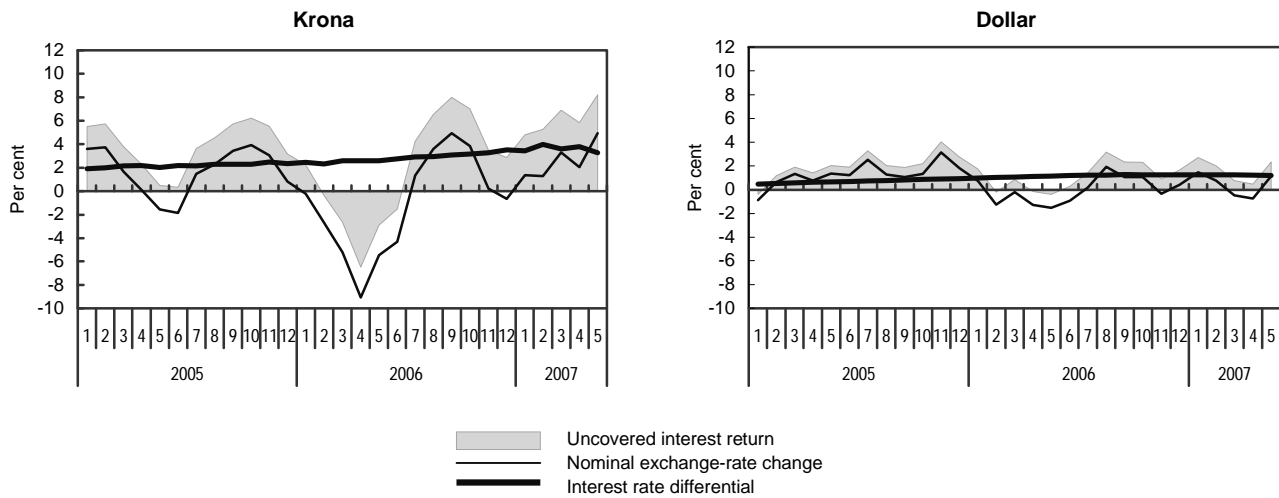
Figure 2.1 shows that the potentials for positive returns in cross-currency interest rate differentials persisted even in the face of moderate yen appreciations vis-à-vis the target currency, but this can be reversed by steep and prolonged exchange rate movement as in the first half of 2006.

Other countries, such as Brazil and Turkey, have experienced a steady appreciation of their currencies despite fairly high inflation rates. The real appreciation of the Brazilian and Turkish currencies and their large interest rate differentials vis-à-vis the other major currencies and particularly the yen have allowed for large gains in carry trade which persist despite the mid-2006 turbulence (figure 2.2).

3 The literature on the validity of parity has been extensive and has strongly rejected the joint assumptions of UIP and of exchange rate expectations that are based on “perfect rationality”. Attempts to solve the rational-expectation UIP puzzle, either by adding a time varying risk premium or by assuming a transitional learning period, or by adding “noisy traders”, have delivered theoretically and empirically controversial results.

Figure 2.1

Yen carry trade on the Icelandic krona and the United States dollar between 2005 and summer 2007



Source: UNCTAD secretariat calculations, based on IMF, *International Financial Statistics* database; and national sources.

Note: A positive change in the exchange rate indicates an appreciation of the currency concerned. Real exchange-rate trend is a 6-month moving average. For an explanation of differentials, see text.

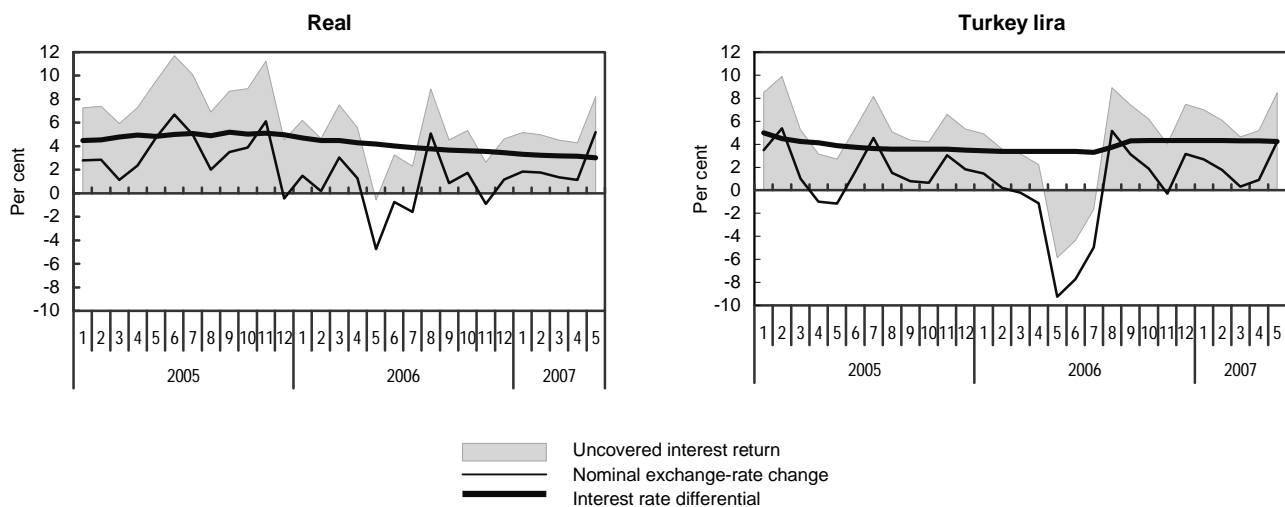
One remarkable feature of any carry trade cycle is the contagion effect that the web of different funding and lending currencies of otherwise unrelated economies imposes on the countries involved.

Contagion spreads due to speculators' profit-maximization (or loss-minimization) motives: unwinding of positions in one country affects all the web-related economies. Such unwinding may be trig-

gered by "conventional focal points" such as the external balance or expected GDP growth, or by the fear of an interest-rate correction and an exchange rate jump caused by the prospects of inflation of the

Figure 2.2

Yen carry trade on the Brazilian real and Turkey lira, between 2005 and summer 2007



Source: UNCTAD secretariat calculations, based on IMF, *International Financial Statistics* database; and national sources.

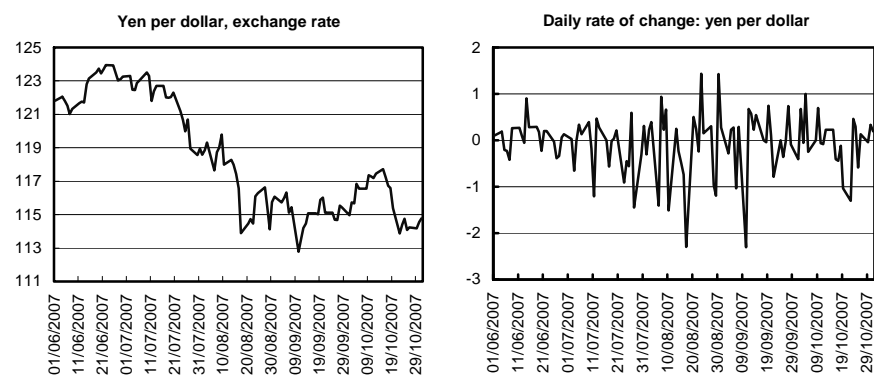
Note: A positive change in the exchange rate indicates an appreciation of the currency concerned. Real exchange-rate trend is a 6-month moving average. For an explanation of differentials, see text.

funding currency. For instance, it has been debated whether the speculative run on the Icelandic krona was triggered by the perceived non-sustainability of the huge current-account deficit, by a downgrade from some rating agency, or even by a piece of “good news” related to the funding currency such as an improvement in the Japanese economy that had the potential of an interest rate increase and an appreciation of the yen. Undoubtedly, the carry trade unwinding from the krona in the early 2006 had a significant impact not only on the Icelandic financial and credit system but also on some third parties involved, namely emerging markets such as Brazil and Turkey, as traders needed to cash in some of their earnings from well-performing currencies to cover some of their losses from the krona trade (figures 2.1 and 2.2).

The other specific feature is the currency volatility associated with sudden unwinding of the positions. While uncovered gains and losses can be significant, their volatility depends entirely on fluctuations in the nominal exchange rate. Periods of relative stability and large interest rate differentials provide a strong incentive to traders, as in 2005 and late-2006. During that period the dollar appreciated vis-à-vis the two funding currencies, despite high and rising current-account deficits and higher inflation rates in the United States than in Japan or Switzerland. On the other hand, the carry trade is such a psychological game that it does not require big changes in interest differentials for the direction of the flows to be reversed. The movements between the yen and the dollar are under scrutiny and have become focal points that can trigger a wider reversal. A sudden pickup of expected volatility, as in mid-2006 and in the summer of 2007, can trigger a large unwinding of investments and spill over into emerging market economies. Currency volatility discourages carry trade operation by raising the risk that gains from interest differentials between the funding and the target currency may be eroded by adverse exchange rate movement. On the other hand the reversal of the positions generates the volatility and the adverse exchange rate changes that lead to further reversal of the flows.

Figure 2.3

Recent yen carry trade unwinding and currency volatility with the United States dollar, 1 June 2007–31 October 2007



Source: UNCTAD secretariat calculations, based on Bank of Japan.

The summer 2007 turmoil originating in the United States sub-prime credit market and spreading to other segments of the financial and credit markets worldwide affected carry trade operations and was amplified by sudden carry trade unwinding.

Figure 2.3 shows the most recent trend in the \$/yen exchange rate and the daily rate of change. A strong appreciation of the yen at the end of June was associated with an increase in volatility visible in the large jumps from significant appreciations to minor depreciations.

The expectations of lower United States rates to ease tight liquidity conditions along with slightly increasing rates in Japan reflecting inflationary pressures played a clear role in these latest developments. However, this trend change seems to be largely affected by increasing currency market volatility and the rising risk aversion of speculators.

The evidence for the Brazilian real is supportive of the hypothesis that the fear of crisis can spill over into emerging markets, leading to larger risk aversion and reducing the demand for assets that are increasingly perceived as risky, making the currency carry trade less appealing. In summer 2007, currency carry trade to-

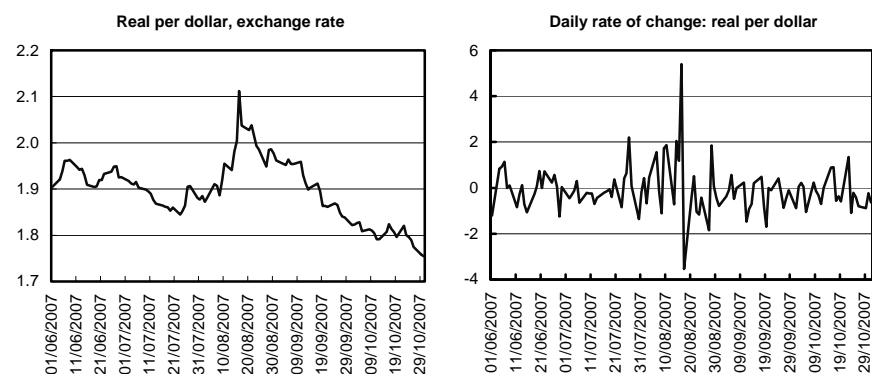
wards the Brazilian real was unwinding, in part due to the increasing volatility of both the Japanese yen and the dollar. Despite a persistently large interest differential between Brazilian assets and the latter currencies, fearful investors were looking towards safer assets (figure 2.4).

A Swiss franc carry trade in Eastern Europe has funded a few regional property bubbles (in 2006 more than 80 per cent of Hungarian mortgages were funded by inflows of Swiss francs). A sudden reversal of speculative flows can be behind the strong depreciation of the Hungarian forint and generate defaults and falling house prices (figure 2.5).

According to the Bank of Korea, yen carry trade funds that entered the Korean market only during the last year amounted to \$6 billion for an approximate amount of \$29 billion, or 10 per cent of total foreign reserves. The effects of the carry trade have hurt the export competitiveness of the nation’s small and medium-sized businesses. The strength of the won has hurt exporters, while the weakness of the yen has favoured the export-dependent Japanese economy. The sudden depreciation of the won, mostly attributed to carry trade reversals, raised concerns of small and medium-sized businesses that borrowed in yen to finance real estate and stock market invest-

Figure 2.4

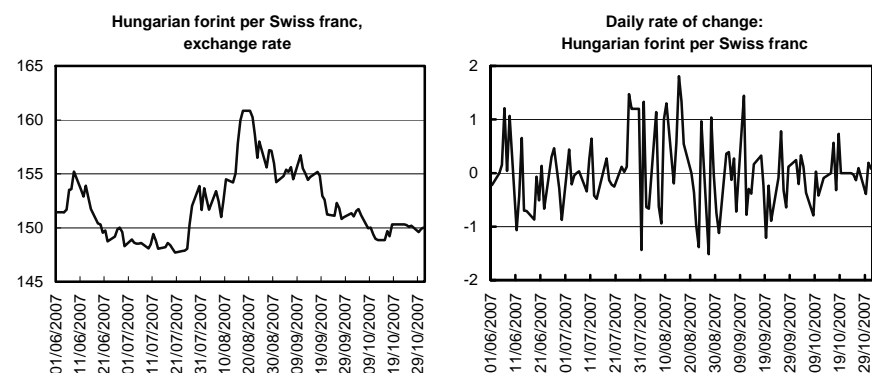
Recent United States dollar carry trade unwinding and currency volatility with the Brazilian real, 1 June 2007–31 October 2007



Source: UNCTAD secretariat calculations, based on Banco Central do Brazil.

Figure 2.5

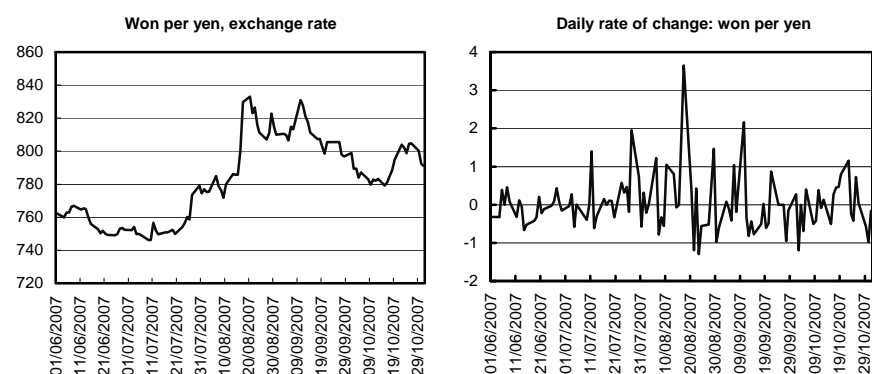
Recent Swiss franc carry trade unwinding and currency volatility with the Hungarian forint, 1 June 2007–31 October 2007



Source: UNCTAD secretariat calculations, based on Hungarian National Bank.

Figure 2.6

Recent yen carry trade unwinding and currency volatility with the Korean won, 1 June 2007–31 October 2007



Source: UNCTAD secretariat calculations, based on Bank of Korea.

ments (figure 2.6). As in the case of Hungary this sudden carry trade reversal could cause the local housing bubble to lead to further liquidity shortage.

C.

Credit cycles, financial fragility and real effects

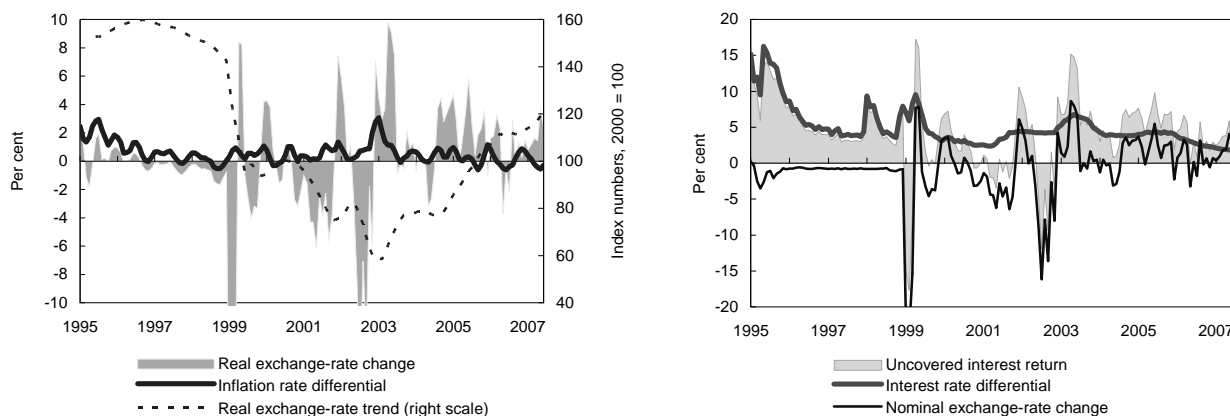
Yen carry trade return potentials on the dollar have been low compared to uncovered returns plus real appreciation of a number of developing and transitional economies in relation to the dollar itself. In figures 2.7, 2.8 and 2.9 below, the short-term speculative potentials defined as above (right charts) are depicted, together with the inflation differential and real exchange rate dynamics (left charts), taking the dollar as the reference funding currency. In the latter charts, the solid green line represents the inflation rate differential between the selected economy and the United States, while the shaded area is the change in the real exchange rate, that is, the sum of the inflation rate differential and the change in the nominal exchange rate vis-à-vis the dollar (thin blue line in the right charts). An index of the real exchange rate is plotted on the left panel (blue dashes) and measured on the right vertical axis.⁴ While the dollar is used as reference for comparison between the countries' trends and the rest of the world, it is easy to estimate the potentials of yen-funded carry trade by combining the latter figures with figure 2.1.

As described in *Trade and Development Report 2007*, the examples of Brazil, Turkey and China show how alternative exchange rate regimes and their differing monetary policies generate varying degrees of speculative opportunities for the international capital markets; they also

4 To reduce its volatility, induced by monthly nominal exchange rate fluctuations, we use a 6-month moving average of the real exchange rate, with 2000 as the basis year.

Figure 2.7

Brazil: uncovered interest returns, exchange rate changes, inflation and interest rates differentials, 1995–2007



Source: UNCTAD secretariat calculations, based on IMF, International Financial Statistics database; and national sources.

Note: A positive change in the exchange rate indicates an appreciation of the currency concerned. Real exchange-rate trend is a 6-month moving average. For an explanation of differentials, see text.

show how much real appreciation (loss of overall competitiveness for a nation) can result from speculation that is driven by interest rate differentials. Pre-crisis Brazil was characterized by an overvalued real exchange rate, large interest rate differentials (aimed at maintaining capital inflows in a condition of financial fragility) and unsustainable costs for the real economy (figure 2.7). Despite the slight real depreciation of the real due to a crawling peg exchange rate, the 1999 crisis forced a large nominal depreciation and led to an interest rate hike. The post-crisis change in the monetary regime included official floating of the exchange rate and implementation of an inflation-targeting monetary policy (Barbosa, 2006). Despite relatively high inflation rates (compared to international trends), Brazil experienced a tendency towards nominal and real appreciation induced by short-term capital inflows. In 2006, the real exchange rate had nearly returned to its 1996 level. Large interest rate differentials aimed at curbing inflation offered considerable potential gains for short-term speculation; indeed, they were comparable in size to those of the pre-1999 monetary regime.

Turkey provides an example of frequent changes in the monetary regime,

resulting in large and volatile nominal exchange rate changes and frequent real appreciation (mostly induced by large inflation rate differentials) that are constantly associated with large uncovered returns on short-term capital (generated by the large interest rate differentials). Financial turbulence struck the country in 1999 and culminated in November 2000 (figure 2.8). Despite significant financial assistance by the IMF (since December 1999) and substantial portfolio capital inflows, the financial situation once again became unsustainable in February 2001. GDP contracted by 5 per cent in 1999, grew by 7 per cent in 2000 and ended up with a fall of 7.4 per cent in 2001, displaying an extreme kind of boom and bust behaviour. The central bank officially gave up control of the exchange rate and, since November 2002, the post-crisis IMF stabilization programme has been officially based on two pillars of financial restraint: a primary surplus target for fiscal deficits and an inflation-targeting framework for monetary policy. However, this again has resulted in a strong tendency towards real appreciation and large uncovered interest returns. Only recently has the country managed to reduce significantly the interest rate differential, which fell below 3 per cent between July 2005 and March 2006. But with a very

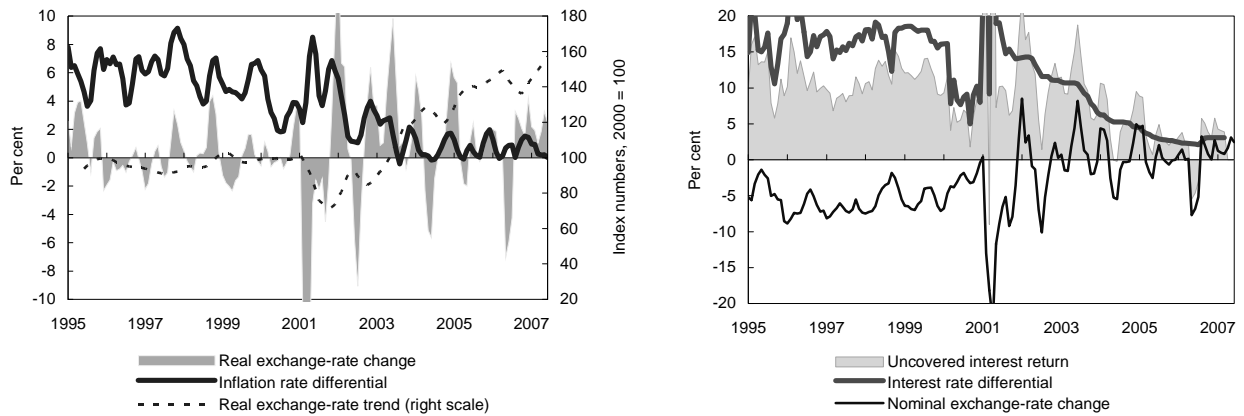
high real exchange rate and widening current-account deficits, the value of the currency dropped at the end of 2006, a drop preceded by significant capital outflows. Turkey's frequent boom-bust cycles are clearly driven by the effects of potential and actual short-term capital flows (Telli, Voyvoda and Yeldan, 2007).

By contrast, China's exchange rate, capital market and monetary regimes have been extremely stable over a long period of time (figure 2.9). A strictly-pegged nominal exchange rate, low inflation and low interest rates have led to stable expectations by investors in fixed capital and have not attracted any short-term capital speculators. In particular, due to low nominal and real interest rates, short-term returns have been nil or negative and have discouraged speculative capital flows of the carry trade type. A slight and consistent tendency towards real depreciation vis-à-vis the dollar has only recently levelled off, following the authorities' decision to allow a moderate nominal appreciation in 2005 and 2006.

Carry trade, as any other form of speculation on international interest rate differentials that is not covered in the forward currency market, involves a currency

Figure 2.8

Turkey: uncovered interest returns, exchange rate changes, inflation and interest rates differentials, 1995–2007



Source: UNCTAD secretariat calculations, based on IMF, International Financial Statistics database; and national sources.

Note: A positive change in the exchange rate indicates an appreciation of the currency concerned. Real exchange-rate trend is a 6-month moving average. For an explanation of differentials, see text.

risk that varies according to the exchange rate regime. While such speculative operations naturally involve a currency risk for speculators, this can be attenuated by diversifying the portfolio of high-yielding currencies. The risk for both the funding and lending currencies cannot be diversi-

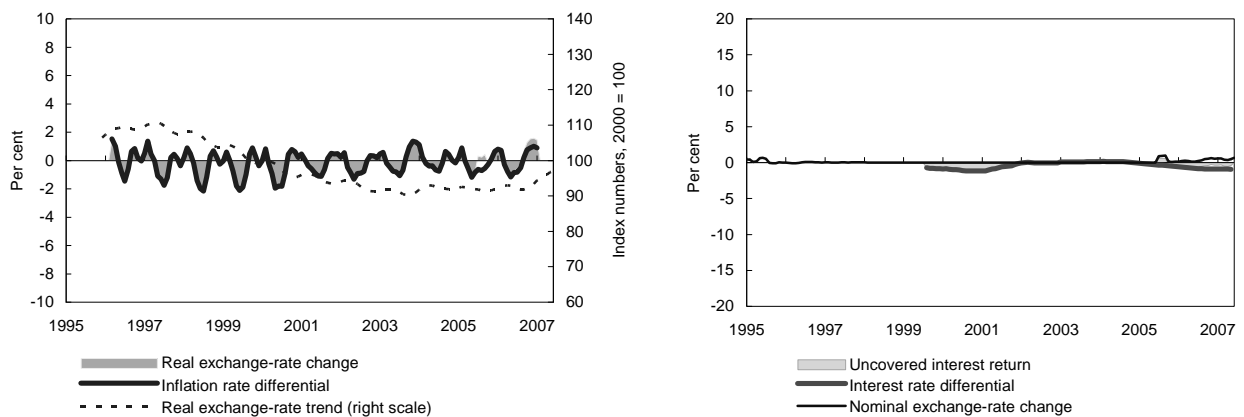
fied, however, and can therefore become a source of “systemic risk”, spilling over from the financial system to the real economy.

Supposedly, a floating exchange regime increases the risk and discourages

these kinds of operations, while a fixed exchange regime provides a (partial) warranty for exchange stability and therefore encourages such speculation. The specific experience of carry trade on officially floating currencies does not confirm this hypothetical scenario. Indeed, floating

Figure 2.9

China: uncovered interest returns, exchange rate changes, inflation and interest rates differentials, 1995–2007



Source: UNCTAD secretariat calculations, based on IMF, International Financial Statistics database; and national sources.

Note: A positive change in the exchange rate indicates an appreciation of the currency concerned. Real exchange-rate trend is a 6-month moving average. For an explanation of differentials, see text.

currencies under various monetary policy regimes are not immune to speculative operations, which in turn can generate positive feedbacks on their returns.⁵

A typical configuration of cumulative interaction between the public sector and private investors seems to be the blueprint for most past financial crises and states of financial fragility in emerging market economies. As emphasized in the *Trade and Development Reports* of 2004 and 2007, large inflation differentials are typically associated with large interest rate spreads, since the interest rate is used as the principal instrument to curb inflation via credit and demand contraction. However, expected nominal returns are also the focus of financial investors, who are not concerned about inflation differentials or about other real fundamentals *as such* as long as they do not constitute a perceivable threat to currency stability and therefore to their expected profits. The capital inflows induced by nominal interest rate spreads, coupled with an exchange rate that is either perceived as stable or appreciating on average, or even depreciating but still allowing for sufficient returns, can have a cumulative effect on the financial and real systems driving the exchange and interest rates towards larger spreads and larger inflows. The financial and real systemic effects of portfolio capital inflows vary according to the specific institutional, structural and even conjunctural situation of the recipient economy.

Financial development and intermediation, the size of inherited internal and external debt, the composition of production and of the trade balance as well as world traded goods prices affect the capacity to absorb the flows and reduce the effect on relative prices, real interest rates and growth. Some typical scenarios that have characterized emerging market financial fragility and volatility share common features such as large real appreciations, worsening of the current account, a tendency towards persistent high real rate of interest and currency instability.

Under a fixed exchange rate or crawling peg regime, capital inflows boost reserves, money creation and credit expansion

and may induce consumption growth and inflation as well as an import surge. A floating exchange regime can induce nominal appreciation as well as reserve increases to the extent that the central bank, openly or implicitly, is willing to contain exchange rate changes. While a nominal appreciation may restrain inflation by partly reducing import prices of intermediate and final goods, inflation can be sustained by booms in the financial and credit system, in consumption goods and in asset prices. Sterilization may be significantly limited by central bank resources and may drive up interest rates, thus attracting larger inflows. The effects for the real side of the economy may show up with a delay but may be critical. High real interest rates penalize capital formation and growth. An appreciated real exchange rate penalizes exports, competitiveness and therefore the growth of firms in the trade sector, ultimately affecting income and growth. Finally, the real deteriorating condition of the economy may turn into the object of a renewed focus, i.e., as “bad fundamentals”, while the exchange rate may devalue sharply or interest rates may rise further to include ever-growing risk premiums.⁶

Hyman Minsky’s model of credit cycles and financial fragility has provided a sound interpretation tool for understanding previous and recent financial and economic booms and crises. The model builds on the Keynesian and Schumpeterian tradition and was originally developed to explain credit and economic cycles in industrialized market economies with highly-developed financial institutions and markets. The savings and loan-based real estate boom and bust in the late 1980s and the tech bubble and burst in the late 1990s, for instance, have been widely acknowledged as Minsky cycle episodes. However, the model’s relevance to the contemporary world economy has been underlined recently by the series of financial crises in developing and newly industrializing countries that followed the liberalization of domestic and international capital markets in the 1990s as well as by the current sub-prime loan-based credit crisis that is affecting industrialized economies and raising concerns for a number of emerging market economies.

Carry trades can be amplifying sources for modern Minskian credit cycles and financial fragility. The relevance of Minsky’s ideas about the inherently instability of financial markets, and consequently of product and labour markets in modern economies seems to have found an unprecedented cross-ideological popularity. The summer of 2007’s financial turmoil that originated in the United States sub-prime credit market (see following chapter) has been widely labelled as a “Minsky Moment” (see Magnus, 2007; and Roubini, 2007).

A first element of Minsky’s model is the distinction between three types of finance: hedge finance, speculative finance and Ponzi finance. Any economic unit such as household, firms or financial investor can operate as a hedge, speculative or Ponzi investor/borrower and switch from one type to the other according to the credit and macroeconomic conditions of the economy. The economic unit is defined as “hedge” if its operating income and cash-flow is sufficiently large to cover both interest payments and amortization of debt and eventually build up new assets. The speculative unit, on the other hand, can service only interest payments and uses new loans to finance amortization of old debt to buy new assets, while the “Ponzi unit”, whose operating income does not cover interest and debt amortization, builds up new debt to meet its scheduled repayments of interest, amortization and pursue new investments. Many households and investors, both sub-prime and near-prime, became “speculative units” and were able to refinance their mortgages rather than paying their principal. Many were even allowed to become “Ponzi units” since they were not subject to any verification of income and assets or any down-payment.

5 Hausmann et al. (2001) explore the sources of differences in the pattern of floating concerning countries that have officially adopted floating exchange rate regimes.

6 Eatwell and Taylor (2000) refer to this speculation-driven interest and exchange rate spiral as a “Frenkel-Neftci” cycle. See also Frenkel and Taylor (2006).

A second element of the model is the role of credit expansion. Supply of credit is highly pro-cyclical and increases during economic booms while contracts during slowdowns. This can be due to various concomitant factors. During economic expansions, investors' expectations become more optimistic and less risk averse. Loans are obtained more easily and a process of leveraging sets in. Borrowing allows for pursuing larger investment projects or purchasing highly speculative assets at rising prices. Investment, consumption, profit and growth rates surge. Financial innovation and the loosening of credit standards among supervisors and regulators can be a critical factor for credit expansion, while allowing financial institutions to avoid prudential regulation and supervision during booms and bubbles. This has been particularly evident in the recent mortgage credit cycle and disinflation of the housing price bubble that has generated a high rate of defaults and foreclosures on sub-prime, near-prime and non-conventional mortgages. It has also been seen in bankruptcies of sub-prime lenders and a recession in the housing market, generating a historically unprecedented real estate price fall.

Indeed, another critical element of the cycle is the market psychology leading to phases of "manic" acquisition of assets and real investment and market "euphoria". Banks may be reluctant to lose market shares and become eager to extend their credit to less-creditworthy borrowers. Speculative acquisitions build up asset prices, particularly in the real estate and stock markets; investment and consumption booms raise profits and income. Many of the mid- and late-1990s United States and Asian crises, as well as the current turmoil, have been characterised by stock market and consumption booms fed by a concomitant real estate bubble. Euphoria can be propagated internationally through production networks, commodity price arbitrage, income spillovers via import and export linkages, and finally through speculative financial flows. Production and credit expand in both the originating and the affected economies. Firms and households become progressively more leveraged and switch from hedge finance to speculative finance. A progressive or sudden slowdown of the economic boom may lower asset returns and profits relative to interest rates, and so many units turn to Ponzi finance.

The slowdown of the boom can lead to "revulsion", panic and crashes. The overall fragility of the financial system leads to a breakdown in the face of a series of defaults of Ponzi and speculative units that can no longer roll over their debts. Asset prices decline, with investors flying to liquidity until the perception spreads that the price level is so low that might be profitable to buy less-liquid assets or it is concluded that a sufficient amount of liquidity has been injected in the system to halt the fear of a liquidity shortage. In the latter case, confidence needs to be restored by a national or international lender of last resort.

Carry trades indeed may exacerbate this pro-cyclical pattern of capital flows, credit and consumption booms and appreciation/interest rate spirals, leading to an economy-wide fragility where further increases in interest rates generate speculative and Ponzi finance and trigger a reversal of flows. ■

III. THE 2007 GLOBAL FINANCIAL TURMOIL¹

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A.

The economic background of the liquidity crunch

For precautionary and regulatory reasons, all banks need to maintain a certain amount of liquid reserves. This is costly as reserves are not remunerated in the United States of America and pay below-market interest rates in Europe. In order to minimize the amount of reserves they hold, banks engage in lending and borrowing activities amongst themselves in the inter-bank market. The inter-bank market normally efficiently allocates excess liquidity and acts like the central nervous system of the financial sector.

A small glitch in the inter-bank market can lead to a liquidity crisis. In early August 2007, United States banks held approximately \$12 billion of reserves deposited in accounts with the United States Federal Reserve System. During an average day, these \$12 billion of reserves are used to make daily inter-bank transfers amounting to approximately \$4 trillion. This implies that, on average, a dollar in reserves changes hands 300 times per day.² A change in this large multiplier driven by

banks' desire to hoard reserves can lead to an enormous drop in liquidity.

Banks lend in the inter-bank market and keep their reserves at a minimum because they know that when they need reserves they can borrow them again. However, if banks take the view that they may not be able to access the market, they will start hoarding reserves which will reduce available liquidity. Like in a bank run, the process might be self-fulfilling. If, for some reason, banks expect a liquidity crisis, they will stop lending in the inter-bank market and the liquidity crunch will emerge.³

While the problems may have originated in the United States sub-prime mortgage market, the trigger of the recent crisis was a sudden drop in liquidity in the European inter-bank market (see annex 1 for a chronology of events). The driver of this liquidity shortage was a deterioration in the market for Asset Backed Commercial Papers (ABCP) issued by European structured investment vehicles (SIV, see box 3.1, below).⁴ The collapse in the market for ABCP followed several weeks of news revealing increasing problems with United States sub-prime mortgages packaged into collateralized debt obligations (CDO),⁵ in particular with the AAA tranche of mortgage backed CDOs (see box 3.1).

As the collapse of the inter-bank market can lead to the disintegration of the whole financial system, central banks provided massive injections of liquidity to support the normal functioning of the inter-

¹ This chapter draws in part on the authors' contribution to UNCTAD (2007). The usual disclaimer applies.

² This discussion is based on Cecchetti (2007).

³ In the recent crisis, banks rushed out of the inter-bank market and started hoarding short-term United States Treasury bill leading to a dramatic drop in yield of these instruments. In tranquil times the yield on United States treasury bills is close to that of the Fed Funds rate (the United States inter-bank market). At the peak of the crisis, the yield on Treasury bills was 200 basis points lower than the Fed Fund Rate.

⁴ The crisis started with a liquidity crisis in the German bank IKB. In July 2007, IKB's conduit Rhineland Funding had an outstanding stock of approximately 20 billion euro of ABCP. When, in mid-July, investors refused to rollover part of Rhineland Funding's ABCP, the conduit asked IKB to provide a credit line. IKB revealed of not having enough cash or liquid assets to meet the request of its conduit and was saved by a 8 billion euro credit facility provided by KfW. But the intervention of KfW, rather than stopping the panic led to reserve hoarding and to a run on all commercial paper issued by SIVs.

⁵ For a detailed discussion of the United States sub-prime mortgage crisis see Kiff and Mills (2007).

STRUCTURED INVESTMENT VEHICLES

Over the last few years, several banks created non-bank subsidiaries known as conduits or structured investment vehicles (SIVs). Like banks, SIVs are in the business of transforming liquid liabilities into non-liquid assets and hence have a built-in maturity mismatch. However, rather than collecting deposits from the public, SIVs raise funds by issuing short-term asset-backed commercial paper (ABCP) and use the funds to buy long-term structured products, mostly, AAA tranches of collateralized debt obligations (CDOs).

Under regular market conditions, SIVs make profits thanks to the spread between the interest rate paid on short-term ABCP and the interest rate paid on long-term less liquid CDOs. However, if short-term interest rates increase or SIVs cannot raise cheap finance on the ABCP market, they can start accumulating losses. This would not be a big problem if SIVs were completely separated from the banking system. However, SIVs have either implicit or explicit agreements stating that, if a given SIV cannot raise its own finance, the bank that owns the SIV needs to provide an emergency credit line. In a sense, the parent bank is the lender of last resort of the SIV. However, unlike the traditional lender of last resort (the central bank), parent banks cannot create liquidity.

This is exactly what happened in the last few weeks. Suspecting that CDOs held by some European SIVs were of lower quality than previously thought, investors stopped buying ABCP issued by SIVs. Since SIVs could not roll-over their maturing ABCP, parent banks had to step in and finance their SIVs (credit lines provided by guaranteeing banks need to cover all ABCP issued by SIVs).¹ This had a snowball effect, because even banks which did not have to provide credit lines to their SIVs started hoarding funds in order to be able to honour their commitments if liquidity lines were to be called. By hoarding funds, these banks drained liquidity from the inter-bank market and provided further incentives to hoard liquid reserves. The problem was made even worse by the fact that most banks that needed liquidity were based in Europe but they needed United States dollar funds. Hence, they could not be helped by the European Central Bank (that can only issue euros). Knowing this, several United States-based banks stopped lending dollars to European banks.

Therefore, a system that was supposed to isolate banks from financial crises, put banks back at the centre of the action and it did so through the operation of opaque and lightly regulated institutions like SIVs.

Structure of CDOs and the role of credit rating agencies

As discussed in a BIS report:

Structured finance instruments can be defined by three key characteristics: (i) pooling of assets (either cash-based or synthetically created); (ii) tranching of liabilities that are backed by the asset pool (this property differentiates structured finance from traditional “pass-through” securitizations); (iii) de-linking of the credit risk of the collateral asset pool from the credit risk of the originator, usually through use of a finite-lived, standalone special purpose vehicle (SPV).

A key goal of the tranching process is to create at least one class of securities whose rating is higher than the average rating of the underlying collateral asset pool or to create rated securities from a pool of unrated assets. This is accomplished through the use of credit support specified within the transaction structure to create securities with different risk-return profiles. The equity/first-loss tranche absorbs initial losses, followed by mezzanine tranches which absorb some additional losses, again followed by more senior tranches. Thus, due to the credit support resulting from tranching, the most senior claims are expected to be insulated – except in particularly adverse circumstances – from default.

Tranching contributes to both the complexity and risk properties of structured finance products. Beyond the challenges posed by estimation of the asset pool’s loss distribution, tranching requires detailed, deal-specific documentation to ensure that the desired characteristics, such as the seniority ordering of the various tranches, will be delivered under all plausible scenarios. In addition, complexity may be further increased by the need to account for the involvement of asset managers and other third parties, whose own incentives to act in the interests of some investor classes at the expense of others may need to be balanced. (BIS, 2005: 1)²

Box 3.1 (concluded)

Structured finance has largely been a “rated” market. Issuers of structured instruments wanted them to be rated according to scales that were identical to those for bonds, so that investors, some of whom were bound by the ratings-based constraints defined by their investment mandates, would be able and willing to purchase structured products.

Activities related to rating various structured products have become the largest and fastest growing business segment for the three leading credit-rating agencies. Around half the revenues of rating agencies are currently generated by rating structured finance products.³

The summer 2007 turmoil in the sub-prime market has led to a number of criticisms with regard to the rating of the tranches. First, there has been widespread dissatisfaction with the slow response by rating agencies to downgrade certain CDOs as the sub-prime crisis gathered momentum. Second, conflict of interests may prevent rating agencies from playing the role of impartial evaluators of credit risk. This conflict of interests is due to the fact that credit-rating agencies are paid by the banks and corporations that sponsor and issue bonds. Hence, issuers may choose agencies that are more likely to give them a high rating. Moreover, rating agencies are often involved in lucrative consulting activities aimed at advising issuers on how to structure a product in order to obtain a high rating.

- 1 It is estimated that in August German banks owned 93 billion euro in ABCP conduits. The two largest participants in this market (IKB and Sachsen LB) were also the first two banks to have troubles.
- 2 A forthcoming UNCTAD Discussion paper titled “Rating the Credit Rating Agencies” discusses how credit rating agencies affect the market for developing countries’ debt.
- 3 Data collected by David Evans of Bloomberg suggest that, over the past three years, Moody’s, Standard & Poor’s and Fitch have earned more money evaluating CDOs than from any other activity.

bank market during August 2007.⁶ One problem with these interventions was that most European banks were seeking dollar liquidity (most expiring ABCP are denominated in United States dollars) and the European Central Bank (ECB) could only provide euro liquidity.

One surprising element of the current crisis is that it was driven by a sudden collapse in confidence of CDOs which supposedly enjoyed AAA ratings. Such high-quality financial instruments should carry no default risk and should be sold at a premium (not at a discount) during periods of financial turmoil. The problem with CDOs is that once issued, they are rarely traded. Thus, their valuations, rather than being market-driven, are often based on complicated theoretical models. When CDO holders needed liquidity to face the recent market turmoil, they found out that the market value of their CDOs was well below their book value. Hence, instead of generating liquidity by selling CDOs, they sold high-quality liquid equities. Therefore, the crisis led to a loss of value in both

CDOs and liquid equities. The drop in price of liquid equities was the source of contagion to hedge funds. This price behaviour was not predicted by the theoretical models built into quantitative hedge funds (Quants) and led to large losses in this segment of the market (see box 3.1). Significant losses by leading hedge funds further contributed to increasing uncertainty and amplified the crisis.

While a drop in housing prices and a wave of defaults in the sub-prime market was widely expected and anticipated, the speed of price adjustments in some segments of the financial market took everybody by surprise, and created rapid adjustments to positions amongst market participants. After all, the first wave of losses in the sub-prime market was estimated at around \$35 billion, which corresponds to about 0.2 per cent of the value of the United States stock market. Subsequent estimates have indicated over \$100 billion of losses, less than one per cent of United States GDP.⁷ This is less than half of the impact of the Savings and Loans crisis,

6 On Thursday 9 August 2007, the ECB injected 95 billion euro in the European financial system, the following day added 48 billion euro and on Monday another 25 billion euro. During the same day for the first European intervention, the United States Federal Reserve injected \$24 billion in the United States financial system, followed by a \$38 billion intervention on Friday 10 August and \$2 billion on Monday 13 August. On 17 August the Fed lowered the discount rate by 50 basic points (from 6.25 per cent to 5.75 per cent, 50 basic points above the Fed Funds rate which remained at 5.25 per cent) and accepted mortgage backed securities as collateral for discounting.

7 Even though AAA tranches of CDOs are booking large losses, this looks like a liquidity rather than a solvency problem. Consider the following example. Consider a CDO with a face value of \$100 million with a AAA tranche that covers 90 per cent of the loans included in a CDOs and assume that 20 per cent of mortgages packaged in the CDO go in default (this seems to be a very high default rate). The holders of the AAA tranche will receive \$80 million (the non defaulted loans). Next, the assets that are backing the defaulted mortgages will be foreclosed and holders of the AAA tranche will be the first to be paid. As long as the foreclosure processes on houses that are valued \$20 million yield at least \$10 million, holders of the AAA tranche will have no capital loss.

which occurred in the United States in the late 1980s and had an estimated cost of 2.5 per cent of United States GDP.

Why is an important, but relatively circumscribed, problem causing so much pain? There are two possible explanations. The first explanation is that the problem could be larger than originally assumed. Along similar lines, investors may think that, just as in the recent past financial markets overshot on the way up, in the deleveraging process they may overshoot on the downside, with amplifying effects coming from automated trading models adopted by Quants.

The second explanation is that loan securitization, which was supposed to disperse and allocate risk to those who are better equipped to bear it, led to a situation in which nobody knows where the risk is. It is this uncertainty of which institution will be the next one to be affected by a default that generated the current panic attack and the ensuing liquidity crisis. The fact that after two months since the sub-prime crisis first emerged with force, the full extent of risk and possible loss has yet to be revealed, suggests that the operation of the loan securitization market deserves greater scrutiny than it has so far received.

B.

Has securitization made things worse?

In a security-based system, banks originate loans but then sell these loans to investors that should be better equipped to bear the risk. Such a system is supposed to be superior to the bank-based system because, by slicing and dispersing risk, it should increase the resilience of the financial system and isolate banks from costly defaults. However, the recent sub-prime mortgage crisis highlights that there may be several problems with securitization.

First, it is not clear whether the system was successful in isolating banks from market turbulence. Several structured

products are now owned by non-bank institutions (such as SIVs) that have implicit or explicit guarantees from their parent banks. When these non-bank institutions face problems, parent banks need to step in (see box 3.1). Unlike banks, non-bank institutions are not supervised. Moreover, since SIVs' liabilities are not guaranteed and SIVs do not have access to a lender of last resort that can create liquidity, non-banks are subject to runs. Therefore, in the recent crisis securitization did not isolate banks and, by increasing the opacity of the system, may have made things worse.

Second, one of the purported advantages of a market-based system is price discovery and the ability to mark assets to market. The problem is that most structured instruments (especially CDOs) are rarely traded and their valuations are not based on market prices but on theoretical models. Such model-based valuations are highly subjective and proved to be too optimistic when the instruments had to be traded. Sophisticated structured products are difficult to understand, and investors may have no idea of the risk they are assuming. Several money market mutual funds (MMMF) are heavily invested in CDOs based on packages of sub-prime loans but few retail holders of MMMF are aware of this fact. Hence, a system that was supposed to be more transparent than the bank-based system may have ended being more opaque.

Third, in a bank-based system it is known who holds the risk (i.e., the banks). In an opaque market-based system it is not known where the risk resides. In its 77th *Annual Report*, the Bank for International Settlements states:

Assuming that the big banks have managed to distribute more widely the risks inherent in the loans they have made, who now holds these risks, and can they manage them adequately? The honest answer is that we do not know. Much of the risk is embodied in various forms of asset-backed securities of growing complexity and opacity. They have been purchased by a wide range of small banks, pension funds, insurance companies, hedge funds,

other funds and even individuals, who have been encouraged to invest by the generally high ratings given to these instruments. Unfortunately, the ratings reflect only expected credit losses, and not the unusually high probability of tail events that could have large effects on market values" (BIS, 2007: 145).

As holders of risk are a priori unknown, this state of affairs generates a climate of deep uncertainty (this is so-called "Knightian uncertainty", i.e., unknown and immeasurable risk, and not the measurable risk, based on well-defined probability distributions used by financial sector specialists). Uncertainty was at the basis of the recent turmoil which led to the collapse of the inter-bank market. Banks are wary of lending because they do not know who holds the risk. Moreover, as derivatives and CDOs are complex and new instruments, market participants are not able to use past information to form expectations on how these instruments will behave under stress. Uncertainty leads market participants to make decisions based on worst-case scenarios and hoard liquidity in the same way in which people hoard bottled water and canned food when they expect a war.⁸

Fourth, banks are more careful in evaluating risk when they plan to keep a loan in their books. If they plan to sell the loan, they worry less about the creditworthiness of the borrower. Hence, securitization may lead to laxer credit standards and to a deterioration of credit quality. It is reasonable to assume that in the absence of securitization several sub-prime loans would have never been extended.⁹

8 For a theoretical discussion of these issues see Caballero and Krishnamurthy (2007).

9 This is a negative fact from the point of view of financial stability, but it may also have positive implications because securitization allows access to credit to segments of the populations which were previously excluded from the credit market (it is estimated that securitization reduced borrowing rates by approximately 200 basis points). However, there could be systems to grant access to credit to poor segments of the population that do not involve an increase in financial fragility.

Fifth, securitization severs the relationship between lenders and borrowers. With traditional banking, borrowers that are unable to service their debt may be able to reach a rescheduling agreement with the bank (the bank may be willing to do so because foreclosing an asset is costly). When loans are packaged into securities, reaching such agreements is more difficult. Thus, missed payments are more likely to lead to foreclosing. This increases the cost of default for both lenders and borrowers and may also accelerate the drop in asset prices because it increases the number of foreclosures.

The sixth problem is related to the previous one. With traditional banking, lenders have privileged information about the quality of the loan. This may make the bank willing to hold the loan and support the market even during periods of market turmoil. With securitization, credit risk has moved from knowledgeable bankers who originated the credit and know its value to institutions with limited knowledge of the origin of the credit. Thus, securitization may increase herding and accentuate market swings as holders of structured instruments will all sell assets during periods of market turmoil.

Of course, there are still several arguments in favour of a market-based system. Among other things, it may be better to have opaque but spread risk rather than having all risk concentrated in a few institutions. The problem is that securitization may lead to a loss of information. Supporters of securitization argue that the loss of loan-specific information is compensated by the fact that the behaviour of packaged loans can be predicted using statistical techniques. In a sense, the law of large numbers is seen as a substitute for loan-specific information. The problem is that standard probability distributions do not work well during periods of market turbulence, and this is exactly the time when information is most valuable. The fact that we keep observing 25 standard deviation events (i.e., events that should happen only once in 100,000 years, see box 3.2 for a short discussion of such “black swan” events) is probably driven by the fact that probability models used to evaluate the risk of packaged debt do not

fully account for the fact that during panic episodes shocks become highly correlated and that the effects of the various shocks feed into each other into a vicious circle which implies a massive process of deleveraging which is not built in standard models.¹⁰

C.

Amplifying factors: carry trade and currency misalignments

Currency carry trade is a speculative financial operation that consists of borrowing in low-yielding currency, lend in a high-yielding currency, and make profits on the interest rate differential and, possibly, on exchange rate variations.¹¹

Although UNCTAD has repeatedly pointed out that carry trade plays a negative role because it prevents a smooth adjustment of the exchange rate and a correction of the current account imbalances, there are also risks in abruptly stopping the trade. A rapid unwinding of carry trade positions could lead to large swings in exchange rates and contribute to financial instability. The current turmoil that originated in the United States sub-prime credit market can affect carry trade operations and be amplified by sudden carry trade unwinding (see chapter II).

Carry trade positions in the world market have been estimated to about \$1 trillion. Such operations had a role in the determination of exchange rates, market volatility, and flows of liquidity to the United States and several emerging markets (UNCTAD/TDR, 2007). This implies that a massive reversal of positions can be a critical factor in the worldwide financial crisis and liquidity crunch. Therefore, carry trade speculations not only prevent the exchange rate adjustment mechanism from working in the proper way, leading to divergent real exchange rates and global imbalances, but they also increase the fragility of the world financial system, by making economies prone to reversal of

market sentiments and liquidity crisis. Thus, carry trade may contribute to financial instability both when it builds up and when it unwinds.

D.

What will happen to emerging markets?

Over the last five years, developing countries have recorded rapid growth, averaging about 6.5 per cent per year. A recession in the United States and a sudden jump in risk aversion could have a large negative impact on emerging markets (EM). The main transmission mechanisms would be a sudden drop in demand for developing countries' exports coupled with a large change in international investors' appetite for EM assets. The emphasis is on change because either a sudden drop or a sudden increase in the demand for EM assets could be problematic. A sudden stop episode could lead to a crisis similar to that which hit emerging market countries in 1998. A sudden increase in capital flows to emerging market countries, instead, would have positive effects in the short run but potentially large negative effect in the long run because could lead to an appreciation of the real exchange rate (and hence loss of competitiveness) and possible to a bubble in emerging market assets.

What will happen next will depend on the magnitude of the United States crisis. Over the last decade, the United States

10 For instance, the drop in housing prices leads to defaults of sub-prime loans, this leads to foreclosures and further contributes to lower home prices and defaults on sub-prime mortgages and then on credit card debt.

11 As discussed in chapter II of this publication, this operation has affected both high income economies such as Australia, Iceland, Japan, New Zealand, Switzerland and the United States, and a few emerging market and transition economies such as Brazil, Bulgaria, Hungary, Romania and Turkey.

QUANTITATIVE HEDGE FUNDS

Quantitative hedge funds (Quants) make trading decisions based on sophisticated computerized models. The first Quants were established in the 1980s by James Simons (who founded Renaissance Technologies in 1982) and David Shaw (who founded DE Shaw in 1988). Because of their high returns (over the last twenty years Renaissance Technologies' flagship fund had an average annual return of 30 per cent). Quants grew very rapidly and now they are thought to represent about one quarter of all United States equity hedge funds.

Originally, Quants used computer models to help analysts pick stocks. Modern Quants use computerized models to detect small anomalies in pricing of certain securities and automatically trade these securities. Hence, a large amount of trading in modern exchanges happens among computers which often have similar trading strategies. Automated trading leads to very rapid trading and Quants account for 50 per cent of daily trading in the United States stock market.

Markets were shocked when, in early August, several highly respected Quants (including James Simons' Medallion and Goldman Sachs' quant) announced large losses. While nobody knows exactly what went wrong in the recent crisis, Tett and Gangahar (2007) describe the following chain of events: After some investment managers realized losses in the sub-prime mortgage markets, investment banks asked hedge funds to reduce their leverage. In order to obtain the necessary cash, hedge funds had to sell assets, but since mortgage-linked CDOs are not liquid, they decided to sell liquid high-quality equities. As the prices of high quality liquid assets started falling, other quant funds (which, in a credit crunch scenario, were programmed to go long on this type of assets and short on illiquid high beta stocks) started making losses as market prices were not confirming their assumptions. Hence, the margin calls and the need to sell high quality assets forced the market to do exactly the opposite of what models predicted. Losses were amplified by their high initial leverage and by the fact that most Quants worked with similar models.

This suggests that while automated trading works well when market conditions are "normal" (that is the probability distribution of the possible events can be approximated with a known probability distribution), computers have problems dealing with "black swans".¹ Computer programs base their decisions on past data and may not recognize that the past data are driven by their own trading activities. Moreover, automated trading programs tend to have similar trading strategies (because they are based on the same set of past information) and this may lead to herding. Thus, automated trading could not deal with exceptional volatility and forced selling. Computer models assume that trading is driven by valuation and not by liquidity needs, if trading decisions are not driven by valuation, computerized model become useless or, as it happened in the past week, predict the opposite of what the market will do.

Goldman Sachs announced that its Quant funds lost approximately 30 per cent of their value in a week. In its letter to investors Goldman Sachs announced that the losses were due to a "25 standard deviation event". A 25 standard deviation event is an event that can happen with a probability of 5 per cent. The probability of a 25 standard deviations event is infinitesimal: such an event should happen once every 100,000 years. The problem is that these "black swans" seem to be happening more often than they should (it was such an event that caused the LTCM collapse in 1998). This suggests that there must be something wrong with the models used to predict these events.

¹ Following Karl Popper, Nassim Nicholas Taleb calls "black swans" large-impact, hard-to-predict, and rare events beyond the realm of normal expectations.

has accumulated increasingly larger current account deficits driven by high consumption and, in the recent past, large public sector deficits. In turn, the consumption boom (which last year culminated in negative household savings, i.e., a situation in which United States households

consumed more than they earned) was fed by easy access to credit driven by the fact that, thanks to increasing housing prices, United States consumers have been able to obtain financial resources by continuously refinancing mortgages. Thus, household debt increased in parallel with the

increase in housing prices. A collapse in housing prices can bring to a sudden reversal of this situation and lead to a slackening of United States consumption which, over the last few years, has been one of the main drivers of United States and world demand. Given the high public sector

deficit, a fiscal expansion is unlikely to compensate a decline in consumption. Thus, a collapse in housing prices could be one of the mechanisms that kick-starts the unwinding of global imbalances. If this unwinding happens to be chaotic the consequences for the global economy will be dire.

Three different scenarios may be envisaged: (i) a *benchmark scenario* characterized by a mild growth slowdown in the United States; (ii) a *benign scenario* with limited impact on the United States and world economy; and (iii) a *crisis scenario* characterized by a full-blown recession in the United States and a sudden jump in investors' risk aversion.

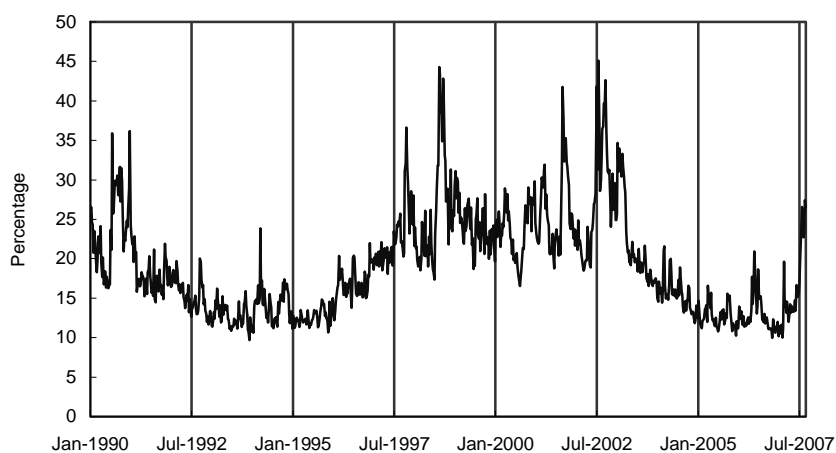
In the **benchmark scenario**, the United States would go into a mild recession and investors' risk aversion increases but remains low. Developing countries could either benefit or suffer in such a scenario. In general, they would suffer from the reduced demand for their exports and lower commodity prices, but they may gain from the drop (or lower than expected increase) in interest rates which would probably be associated with a slow down of the United States economy.¹² If demand in the rest of the world remains strong, the beneficial effect of the second factor may dominate the negative effect of the first factor.

The benchmark scenario is based on the rule of thumb that, in the United States, a \$1 drop in housing wealth leads to a 0.06 per cent decline in consumption. As most estimates suggest a 10 per cent correction in United States housing prices, the ensuing drop in private consumption could lead to a 1 per cent decline in United States GDP growth. IMF estimates suggest that "shocks to the United States economy have significant implications for growth in all other regions. The spillovers are roughly ¼ to ½ as large as the disturbance in United States growth".

In the **benign scenario**, interventions by the major central banks are successful, the current crisis dissipates quickly and both the advanced economies and emerging markets keep growing (possibly at a slightly lower rate than expected). In this scenario, the CDOs market would

Figure 3.1

Expected volatility of United States stocks as measured by the VIX index
(January 1990–17 September 2007)



Source: UNCTAD secretariat calculations, based on Thomson Financial DataStream.

have successfully passed its first *stress test*, and asset markets in both developing and advanced economies would benefit from lower than expected interest rates.

It is possible however, that the sub-prime crisis will become a full-blown financial market crisis *cum* recession. In this **"perfect-storm" or crisis scenario**, the United States goes into a full-blown recession and, as happened in 1998, risk aversion skyrockets. Under this scenario, emerging markets would receive negative shocks on both the real (because of reduced demand for their exports) and financial sides (because of considerably higher spreads). Since most emerging market countries are now running current account surpluses, the crisis would not be as painful as the one that hit the emerging world in 1998. However, it could be painful for the small group of countries in East Europe and Central Asia, which are running large current account deficits. A perfect storm may even cause financial problems to some emerging countries that are running current account surpluses.¹³

One of the biggest risks of the current crisis is a sudden jump in risk aversion. Markets are clearly nervous, expected volatility of United States equities

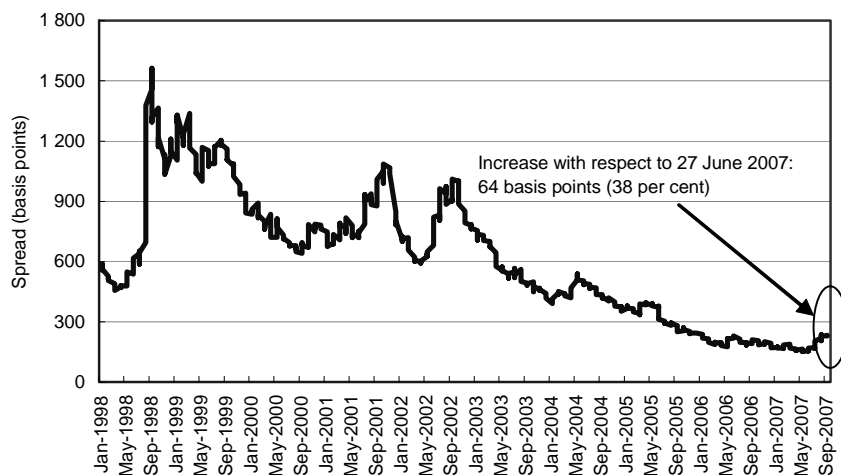
(measured by the VIX index) has increased from historical lows to 30, but remains well below the levels reached during the 1998 Russian Crisis and also lower than the levels prevailing in 2002–2003 (fig. 3.1). On the positive side, markets do not seem to be pricing a run from emerging market assets. EMBI+ spreads have increased but remain at very low levels and much lower than the level reached during the Asian and Russian crises (fig. 3.2 and fig. 3.3). Spreads of United States high-yield (junk) bonds also increased but remain low (fig. 3.4). Interestingly, the increase in spreads of United States junk bonds was higher than that on emerging market bonds (160 basis points corresponding to a 53 per cent increase, versus 56 basis points, corresponding to a 33 per cent increase), indicating that, so far, contagion has been limited.

¹² An increase in risk aversion would have a negative effect on most developing countries, but there will regional differences in the magnitude of this negative effect. Liquidity might become an issue for those countries which are running current account deficits and did not accumulate enough international reserves.

¹³ Calvo and Talvi (2006) point out that 18 per cent of countries that suffered a sudden stop in the 1980–2005 period were running a current account surplus.

Figure 3.2

Emerging market spreads (JPM EMBI + composite spread)
(Weekly data from January 1998–12 September 2007)



Source: UNCTAD secretariat calculations, based on Thomson Financial DataStream.

Regional repercussions

In general, the size of the regional repercussions will depend on two factors: the size of the shock to the United States economy and the linkages between the various developing regions and the United States. The importance of the second factor could be reduced by increasing the reliance on south-south trade and integration and reducing the reliance on the markets of the advanced economies.¹⁴

By early September, the following indication of regional ripples of the turmoil in developed economies' financial markets could be gauged.

Latin America

Latin American has close links with the United States markets and a crisis in the United States could have large negative regional repercussions. However Latin American financial markets do not seem to be anticipating a crisis. Since early July spreads on the Latin component of the EMBI+ have risen by about 90 basis points (a 48 per cent increase). While, this is a moderate increase when compared with the 800 point drop over the December 2002–June 2007 period, the future direction of country risk is not clear, yet.

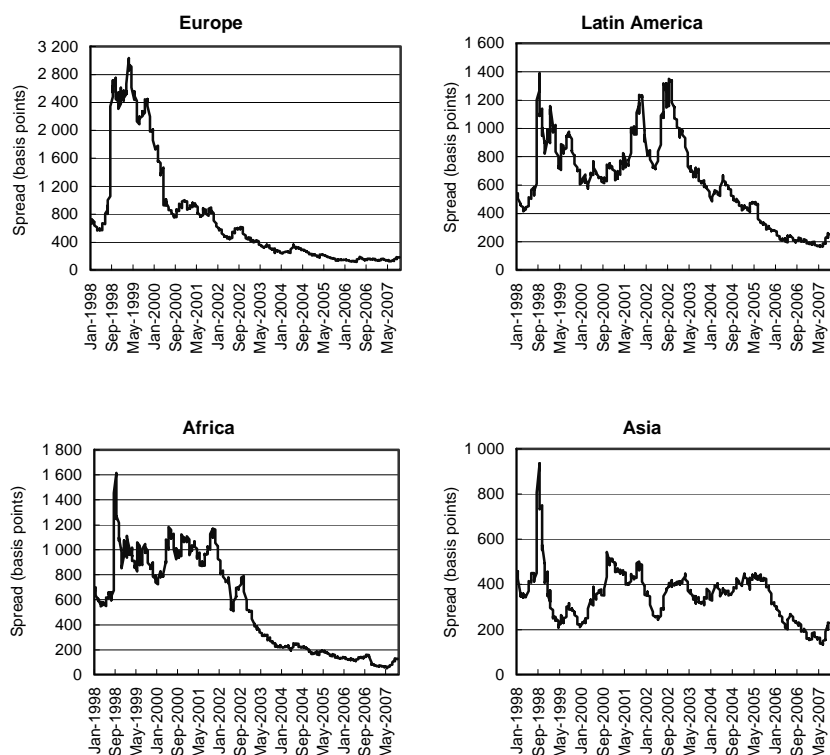
Central and Eastern Europe, Central Asia, the Russian Federation and Turkey

Central and Eastern Europe is more closely linked to Europe than to the United States, and demand from euro-zone countries can be expected to slacken slightly. Countries with a large domestic absorption should not suffer much from this lower demand. More outward oriented economies are likely to suffer more.

Some Central European, Baltic, and Central Asian countries are running large

Figure 3.3

Weekly EMBI+ spreads (by region)
January 1998–12 September 2007

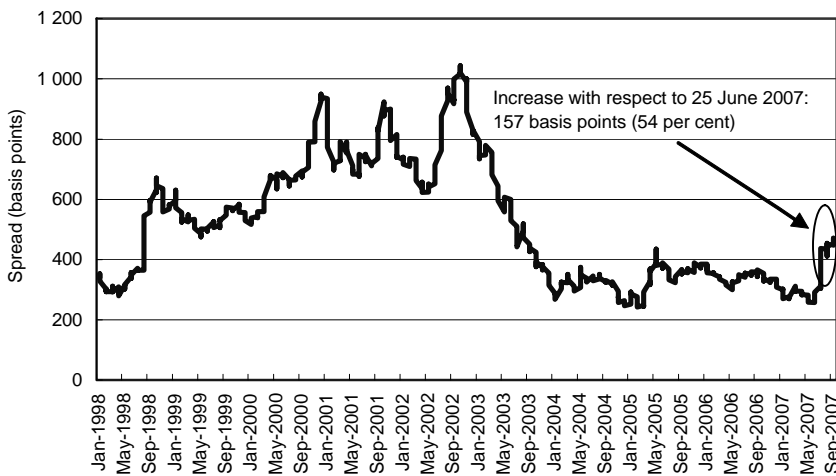


Source: UNCTAD secretariat calculations, based on Thomson Financial DataStream.

¹⁴ These issues are discussed in UNCTAD, *Trade and Development Report, 2007*.

Figure 3.4

United States high-yield bond spreads (Lehman high-yield spread)
(Weekly data from January 1998–17 September 2007)



Source: UNCTAD secretariat calculations, based on Thomson Financial Data Stream.

E.

Lessons learned

In thinking about policy recommendations, it is useful to distinguish between short-term and long-term measures. In the short-term, policymakers should stand ready to mitigate the effects of the crisis and prevent contagion. In the long-term, policymakers should think about potential measures for preventing the recurrence of crisis. Long-term policies are likely to focus on the regulatory or supervisory frameworks. Of course, there might be an interaction between short and long-term policies. For instance, some observers believe that short-term policies aimed at rescuing financial markets risk raising moral hazard issues and can lead to even larger future crises. Before discussing possible policies, it is worth reiterating that there are basically two interpretations of the current crisis:

- The first interpretation is that fundamentals are solid and the recent turmoil was a panic-driven **liquidity crisis**. Once confidence is restored, markets will have no problems in absorbing the relatively modest losses in the United States sub-prime mortgage market.
- The second interpretation is that we are now living a *Minsky Moment* (Magnus, 2007) which could lead to massive deleveraging and have negative long-term effects on the United States economy (see fig. 3.5). Those who believe in this view, suggest that there are deep problems with the current state of financial markets, assets are overvalued and financial institutions will soon realize that they are holding a huge amount of worthless paper. In this view, the current turmoil reveals a **solvency crisis**.

Short-term policies

The turnaround in the United States sub-prime mortgage market prompted aggressive action by policy makers in a number of developed economies. In the

current account deficits and could be severely hit by a jump in risk aversion and a sudden stop in capital flows.

Asia

Given their export orientation and the importance of the United States market, several East Asian countries are exposed to the vagaries of the United States economy. However, as the share of exports to the United States decreased within the last couple of years, the GDP decline should be capped at 0.5 per cent.

Some Asian countries hold large assets denominated in United States dollars and a large depreciation of the United States currency could have negative fiscal implications for these countries.

Africa

A slow-down in the United States economy will impact sub-Saharan Africa mainly via a reduction of commodities exports. Most countries in sub-Saharan Africa have limited access to the international capital market and hence the poten-

tial increase in risk aversion should not be too damaging for these countries.

Middle East and North Africa

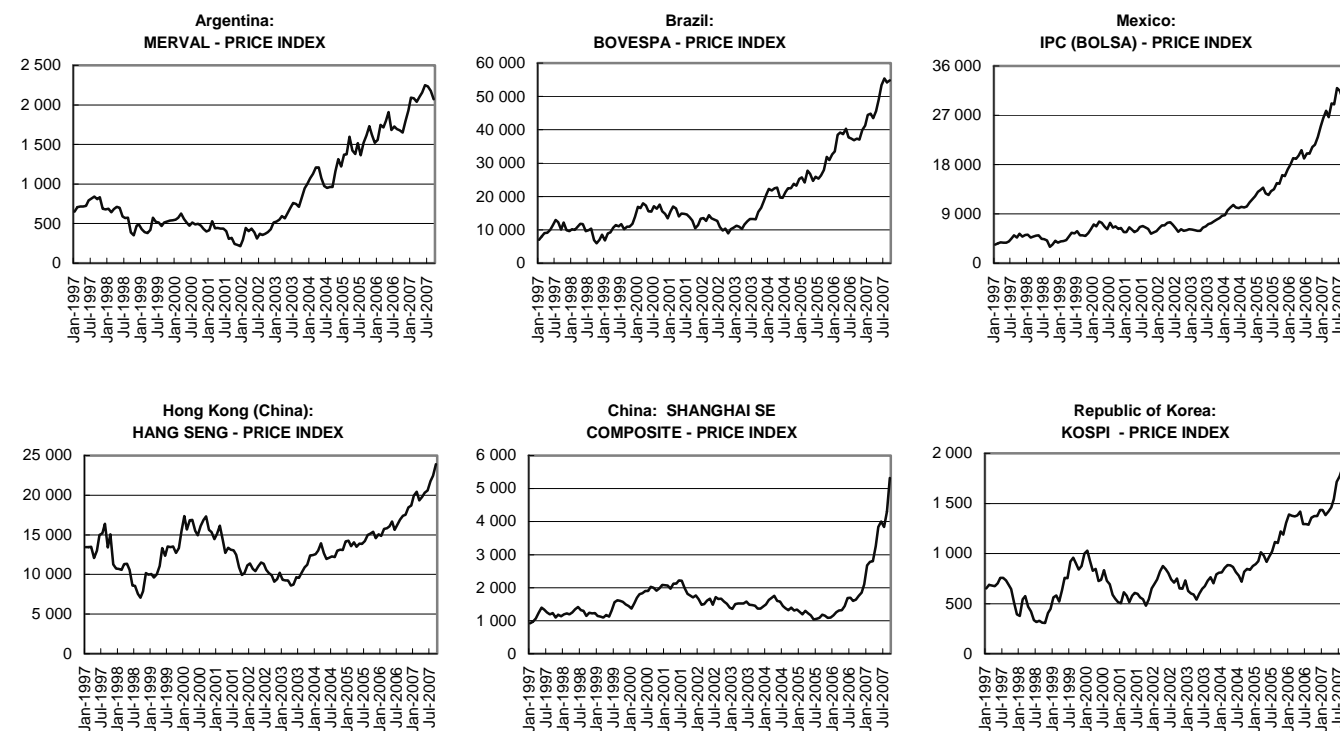
Most Middle Eastern and North African economies are particularly subject to changes in oil and gas prices (this is even the case for non-oil exporting countries which receive remittances, tourists, and economic aid from oil exporters). While a large drop in oil prices could slow down growth in the region, the market does not seem to be expecting such a drop in prices. Official United States forecasts still project the oil price to be at around \$70 per barrel in 2008. The NYMEX crude oil futures which had declined by roughly 10 per cent since early August, started to recover in past weeks.

A few oil-exporting Middle Eastern countries are estimated to have substantial investment positions in the world capital market (hard data are difficult to obtain) and large decreases in asset prices could have negative wealth effects in these countries. The magnitude of these effects is, however, hard to estimate and it is more likely to affect long-term growth rather than having short-term cyclical effects.

Figure 3.5

Selected emerging markets stock market indices (monthly data)

January 1997–September 2007



Source: UNCTAD secretariat calculations, based on Thomson Financial DataStream.

first round, financial markets were calmed down by the massive provision of liquidity by several central banks and by safety operations of governments for a single bank. In the second round, the Federal Reserve's 50 basis point cut in policy rates on 18 September 2007 led to the expectation that central banks were willing to stabilize the real economy and prevent a major outbreak of financial panic.

Despite the fact that these policy measures were effective in stabilizing the interbank market, several observers have criticized the actions of the United States Federal Reserve and of the European Central Bank, arguing that monetary authorities should have adopted a hard-line policy similar to that originally adopted by the Bank of England (which, however, changed its policy stance in order to stop a run on a large British bank). These criticisms are based on four arguments: (i) Central banks should not bail out market participants

who earned large returns from engaging in risky activities; (ii) Banks that require emergency lending should be penalized with higher interest rates; (iii) Central banks should not accept low-quality paper as collateral, even during crises; and (iv) Low United States interest rates in the early 2000s were the main driver of the housing bubble, and lowering interest rates now may just generate another bubble and aggravate problems down the road.

Although at first glance these criticisms may seem warranted, their fundamental thrust appears to be flawed. With respect to the first argument, providing liquidity to the markets to stabilize a policy rate does not necessarily imply a bailout operation. Individual losses following imprudent lending will appear in banks' balance sheets even if the central bank tries to avoid collateral damage by injecting liquidity during a money market crunch. The rationale for injecting liquidity is to

avoid excessive volatility in the target interest rate, and not to bail out banks. With respect to the second argument, any sudden increase in short-term interest rates would penalize all participants in the money market, and not just those involved in imprudent lending activities.

As per the first two arguments, accepting a lower-quality standard for refundable paper can be justified as another way to stabilize short-term rates. Bailing out the depositors of one single bank, as happened in the United Kingdom, is more problematic, as it may indeed provoke the kind of moral hazard that led market participants to engage in overly risky business. However, bailing out the depositors of a troubled bank is not the same as bailing out the bank's owners and managers. The loss of trust in the bank will take a toll on the bank's future activities, even if government intervention protects private depositors.

With respect to the fourth argument, a cut in interest rates during financial turbulence is justified if there is a significant threat that the financial turmoil may spill over into the real sectors and threaten the employment target of the central bank directly, or its inflation target indirectly. The United States housing market is one of the strongest pillars of that economy, and the danger of a sudden weakening of that pillar will inevitably affect the risk assessment of the central bank. Moreover, there is no strong evidence that the United States monetary policy was too lax after the end of the dotcom bubble. Given the dogmatic and rather restrictive stance of European monetary policy at the time, and the inability of the Japanese central bank to escape the zero-interest-rate trap of lasting deflation, the Federal Reserve aggressive cuts played a positive role in stabilizing the world economy.

Long-term policies

While the short-term response to the crisis was for the most part appropriate, the long-run policy responses for developed and developing countries alike require wider and deeper reflection. Obviously, lack of transparency is at the root of the current crisis. This is mainly because, instead of spreading risk transparently, as anticipated by economic theory, market operators chose ways to “securitize” risky assets without clearly assessing their risk. Additionally, credit rating agencies failed to understand these structured financial products, and the fact that they were rarely traded led to a situation where even their approximate value was not known. Long-term policies should thus aim at increasing the transparency of structured financial products. This is not an easy task because, by their very nature, structured products are complex instruments.

There are, however, several issues that should be considered at the multilateral level:

(i) The role of credit rating agencies: Credit rating agencies, which should solve information problems and increase transparency, seem to have played the opposite

role in this case and made the market even more opaque. These agencies played an important role in the creation of CDOs which were at the centre of the recent crisis. Most observers are convinced that, because of conflict of interests, credit rating agencies were too optimistic in rating CDOs.¹⁵

Rating is important because the crisis involved highly rated tranches of the repackaged debt based on sub-prime mortgages. The top tranches of CDOs based on sub-prime mortgages have received AAA ratings. AAA rating allowed the sale of these instruments to investors restricted by their internal rules to invest only in investment grade securities. However, it is questionable whether a top tranche CDO with an AAA rating carries the same risk-reward profile as a AAA-rated Treasury bond. As sub-prime is a fairly new market, there is little history on how this type of borrowers will behave during downturns. Thus, historical data is not available, making the modeling of default probabilities extremely unreliable.¹⁶ Both the European and United States regulators are calling for inquiry to examine whether the data on sub-prime was robust enough to justify the ratings, whether caveats were issued and whether banks passed on accurate and sufficient information.

Rating agencies respond by affirming that their ratings include disclaimers that clarify that they are paid by the companies they rate and that ratings are only opinions and not accurate predictions of the risk of a given instrument. The problem is that rating agencies play an ambiguous role as the current regulatory environment renders rating decisions important in establishing what assets can be held by certain types of financial intermediaries. Moreover, rating agencies are not fully subject to market discipline that would force them to increase the accuracy of their ratings because companies are obliged to use these agencies in order to place instruments.

A reform of crediting rating agencies and of their role in rating complex financial instruments is an unavoidable step towards increasing transparency. There are two views on how such reform could be implemented. Those who believe in

market-based discipline, suggest that conflict of interests could be eliminated by removing the existing regulations which use credit ratings to determine the type of assets that can be held by regulated institutions (see Calomiris and Mason, 2007). While such a policy may have some benefits, it is not clear if it could fully solve conflict of interests. Issuers may still have incentives to suborn the rating agencies and the market mechanism may not work so well, especially if the ultimate risk is not borne by those (like pension fund managers) who choose the composition of a given portfolio of assets.

An alternative view favours the establishment of a regulatory agency which would supervise the role of credit rating agencies. So, just as the FDA has to certify the safety of a given pharmaceutical products, such an agency could certify that an AAA asset has indeed minimal probability of default.¹⁷ There are of course several issues with the design if such an agency. For instance, should this be a national or supranational agency? If it is a national agency, should assets rated as AAA in a given country considered as AAA in other countries? How would such agency deal with political sensibility linked to rating sovereign bonds?

While these are important issues, it is worth noting that three agencies (one in the European Union, one in the United States, and one in Japan) would cover the majority of the world’s financial assets and this would be the case even if these agencies were not allowed to supervise the rating of sovereign issuers.

15 A forthcoming UNCTAD discussion paper looks at how credit rating agencies affect the market for sovereign debt.

16 However, rating agencies should have known that their CDOs rating were too generous. According to a Bloomberg report, BAA rated corporate bonds (this is the lowest Moody’s investment grade rating) had an average default rate of 2.2 per cent. Over the 1993–2005 period CDOs with the same Baa rating had default rates of 24 per cent.

17 The decisions of the agency could be made incentive compatible by committing to buy a given amount of the assets certified as AAA at a precommitted price.

(ii) Maturity mismatches in non-bank financial institutions: The crisis was partly due to the presence of maturity mismatches in non-bank agencies which enjoy liquidity guarantees from parent banks. In particular, banks tried to increase profitability and escape the capital requirements imposed by the Basel agreement by setting up off-balance sheet vehicles that earned large profits from transforming short-term liabilities into long-term assets. The problem with these investment vehicles is that they had a built-in maturity mismatch, and once they lost access to the market for asset-backed commercial paper, the parent banks had to step in and provide the necessary liquidity. Thus, a liquidity crisis which originated outside the banking sector immediately spilled over into the sector. This suggests that the involvement of banks with lightly regu-

lated agencies that could conceivably transmit liquidity and solvency problems to the banking system should be either prohibited or reported in a fully transparent way.

(iii) Incentives for simpler financial instruments: Research shows that the current regulatory stance creates a bias in favour of sophisticated and opaque financial products. This should be modified by adopting regulations that favour simpler and more transparent financial products.

(iv) Credit deterioration linked to securitization: Banks that quickly sell their loans are less interested in monitoring the quality of the borrowers. This problem could be mitigated by forcing banks to keep on their books a part of the loans they extend.

Effective regulation can promote financial development while preventing financial engineering which leads to excessive risk-taking. Prudential regulation, however, needs to be comprehensive and should not focus on just one segment of the financial system. In the recent past, for instance, prudential regulation focused on banking activities and banks responded to regulation by hiding risk in lightly regulated non-bank institutions. Excessive financial engineering, SIVs, and so on are all answers to stricter regulation brought about by the Basel accord which aimed at increasing bank stability. Hence, any new regulatory proposal needs to try to anticipate the possible unintended consequences of more regulation. ■

Annex 1 to chapter III

CHRONOLOGY

Background

During the summer of 2005 there was an increase in the number of defaults on sub-prime mortgages in the United States. The problem has become more serious in 2006 and 2007.

7 February 2007: New Century Financial and HSBC announce losses

- New Century Financial, a specialized lender of sub-prime mortgage, announced that it had accumulated heavy losses during the previous three quarters.
- Likewise, HSBC announced heavy losses in its sub-prime segment.

June 2007: Two Bear Stearns Hedge Funds announce funding problems

- Two highly leveraged hedge funds run by Bear Stearns Asset Management experienced sustained losses due to the decline in the sub-prime mortgage market. Investors reacted to this announcement by requesting redemptions from the Bear Stearns Funds. Merrill Lynch and JPMorgan Chase asked for more collateral and called in their loans.
- Bear Stearns tried to sell around \$4 billion in mortgage-backed securities to raise funds to meet these demands, but did not immediately provide own capital to the funds. Eventually, one fund received a \$1.6 billion credit line to repay its lenders. Nevertheless, one of the hedge funds lost its total value, the other one lost 91 per cent.

30 July 2007: First impact on Europe

- “Rhineland Funding”, a conduit owned by the German IKB, with high exposure to sub-prime mortgage experienced funding problems.¹⁸
- Several public-sector banks, as well as private banks provided funds to rescue IKB.

9 August 2007: PNB Paribas closes investment funds

- PNB Paribas decided to freeze withdrawals by investors on three investment funds which have been invested in the United States mortgage market.¹⁹
- The value of these three funds declined by approximately 20 per cent between the end of July and the beginning of August (going from \$2.08 billion to \$1.6 billion).
- The week preceding this announcement, BNP Paribas presented its financial results for the first semester 2007 without notifying or even mentioning that the three funds were facing problems. This resulted in a significant fall of share prices of other financial companies and a general decline of the French CAC 40 index.

9 August 2007: First central banks' intervention

- Between 9 and 13 August the ECB injected 168 billion euro of liquidity in the European banking system (this happened after interest rates in the inter-bank money market had risen to 4.7 per cent). On 22 August, the ECB injected

40 billion euro into the three month money market.

- Between 9 and 16 August, the United States Federal Reserve provided \$57 billion of short-term liquidity to the banks. On 17 August, the FED reduces its Discount Rate from 6.25 per cent to 5.75 per cent but leaves the Fed Fund rate untouched at 5.25 per cent.
- The Bank of Japan provided ¥1 trillion of extra liquidity to the market.
- The Swiss National Bank, the Bank of Canada, and the Reserve Bank of Australia injected liquidity in the market.

13 August 2007: Goldman Sachs provides capital to one of its hedge fund

- Goldman Sachs injected \$2 billion of its own funds to bail out its Global Equity Opportunities hedge fund after the fund has experienced losses of 30 per cent of its value within one week. External investors injected further \$1 billion.

Around 20 August 2007: Further problems concerning German banks

- Ormond Quay, an Irish-based conduit owned by SachsenLB Europe, experienced difficulties in raising funds and

¹⁸ A conduit is a special purpose vehicle or entity (SPV or SPE), which invests in ABS or MBS and raises funds by issuing asset-backed commercial papers (ABCP). These ABCP mostly have a short maturity of 30 to 60 days (see box 3.1).

¹⁹ Parvest Dynamic ABS, BNP Paribas ABS Euribor and BNP Paribas ABS Eonia.

its parent bank, state-owned SachsenLB, needed therefore an extra credit line of 17.3 billion euro provided by the publicly owned Sparkassen Finanzgruppe to avoid serious liquidity problems. As a consequence, SachsenLB has been taken over.

22 August 2007: United States Banks access the discount window

- Using the discount window is often considered as a signal that a bank has a problem. To diminish the stigma related to accessing the discount window four well capitalized United States Banks (Citigroup, JP Morgan-Chase, Bank of America, and Wachovia) borrowed \$500 million each from the discount window. The four banks pointed out that their step should be understood as a symbolic act in order to encourage other banks to do the same and thus to calm the market.

26 August 2007: Turmoil has also an impact on Chinese banks

- Bank of China and Industrial and Commercial Bank of China disclosed their exposure to the United States sub-prime mortgage market due to total investments of \$12.5 billion. Their share prices decreased considerably in the aftermath of this announcement.

6 September 2007: ECB leaves interest rate untouched

- The ECB leaves the interest rate at its former level of 4 per cent although in-

flation risk remains high. The ECB President stated that due to high uncertainty it would be preferable to wait for further information. Also on 6 September, the Fed injected further \$31.25 billion to the money market.

14 September 2007: Northern Rock liquidity squeeze gets Bank of England into trouble

- Northern Rock, a United Kingdom-based mortgage lender, suffered liquidity constraints due to decreased liquidity inter-bank money market, besides a minimal exposure to the United States sub-prime mortgage market. As a consequence of the turmoil in the United States mortgage market the inter-bank money market lost liquidity as banks tend to be less willing to lend money to each other.
- The Bank of England had to act as lender of last resort and provide an emergency credit line to Northern Rock. Mortgage could be used as collateral for this credit line, and not gilts, as usual. The Bank of England has been criticized for this behaviour as it conflicts with very recent statements of the governor.
- Additionally, the Bank of England provided further liquidity by offering emergency credits securitized by mortgages to cash strapped banks, starting with an injection of £10 billion by 24 September 2007.
- Furthermore, the British Government provided guarantees on Northern Rock deposits.

- After the announcement of Northern Rock's liquidity problems, hundreds of savers withdrew their deposits, the withdrawals are estimated to reach about £1.5 billion.

18 September 2007: Fed reduces federal funds target rate by 50 basis points

- The Fed reduced the Federal Funds Target Rate for the first time since three years from 5.25 per cent to 4.75 per cent. This is 25 basis points more than expected by most observers and was understood as an attempt to stimulate economic growth. Stock markets worldwide reacted positively to this decision, while the United States dollar experienced further depreciation against the euro.

20 September 2007: Differing consequences of market turmoil

- Banks' figures for the third quarter 2007 are of particular interest as they are supposed to give an evidence of how the crisis affects banks' returns. While Bear Stearns announced heavy losses for the third quarter of 2007, Goldman Sachs and Lehman Brothers disclosed high returns.
- Still, the turmoil is ongoing: The Fed injected a further \$29 billion. ■

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