The Impact of Financial Derivatives on Trade and Development in Emerging Market Economies

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DERIVATIVES AND DEVELOPMENT

Introduction of Issues

Review of Current Derivatives Policy Studies and Initiatives

Global Financial Markets and Derivatives’ Indirect Impact on Development

Derivatives Direct Role in Financial Systems of Emerging Markets

Summary and Conclusions

Bibliography and References
Introduction of Issues

The purpose of this paper is to raise some issues with respect to a relatively unexplored aspect of the tremendous development in the global markets for financial derivatives, their potential impact on the trade and development of emerging markets. The market for financial derivatives or financial instruments that derive their value from the price movement in the underlying asset to which they are tied has grown enormously over the last twenty five years. Currently their notional value exceeds $90 trillion, an 80% growth from about $50 trillion in 1995 (Basle Committee & IOSCO - 3, 1998 and Garber 1998). Indeed, these products have become an integral part of the globally integrated financial system as well as an important source of profits for many major international financial services companies (Basle Committee & IOSCO - 2, 1998). US banks and securities companies hold about 25% and 15% respectively of the outstanding contracts (NY Times 3/20). However, because most trading activity and the large users of these products are located in financial centers such as London, New York and Tokyo, relatively little attention has been focused on their potential effects on emerging markets. Yet, there are reasons why this question should be addressed in the current context.

One, as seen in the case of the Russian default and its impact on Long Term Capital Management (LTCM) and other leveraged investors, any instability in the global financial markets or change in the lending capacity and attitudes of major financial institutions can have an impact on emerging economies. This is especially true given the recent roiling of Asian and Latin American markets (IMF - 2 and IMF -3, 1998). Two, the opening of the emerging markets in the 1980s and 1990s to foreign investors and investment banks, especially in Asia, introduced such financial instruments into many of these economies. Investors then used them to hedge and speculate in these countries’ currencies as well as in their stocks, bonds and other assets. Such activities have affected capital flows and these countries’ balance of payments, impacting the value of currencies and domestic assets (Garber 1998). Some emerging market firms also became speculators in the international markets instead of investing in local business development. For

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1 Also see testimony by Chairman Greenspan as reported in the New York Times March 20, 1999.
example, despite a Korean capital shortage, Korean Banks participated in triangular credit swaps involving Indonesian companies and international investment banks where via this mechanism they extended loans to Indonesian borrowers (Rude 1998). Or as Garber (1998) notes: “In weakly regulated, undercapitalized financial systems, derivatives provide a perfect opportunity for financial intermediaries to acquire risky positions in attempts to recover capital.” Such situations can in turn negatively impact the capital available for projects governments in these countries consider more critical to development. In countries with low capital-output ratios and large marginal social externalities from certain infrastructure projects, such diversions of scarce capital can be costly, especially if eventual financial turmoil also affects access to the global capital markets more generally.

As stated above, the total for all derivatives markets worldwide now amounts to tens of trillions of dollars in notional value about 5% of which represents replacement value (Garber 1998). Indeed, such derivatives are considered a fundamental aspect of trading and risk management worldwide, and in many cases the turnover in these derivatives markets can be larger than the volume in the cash markets to which they are related (Rapp 1998). In turn, most regulators in advanced industrial countries, especially the US, view them benignly as promoting market liquidity, facilitating the transfer of risk to those better able to manage or absorb it, and providing an important profit stream to major financial institutions (Jochum and Kodres 1998, Parkinson 1998). Mr. Greenspan presents this viewpoint clearly despite the recent derivatives related crisis. In March he testified: “The fact that the O.T.C. markets function quite effectively without the benefits of the Commodity Exchange Act provides a strong argument for development of a less burdensome regulatory regime for exchange traded financial derivatives,” (NY Times 3/20/99). Also, by helping investors, exporters and importers to hedge their exchange exposures, derivatives have probably facilitated the rapid growth in global trade and

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2 As Garber (1998) notes: "Most derivative products are priced on initiation of the contract so that they have zero market value. As underlying market prices move through the life of the contract, the contract—which is a bet on the movement of the underlying prices—acquire absolute positive values. These values are called replacement costs.” These costs represent the contract writer’s actual counterparty exposure. However, they are not fixed but vary with the price movement in the underlying asset from notional value.
investment from which everyone has benefited. Further, despite little regulation, major failures have been relatively few even though the number of market participants is large, the market size huge, and the transaction volume immense. For this reason, such failures have generally been considered one-time situations and not indicative of any systemic problems. Examples of such isolated derivative related failures from the viewpoint of regulators have been the Barings and Orange County bankruptcies as well as the very large derivatives related losses at County NatWest, Sumitomo Shoji, P&G, Daiwa Bank, JP Morgan, Metallgesellschaft and Bankers Trust. The recent prominent hedge fund related losses at Bank of America and Long Term Capital Management (LTCM) are in this category too.

However, while most policymakers have generally been sanguine about the rapid development and immense scope of these leveraged transactions, these losses have raised some important questions concerning these regulators’ underlying assumptions despite these instruments various benefits. This is because there is substantial leverage implicit in all derivatives. Even a small move in the underlying asset base or notional value can move the derivative by a very large percentage or even a multiple. (See footnote 2.) Further, it appears virtually all derivatives are constructed and priced based on 95% confidence intervals using historical data (Basle Committee and IOSCO - 3, 1998). This means given the very large number of transactions conducted daily that the law of large numbers indicates even if there are no substantial changes in the historical relationships upon which this data is based, at least 5% of events will fall outside expected parameters. The question is which transactions, when and how much. In addition, when several individual derivatives are linked together to form more complex products as often happens, the confidence level for the total transaction will fall further, increasing the likelihood of an event outside expectations and a loss for one party to the contract. To manage the trading and credit risks surrounding such potential losses, since 1995 and with regulatory encouragement, major market makers have developed “value-at-risk” models. These models estimate the potential loss from a 1% negative move in their total portfolio assuming netting of exposures and that open positions can be covered within a

If the value of this asset were to change substantially as during a financial crisis, e.g. the default on Russian
short period. But several market participants are beginning to recognize such models cannot fully evaluate many credit and market risk issues including possible liquidity problems in covering positions as occurred during the Russian and LTCM crises. So in addition they are using extended stress tests and scenario learning to address such potential risks and to report on them (Basle Committee and IOSCO - 2 & 3, 1998 and 1999). But this is still mostly on a voluntary basis. It should

**Review of Current Derivatives Policy Studies and Initiatives**

Yet, it is clear from reactions to events this summer, as well as from the previous situations mentioned above, that many derivative market participants, especially the major market makers, as well as some policymakers are now recognizing historical relationships do not always hold. The IMF notes this in “Turbulence in Mature Financial Markets” (IMF-3, 1998). Referring to various risk management models, they state that “because they usually rely on historical relationships between price movements in many markets, the models can break down during times of unusual stress and turbulence, particularly when structural breaks occur in cross-market relationships.” Therefore, under unprecedented conditions, the occurrence of large outlier events becomes even more likely when markets are subject to volatility exceeding historical norms. In sum, from a large number perspective, over time the significant but supposedly isolated incidents noted above are really an inevitable outcome of the system and more crises are likely in the absence of market or regulatory changes.

In addition, during periods of uncertainty and greater volatility, the number of such events can increase if major financial institutions start reporting large derivative related losses. This is because such losses tend to increase volatility and decrease liquidity as market participants try to cover their positions (Basle Committee - 1, 1999, IMF -3, 1998 and Rude 1998). Individual financial institutions also move to protect themselves by becoming more restrictive in extending credit. But such reduced credit forces borrowers to liquidate positions increasing volatility. The aggregate effect of this can be big swings in market prices and transaction volumes as happened after the LTCM rescue. Yet due to bonds, the counterparty exposure can become substantial rising well above 5% of the notional value.
the continuing general assumption among many market participants and regulators that these events are anomalies and are not systemic, they feel little or no regulatory action is needed or may even be possible to reduce the likelihood or amplitude of such crises in the future. If this is the case, then such actions will not be taken and more such events become likely. Some may affect the entire system. As Martin Mayer points out in a recent paper, this occurs when creditors are leveraged and need to be paid by a defaulting counterparty to meet their own obligations (1999). Since all major market makers are large highly leveraged financial institutions, the need for caution, adequate capitalization and regulatory surveillance is obvious to make sure they can manage potential default risk with no domino effects.

This reasoning would appear to be confirmed by some recent events as well as the greater concern among other regulators and policymakers. (See recent rash of papers especially by Basle Committee on Banking Supervision cited in the Bibliography as well as IMF – 3.) Indeed, in explaining recent events, those who are concerned specifically state that because large outliers have been considered anomalies, their potential occurrence has not been factored into the basic assumptions of the mathematical and computer models used by many financial institutions to manage their positions and risk exposure. This situation was confirmed when several institutions explained their losses this summer and fall by offering this explanation as the reason why they did not avoid the fallout. (That is, they explained that “the event was outside our model.”) Therefore, they were generally not prepared for such events, amplifying the potential crisis (IMF –3, 1998). This situation also raises another important consideration. That is, if these major participants did not expect such occurrences, the risks related to such transactions have been underpriced for some time (e.g. County NatWest). However, as Kindleberger (1996) points out in his book on Manias, Panics and Crashes (1996), when financial risk is underpriced, people tend to use more of it, leading to excessive risk in the system and periodic crises until the risk is appropriately priced. This development also seems to have been confirmed in the recent crisis by the substantial “repricing of financial risk, which was accompanied by a rebalancing and deleveraging of international portfolios in a short period of time,” that occurred subsequently (IMF – 3, 1998). Similarly the IMF Report
notes the “high degree of leverage itself reflected the relatively low margin requirements on over-the-counter derivative transactions,” another form of underpricing. Further, Mayer explains this leverage and underpricing of risk extended to the repos several speculators such as LTCM used to finance many of their transactions (1999).

In the case of derivatives, this type of underpricing seems to have combined with Kindleberger’s other observation that financial innovations historically have tended to be underpriced to create market acceptance, also resulting in greater systemic risk. In sum, the mispricing of risk and innovation in the case of derivatives has accentuated their growth and the rapid expansion of derivative related risk in financial markets worldwide. In this way the mispricing of risk has in fact accentuated the emergence of greater derivative related risk within the global financial system. From this perspective, given virtually no regulation of derivatives’ exposure and little exchange of information until 1995 when the last derivatives’ crisis stimulated some action (Basle Committee and IOSCO - 2 & 3, 1999 and 1998), an LTCM-type of event that could shake the international financial markets appears neither surprising nor unusual. What would be unusual is if this and related events failed to stimulate either market participants and/or the regulators to see LTCM and similar situations as a systemic outcome inviting some moderating regulation despite participants’ and policymakers’ current love affair with the wisdom of completely free market forces. Yet the industry is clearly of two minds on this issue (Rude 1998). It has opposed the imposition of Accounting Standard 133 by the FASB (Financial Accounting Standards Board) of mark-to-market and purpose disclosure as well as income realization in their accounting statements. It has also not uniformly reported different transparency and accountability recommendations (Basle Committee and IOSCO - 2 & 3, 1998 and 1999).

Nevertheless, they have formed a committee to assess Counterparty Risk under Gerald Corrigan, former President of the New York Fed, because as one respondent noted: last fall their losses from counterparty defaults exceeded trading losses for the first time! This committee is trying to develop a set of best practices for both managing risk and disclosing relevant information. Further, several studies from Basle, the IMF and independent researchers for the first time have specifically raised in print the issue of
systemic risk. They have also differentiated between derivatives used for speculation and those used to hedge real business exposures. As one research paper states regarding the migration of financial instability, “because contagion occurs through hedging, the pattern of contagion is strongly influenced by the presence or absence of derivatives markets for unbundling and hedging the macroeconomic risks. Errors in market participants’ beliefs about dynamic hedging activity influence the pattern of contagion and, in some cases, strongly magnify the size of the contagious price responses,” (Kodres and Pritsker 1998).

The IMF (3, 1998) also suggests “deficiencies in both private and systemic risk management probably contributed to the recent financial market turbulence. … On the public side, although public systemic risk management in the period September-November 1998 alleviated the threat of a systemic problem in international markets, at least two lines of defense - banking supervision and market surveillance - that would ordinarily safeguard against the buildup of such a threat did not appear to provide sufficient warnings.”

However, given their very large economic size, most of the recent policy attention on derivatives has been on “Turbulence in Mature Financial Markets” (IMF-3, 1998). Such policy concerns in turn have pushed the need for more disclosure by the major players in these markets. These are the top international banks and securities companies headquartered in the advanced countries. Further, with respect to emerging markets, the analysis has primarily focused on explaining how problems there could so heavily impact the global financial system and major market participants despite the relatively small economic size of these countries and their financial markets compared to the global capital market. Still, market makers and large market participants now recognize that all the markets are interconnected and more information is necessary. Thus by restricting credit and using the current situation to their advantage, they have started to force countries such as Korea, Mexico and Thailand to collect and disclose more information on their economic status and the leverage and exposures in their financial systems. When combined with a more general adoption of “best practice”, this should lead to better surveillance and regulation as well as reduced direct and indirect exposures.
Nevertheless, the law of large numbers and the inevitability of outliers remain while the focus on reform has been relatively restricted to the global financial system. There has been much less attention and analysis on the potential effects of such periodic crises on trade and development generally or the possible influence of derivatives on trade and investment in the emerging markets more specifically. Yet, as just discussed, the LTCM situation and its aftermath indicate there is a connection here that argues for more detailed policy related research in this area. This is because it has resulted in a large reduction in the international supply of credit to these countries (IMF – 3, 1998, JP Morgan 1999). In its 1998 earnings release Morgan (1999) writes: “We made significant progress on credit initiatives: Latin American and Asian exposures were 40% and 50% lower than at year end 1997,” and in terms of market-making during the last quarter, “Emerging markets had revenues of $51 million compared with $122 million in the 1997 quarter, principally reflecting illiquidity and reduced client flows in international debt markets.” So while the credit markets have returned for some large emerging markets such as Mexico and Korea, many others find credit both restricted and higher priced. In addition, bank credit availability for emerging markets remains weak.

To fully appreciate this interconnection for emerging markets between credit, capital flows and derivatives, some understanding of the interplay of derivatives and the global financial system in the LTCM case is important. On the surface, LTCM was able to control on a few billion dollars in capital hundreds of billions of dollars in positions; many of which were derivative based. In many cases, they did this using double leverage. First they bought US government bonds on margin, which one can do on a twenty-to-one basis. Second, they used these government bonds as margin collateral in derivatives’ transactions, in effect doubling their collateral obligations. For example, if one buys yen futures, one is expected to put up margin collateral equal to 10% of the value of the contract. However, by using bonds bought on margin, one need only contribute 0.5% of one’s own resources. The total transaction represents double leverage because if the yen appreciates by 20%, the value of the derivative does not appreciate or depreciates by only 20% but shifts from zero value (footnote 1) to plus or minus 20% the notional value of each contract. Therefore, if one bet wrong and the yen moved by 20%, the replacement
value would be such that all the collateral would be lost plus an equivalent amount would still be owed. Failure to pay in turn would shift this liability to the exchange and its participants. Yet, this collateral was also owed to the institution that had sold the bonds to the investor or speculator on margin. So both the borrowing related to the collateral and the derivative itself represent leverage. Such double leverage greatly magnifies the possibility of large losses and clearly increases financial market risk. Repos, which LTCM also used extensively, represent another form of this concept since one borrows against the value of the security less a small margin. In a normal yield curve environment, longer-term bonds can be carried for extended periods at short-term rates with margin requirements only rising if the value of the bond falls, i.e. long-term rates rise (Mayer 1999). In this way, repos represent a derivative bet on a fall in interest rates since this will reduce the cost of carrying the bonds while generating capital appreciation. This was one way LTCM could speculate that yields on corporate or emerging market bonds would return to a more “normal” relationship with Treasuries. But during the crisis, they diverged, undermining their credit as a counterparty.

**Global Financial Markets and Derivatives’ Indirect Impact on Development**

These situations have both indirect and direct effects on trade, investment and development. The former emerges because hedge funds and other speculators as explained above can use excessive leverage via derivatives and complex borrowing and investing structures to take specific and very targeted market positions such as in Russian bonds or the depreciation of the yen. Further, due to the absence of full and shared market disclosure on a daily basis by market makers, a speculator can take the same position with several counterparties at the same time thus building a credit position well beyond what any one market maker would consider a prudent exposure. One leading market participant explained how this worked as follows. In fact, the speculator or investment fund borrowed yen based on its capital position. It borrowed yen because yen interest rates were so low and the Japanese economy was so very weak. Their expectations were therefore that yen borrowing rates were likely to remain low and the yen weak.
The borrower then swapped the yen into dollars and used the dollars to either buy Russian bonds directly or to buy US Treasuries that they used as collateral on various derivative contracts. In the case of the Russian bonds or GKO’s, they covered their ruble exposure by buying forward cover initially from the Russian Central Bank and later from Russian commercial banks (Mayer 1999). The initial returns on these portfolios were enormous. By borrowing yen that they converted to dollars, the funds in the aggregate weakened the yen creating a de facto negative funding cost. In turn, the Russian bonds even after cover were paying in excess of 30%. However, their potential Russian credit risk was enormous, as was their currency mismatch. This became clear when the Russian default occurred last summer. The GKO’s became worthless, as did the forward cover. However, the borrowers still owed the yen. As major market makers became concerned about their exposure to these borrowers, they called the loans. This forced the speculators to sell their Treasuries and unwind their derivative and repo positions since the Russian bonds were valueless. It also meant they needed to buy yen to repay the loans, sharply raising demand for yen and creating a 10% yen appreciation in a single day, the largest yen jump in 25 years. This made it even more expensive for those who still owed yen to meet their obligations based on dollar assets. As not all counterparties were able to sustain these losses or were supported like LTCM, counterparty losses soared.

This is an important aftermath of the LTCM and Russian crises. In addition, it shows how the system’s interlocking leverage could magnify the impact of what was seen by many observers as default by an economically small entity, the Russian bond market. That is, only about $30 billion in GKO’s were outstanding and only about a third were held by foreigners. But a $10 billion loss had a substantial impact on the capital of the leveraged investors and speculators who had invested in them, forcing them to unwind other positions and repay their yen loans. Further, those that went bankrupt left other market participants exposed since one side of their derivatives trading book was no longer covered (Mayer 1999). If these positions had been multiplied through the market by speculators who took multiple positions, then several counterparties were exposed and some of these might also have been pushed to liquidate positions or in the worst case to also file for bankruptcy. This is the source of the systemic risk and contagion that did and
has caught the attention of many policymakers (see bibliography) as well as several market participants. But there has been another fallout for emerging markets. This is because many market participants found the origin for this instability in the emerging markets rather than in a system that had permitted, even encouraged, excessive leverage and speculation.

Therefore, in the aftermath of the LTCM crisis not only did lenders concerned about their margin loans force many investors to unwind their yen positions that in turn strengthened the yen but they also pulled back on their loans and financing in the emerging markets, e.g. JP Morgan. Reinforcing this decision was the penalty the US stock market imposed on several major financial institutions that were considered to have excessive exposure to emerging markets such as Lehman Brothers, Bank of Boston and Citicorp. Indeed, the chairman of Lehman Brothers had to make a public statement confirming the firm’s strength and solvency as rumors related to emerging market exposure roiled markets and sent stock prices tumbling. Goldman Sachs was even forced to suspend its long-awaited public offering. Since most US executives are compensated based on stock performance, these bankers now have few incentives to return to previous exposure levels. Thus accentuated volatility did lead to reduced liquidity during the crisis in classic fashion (Kindleberger 1996 and Corrigan 1998) and an abrupt rise in the cost of emerging market debt. But the supply of funds has also dropped on a longer-term basis and for all emerging markets as bank stock valuations have discouraged lenders from returning even after the worst of the crisis has passed. Therefore, the spreads over Treasuries on some emerging market debt that jumped from 300 to 1600 basis points at the height of the crisis still remain over 1000 (Lehman Brothers 1999).

The impact of this trend on the cost and availability of capital to emerging markets is obvious. Therefore, it is very much in their interest for advanced countries’ regulators and/or markets to improve the credit exposure information available to major market participants and especially major market makers in derivatives to prevent a future pyramiding of exposures to specific situations that could negatively impact major global lenders. This would include supporting in terms of supervision the “best practice” recommendations of the Corrigan Committee when they are published as well as the
Basle Committee’s (1999) recommendations related to HLIs (Highly Leveraged Institutions). Such support is necessary to avoid marginalizing the reforms through excessive competition among market makers.

In addition, it should be recognized that a weak yen had put significant pressure on various Asian countries to devalue, including China, while exacerbating the dollar repayment mismatch of countries like Thailand, Indonesia and Korea. Therefore a stronger yen would have been welcome news for the global economy much earlier. Yet, it was the impact of the global derivatives market that pushed values the other way. However, with a greater sharing of information on various market participants’ total exposure to particular situations, the yen might have perhaps stayed stronger reducing the adverse pressures. In sum, because a strong yen has encouraged major Japanese multinationals to source imports from Asia and to increase their investments (FDI) there, indirectly this speculative play had a real impact on Asian economic development. Thus the importance of this type of reform for the global economic system and especially the weaker economies cannot be disregarded.

That is, if this type of situation can affect a major currency such as the yen and the availability of credit to emerging markets, impacts way beyond the markets and firms involved, the growth and use of derivatives should be examined more closely in terms of such larger policy issues. This includes their effect on trade and development. From this perspective, several policy research areas seem important. One is the indirect effects on smaller economies and especially smaller developing economies of shifts in exchange rates which affect trade and investment decisions as well as these countries’ ability to repay foreign currency loans, i.e. effects similar to the yen example explained above. Unfortunately, since the players making these markets are generally the very largest and most sophisticated global financial institutions, with their headquarters and major operations in the advanced countries, there is generally little smaller economies can do to affect events.

However, given the effects examined above, they should support an expansion of the information gathering and sharing recommendations outlined in the Basle Committee-IOSCO reports (1998 and 1999). To be effective, though, this information would almost
have to be shared among the major market makers almost on a daily basis rather than quarterly, and not just for their largest counterparties as the Basle/IOSCO Committee suggests. This is because the recent crisis has indicated it is the lumping in a very short period of a very large number of smaller financial market participants into a single situation that goes sour that can cause big aggregate losses. Further, these smaller participants may create the greatest moral hazard. Because they are relatively small and below the credit radar of most derivative market makers, they have a chance to take multiple exposures with different intermediaries in a single situation. If they win, they win big. If they lose, their loss of capital is relatively small. In the case of money managers for small offshore funds, if they win, their bonuses are large. If they lose, their investors suffer, and they look for another fund to manage (Mayer 1999). In the recent crisis these incentives combined classic moral hazard and agent/principal problems that have not yet been resolved. More disclosure of participants’ derivatives’ market exposure, including daily or at least weekly mark-to-market data and possible offsetting real business hedges, would certainly help market makers to control their credit exposures. But it is not clear these market makers are prepared to share this information with each other across-the-board given concerns about customer confidentiality and their own trading or investment strategies. Some would also argue this divulges business secrets. This reluctance is indicated by the number of firms that fail to report this data even on a quarterly or annual basis (Basle/IOSCO - 3, 1998).

Two possible approaches to addressing this problem and thus avoiding future pressures within the system from this source of contagion are one to see this disclosure as actually no different than the shared credit requirements on syndicated loans to which many of these same major players are already subject. In this way via the regulatory authorities, lenders and derivative market participants could exercise normal credit reviews that would include a borrower’s or market participant’s total exposure to a particular situation. Then the regulators could alert market makers when the participant’s exposures got above a certain amount relative to their capital. Alternatively, market makers could request legislation or regulations that would give them the legal right to both request information on and limit a customer’s total exposure to a particular situation.
with fines and penalties for failure to disclose or for giving false information that could not be avoided in bankruptcy. It also should be determined whether it is appropriate for all sellers and buyers of US government securities to be subject to the same collateral requirements imposed on US banks. That is, collateral on margin sales of such securities should not be released to the purchaser (borrower). Such a repo rule would have substantially reduced LTCM’s ability to excessively leverage its capital by placing such borrowed securities as margin collateral for their derivative speculations. Such a rule would also mean such investors would have a greater capital cushion when the inevitable “unexpected” event occurs. After all, this is the purpose of equity. The importance of such rules has increased with the emergence and rapid growth of several new “credit type” derivatives such as “Total Return” swaps or “Default Risk” swaps. This is because in these cases a much greater percentage of the notional value is at risk since unlike a basis swap (e.g. paying fixed and receiving floating) not just the difference between income streams is exposed. Rather the total return or a part of the principal is at risk, expanding the potential counterparty losses.

For these rules or any other regulations to be effective, though, they must be imposed across countries and financial institutions just as margin requirements on US stock purchases apply to all lenders. Otherwise such speculators will just move offshore. This is due to the role of moral hazard, adverse selection and intense competition in these markets which operate in a much different way than the issues of Crony Capitalism or Industrial Policy raised by Chang (1999). In this sense the derivative issue today appears to be similar to the S&L junk bond boom of the early 1980s. At that time, several loosely regulated S&Ls were able to invest in junk bonds and make risky real estate loans because the US government guaranteed their deposits. So depositors did not closely examine their assets. In turn, the S&L managers were compensated for doing deals, introducing the normal principal-agent problem also noted above for derivative speculation in that they were compensated for taking risk with the government’s money but were not greatly penalized if they lost it. Generally, the worst that happened is that they would lose their jobs. Since these lenders were the most aggressive, they attracted riskier transactions (adverse selection) and developed riskier portfolios. This directly
increased the risk in the system and indirectly too as competition forced better managed and regulated lenders to be more aggressive to keep their customers. This represented a marginalization of credit across the lending spectrum.

The same reasoning and competitive forces operated in the LTCM/Russian bond situations examined above with foreign lenders and investment banks having the greatest exposure. Therefore the only way to reduce systemic risk and the excessively leveraged bets on specific market situations is for all regulators to impose similar disclosure and exposure standards across the global market just as stock margin requirements apply to banks, investment banks, insurance companies, etc., etc. This is not a new derivatives’ related problem in that the Orange County and Barings’ bankruptcies were traced to similar principal-agent asymmetries on the part of the decision-makers that were exploited by the greed of those buying and selling the derivatives. Traders and managers were compensated for doing deals while their companies bore any loses. But already explained if these situations and losses are seen as one-time events, the systemic problem will not be fully addressed.

**Derivatives Direct Role in Financial Systems of Emerging Markets**

Since such events taking place within the advanced countries markets can apparently affect trade and development, the UN as a representative for emerging-market countries has an interest in arguing for such regulatory changes, best practice and information exchange to reduce the potential negative externalities. They also have an interest in helping emerging markets go beyond these indirect effects to address the issue of to what extent derivatives can directly support or hinder the development of their own financial markets. There are several important research questions in this regard. They revolve around whether it can be demonstrated that derivatives contribute to better market liquidity as claimed by most proponents or lead to severe periodic crises in the emerging markets. The latter are accomplished because they generate volatility and increase or reduce market liquidity precisely at the wrong times, i.e. too much demand in booms and too little supply during crises. In the US, for example, bank runs used to reduce loans and market liquidity during recessions exacerbating any banking crisis. This led to
The establishment of the Federal Reserve and later the Deposit Insurance Corporation. Similarly, if liquidity in the derivatives markets is asymmetric, this reduces their utility in managing risk since market makers and other participants do not provide cover when it is most needed. One can then argue some regulation could actually increase market liquidity just as lender of last resort or deposit insurance has improved credit availability during economic downturns helping to moderate their effects.

There is no obvious answer to this asymmetry question. However, a study by Christopher Rude (1998) indicates that at the beginning of the Asian Financial Crisis several dollar borrowers who attempted to cover their positions found the available forward exchange cover had been fully used by speculators. Further, interviews with some market participants indicate that specific banks specialize in certain emerging markets, indicating these smaller markets are subject to economies of scale, information and learning that limit the total availability of cover depending on the specialists’ capital and risk absorption capacity. The recent article by J. Kregel (1998) has similar implications when he identifies the emerging market exposures in Asia for particular foreign banks. Therefore the large global financial institutions who dominate the derivatives markets worldwide due to economies of scale and scope as well as learning and who have migrated their expertise and dominance in the advanced financial markets to smaller markets, have not done this uniformly across all markets. Rather they have selected particular markets in which to concentrate among the many markets that have mushroomed in Asia, Latin America and elsewhere over the last few years.

However, these intermediaries have credit and country exposure limits on their open positions, especially in times of crisis. Given this situation, it is not surprising there have been limits to the available forward cover just when it was most needed since these intermediaries had no ability to lay their exposures off in the market. A related set of derivative issues affecting trade and development is the use and creation of derivatives with respect to a developing country’s currency and security markets. Since derivatives markets often have become deeper than cash markets, these firms have strategically exploited their expertise in derivatives to improve their returns and competitiveness in local cash markets where local firms often have a regulatory or customer edge (Kregel
At the same time, they have done this by making certain assumptions concerning the relationship of these markets and the value of their securities to other markets where they actually do their hedging (Mayer 1999). This activity has resulted in a very complex set of high value added O.T.C. customized derivative constructs for these smaller economies, which are relatively lumpy, illiquid and difficult to unwind (Kregel 1998 and Mayer 1999). These would include the yen/GKO investment strategies explained above.

The consequences of this activity on the interest rates and currency values of emerging-market economies are difficult to evaluate, especially during periods of economic stress. But as in the case of the yen, they could be substantial. That is, derivative markets can impact the underlying security or index from which they are derived if speculators pursuing complex arbitrage or hedging strategies buy or sell the derivative while selling or buying the underlying assets. This changes the value of these securities, affecting other markets where changes in asset values, interest rates, and currencies can impact investment decisions, trade, and government budgets. If the derivative markets are larger than the cash markets, this can cause big swings in the value of individual securities that make up an index too, especially if those securities do not normally trade in volume and have limited supply. Naturally more research is needed before reaching any policy decisions on the appropriate “best practice” regulatory regime for derivatives in developing a country’s financial markets. However, two examples indicating such research is necessary arose during our interviews. One was the interaction of short-term currency hedges and the purchase of government bonds in Thailand and Mexico and second was the effect of credit derivatives on the market for emerging-market debt already assessed above. In the former case, we can see the links derivatives can provide between markets (Garber 1998 and Mayer 1999).

This is because the forward and foreign exchange futures markets in most emerging countries are about one year. If such cover is freely available to market participants, there will be an incentive for many international investors to only buy short-term domestic currency government bonds (one year or less) and to cover with forwards. So this market will be more liquid than the market for longer-term bonds. The emerging-market government will therefore have an incentive to issue shorter-term securities,
skewing its debt profile. During the boom period, it may even be excessively confident in taking on more debt because it mistakenly believes it is relatively safe from a foreign reserve run as these are “domestic currency” denominated bonds. However, the open position in the futures market may have converted this debt to a short-term foreign obligation, accentuating the country’s potential problems in the case of a currency crisis. This kind of situation seems have played a role in Mexico and Thailand given their quick loss in reserves once the crisis began as well as in the Russian default given the large losses associated with the ruble cover provided by Russian banks.

In addition, the extreme situation in Indonesia currently shows the potential gravity of this interaction effect. Here various efforts to hedge borrowers’ dollar exposure in a extremely volatile foreign exchange market have actually increased banks’ and companies’ dollar related financial losses well beyond original levels as dollar borrowers constantly bet wrong on the next direction in the exchange rate, making a bad situation worse. This situation may now have affected Indonesian monetary policy by impacting the government’s ability to stabilize the exchange rate at a reasonable level.

In sum, a hard less self-serving and somewhat more critical examination of the effect of derivatives on currency values, trade, and development in the emerging markets could play a useful role in developing strategies to improve derivatives’ contribution to the allocation of global financial resources. Since internal capital costs are generally high and these countries are capital importers with low capital-output ratios, the need to allocate scarce capital and credit availability is an important government policy function directly related to its economic development strategy and infrastructure development. Thus, the best use of local and imported capital and the impact of derivatives on this is an important policy issue. This is true even though our conversations in Washington indicate some IMF staff deny there is any problem at all. Since markets work, there is nothing to investigate.

However, part of this conclusion is based on a staff study (Jochum and Kodres 1998) that analyzes the introduction of futures to the foreign exchange markets of three countries (Brazil, Mexico and Hungary). This study concludes the impact of such an innovation did not increase volatility in their foreign exchange markets and therefore
introducing derivatives to an emerging market do not pose a concern. However, a careful examination of this paper indicates one should be cautious about using it to reach any firm conclusions about the potential effect of derivatives in exacerbating a financial crisis. This is because the existing institutional arrangements may have predetermined a benign outcome as a forward market already existed. Furthermore, the analysis presented in the current paper or in Garber (1998) and Mayer (1999) is primarily concerned about the potential contribution of such instruments to greater liquidity and price appreciation on the upswings and much less liquidity in times of crisis. Yet, the IMF staff study (Jochum and Kodres 1998) does not examine such outlier events. Indeed it specifically discards them as statistical anomalies (Jochum and Kodres 1998). So the study only really indicates that given an active forward market in normal times trading futures will not contribute to excessive volatility. This is a very different result than confirming a view that derivatives have no negative effects on these markets during times of crisis.

At the same time, the World Bank and Martin Mayer at Brookings (1999) believe the current situation is not quite so stable. They agree derivatives offer benefits to emerging markets, including hedging the returns on their commodity products or their financial exposures to certain projects. But if introduced too early in the development process, they may also expose these countries’ developing financial institutions to excessive risk. Also, they may not be the best way to promote local financial markets as a place to raise capital for local business and economic development. Such a situation might occur if a large amount of capital were drawn into speculative investments seeking high returns from stock or bond movements rather than attracting funds into productive corporate or infrastructure investment. Furthermore, it exposes the country to potential capital losses which could prove relatively much more costly than similar losses would be in the advanced capital-rich countries.

The number of current policy studies on this subject is not large (Garber 1998 and Kregel 1998). There is of course an extensive literature on derivatives, hedging strategies, modeling, options pricing, risk management, etc. for the practitioner and corporate finance expert (Smithson 1998). There are many books on how to use the markets and these vehicles to make money or avoid losing money. There are several recent but far
fewer studies about how certain very large players such as the major international banks are exposed and the potential system risk in the advanced countries. (See Bibliography.) But only a few places within these latter papers explain how large losses and the perception of increased risk have combined to substantially reduce major international lenders’ willingness to make loans or extend credit to the emerging markets.

However, if credit availability and thus international capital is going to be limited, then an important policy question for an emerging market is to what extent is there a useful role for derivatives in their trade and development strategy. Is this the best use of their scarce capital resources? Or is there a proper sequencing for the introduction of derivatives related to their economic and institutional development? For example, should one begin by first developing a foreign exchange market and the use of forwards via the banking system and then introduce futures for foreign exchange, bonds and finally stocks? Further, should derivatives for bonds and stocks be postponed until the cash market has reached a certain size and liquidity? The data does not exist to answer these issues here but given recent market failures such policy questions would seem to be important research areas before returning to business as usual in terms of freely using derivatives for any kind of transaction in the emerging markets.

This is because these events do indicate that the combination of derivatives and speculators can create asymmetric liquidity that reduces their value even in supposedly very liquid markets such as US Treasury futures (IMF –3, 1998). In the case of thinly traded markets such as those in emerging markets, liquidity can disappear altogether (Rude 1998). Under these circumstances to try to insure some liquidity in times of crisis, emerging-market governments may want to consider imposing a real transaction or underlying business reason rule to control speculation. Under this kind of regulation among local participants only those hedging a real business risk would be able to use the derivative markets. Such risks would support exporters, importers and investors needing to hedge changes in currency values or commodity prices. But it would limit speculators to international players who under the new rules should be better monitored and better capitalized. Any local speculators would be forced into the cash market. In the case of foreign exchange, if combined with controls on the open forward positions of local banks
and there ability to lend off-shore, it should also improve the central bank’s ability to control a raid by raising short-term interest rates as Sweden and Finland have done. The improved control comes from international speculators having to pay very high rates to borrow the currency they want to sell. In addition, it would reduce credit risk and exposure for market makers to local entities by assuring their counterparties had an offsetting business benefit. Finally, by controlling their local banks open forward positions, the government can limit the indirect foreign debt exposure explained above.

Furthermore, one can definitely argue that one continuing consequence of the severity of the Russian crisis and its interaction with LTCM and other derivatives related speculation gone awry has been a sharp reduction in the supply of credit to emerging markets and increase in its price. This indicates the current unregulated global derivatives market may pose disproportionate risks for the trade and development of emerging markets. The controls set forth above are one way to manage and hopefully diminish these adverse effects on capital flows as the inevitable periodic crises occur. As hypothesized above, during such crises there will generally be a flight to quality that will also tend to restrain the money flow to emerging markets. This will increase these markets’ potential liquidity problems causing even larger swings in foreign exchange and asset values that will make such investments appear even riskier. Higher risk leads to a demand for higher expected returns reducing perceived investment values and trade opportunities. This is an adverse loop in terms of emerging markets’ economic development and the international flow of funds. Unfortunately it is development that has been confirmed in our interview with the World Bank in that they said it is very difficult now to get funding for emerging-market projects or investments from commercial lenders. So they have had to fill the gap or act as a catalyst. Also, see J. P. Morgan’s earlier statement on emerging-market exposure (1999).

This apparent adverse loop exists because the large players in global derivatives are also the large international commercial and investment banks that finance major projects in emerging markets. They also supply much of the trade finance. So periodic crises that lead to capital losses for these banks or lower market capitalizations that demonstratively affect their ability and/or willingness to increase exposures and thus
impact these countries ability to develop. Such scenarios argue for improved regulation by the advanced countries as well as the emerging markets themselves. This is because such improved surveillance will have positive externalities in terms of trade and development for emerging markets and perhaps for advanced countries too, i.e. more capital exports. Nevertheless, it is not clear from various recent reports that policy makers in the major global private financial institutions, central governments of the advanced industrial countries, or major international financial institutions are yet concerned with these questions. Rather, the main focus is on the system as it works in the advanced capital markets. It is thus appropriate to raise these concerns in a forum such as the UN.

From this perspective given the evolution of this last crisis and the lack of information that was a significant contributor to its severity, the UN should support the policy changes in the current regulatory environment that are being examined in various working papers. (See Bibliography.) This would include greater transparency and accountability (Working Group 1998). Other suggested actions cover ways to reduce potential leverage, improve information flows, determine mark-to-market credit exposures regularly, raise risk-adjusted returns, require larger derivative exposure capital allocations, compel minimum “best practice” stress testing, and/or strengthen derivative related examination procedures and accounting standards. (See Basle - 1&2, 1999, Basle/IOSCO –1, 1999 and WG, 1998).

Certain actions or policies already seem to have been identified as particularly important in terms of their potentially beneficial impact in reducing the number and severity of future derivative related crises. “Best practice” for managing risk should include a stress test of each institution’s model that intentionally includes a large outlier event and an allocation of capital to cover such an event. Some market makers even limit risk based on the loss they are prepared to accept in terms of their on-going business even if the counterparty totally fails to perform. However, information sharing is also considered to be very important. This is because even though major derivatives houses try to deal with outliers or extreme situations by running crisis stress tests assuming very large changes in underlying values and even loss of liquidity within a short time period, this only tells them what will happen to their own portfolios. It does not inform them
about what is happening to their clients’ total financial position and what would be the possibility of a counterparty or credit default where they would have to pay winners but could not collect from losers. This is one reason for the “on-going business” test introduced by some market makers that also addresses Martin Mayer’s (1999) potential systemic domino effect. Another and related credit issue within the LTCM crisis that hit the banks hard was the fact they were lenders to LTCM as well as trading with LTCM in derivatives. So when LTCM faced bankruptcy, the banks had both counterparty trading exposure and loan loss exposure. Therefore they had double indirect exposure to LTCM’s portfolio positions during a crisis in addition to their own.

This lack of knowledge of a client’s true existing and total potential exposure is in fact is now seen as one of the biggest sources of systemic risk and is why market makers have lost full control over the credit function (IMF – 3, 1998). Further, unlike a loan where the amount is defined, this liability can increase during the crisis while not generating any cash or increased asset value for the counterparty that could be used to pay or offset the increase, unless it is a true hedge. This is why speculations and partial hedges that turn negative increase default risk. Indeed, with the possible exception of Metallgesellschaft, the derivative crises noted at the beginning of this paper all involved speculations or partial hedges. This lends support, at least in the emerging markets, for a “real transaction” or “real business purpose” rule as one way to control risk. Metallgesellschaft’s mega-losses and huge margin calls resulted from an excessive deviation in the time horizon between its market hedges and the twenty-year oil contracts these positions were designed to hedge. In any case, to manage this indirect exposure within their models, some firms have introduced such indirect risk into their credit exposure and risk management models. In completing their counterparty “due diligence”, their analysis thus assesses the investment and derivatives strategies of these counterparties. Regular reports then allow them to track adherence to agreed parameters.

Such portfolio controls are especially critical in volatile markets. While the liability of a derivative or complex contract may be compared to a loan on a mark-to-market basis, in certain cases it can be riskier. When one makes a loan, there is a transfer of funds from the bank to the company they can use to buy assets generating cash flow.
Both the asset and the loan are fully recorded on the balance sheet and the loan ranks as a senior debt. In the case of a derivative, though, it is a junior obligation and no cash is transferred, no asset acquired and no cash flow created. Rather the derivative is often used to hedge or protect an asset or cash flow. However, if the derivative is not properly structured or is speculative, it can quickly turn into a liability with no asset or cash flow moving in the opposite direction to offset it. This is why in their due diligence those using “best practice” differentiate in terms of credit exposure between counterparties with true offsetting hedges and those where the offset is only speculative or a correlation. Such an analysis is critical when under current reporting requirements the company need not report to the derivative writer its aggregate position or its total potential liability in the case of an adverse event. Therefore, without careful due diligence in combination with regular reporting the derivative provider is flying blind with respect to its indirect counterparty exposure and must rely on normal credit evaluations that the recent crises show are not fully suitable to the task (IMF – 3, 1998). While traders may have little concern with this problem, credit officers, senior managers and policy makers now do. But if competition makes it difficult for any one securities firm, bank or country to enforce such disclosure, ultimately this control has to come from the regulators on a unified basis.

Some concerns in this regard include the many transactions done in the O.T.C. market where the obligations are both bilateral and complex and there is no exchange enforcing credit. Liquidity can be a real issue for these transactions since derivatives do not eliminate risk they only transform it as when an option transforms an open ended market risk into a time based one or a floating into a fixed rate. But in transforming risk they can complicate the underlying obligations, since many are international, by tying them to other derivatives or securities with different legal, credit and maturity structures. These then become difficult to either offset or unwind in times of crisis (Mayer 1999). Conversely standard derivatives such as foreign exchange futures are commodities with low profit margins that can lead to excess liquidity during booms but bigger drops when liquidity is unavailable due to the one-sided expectations of an excessively large number of market participants. These and the other situations already discussed argue that some
evaluation of the proper role and regulation of derivatives within the financial sectors of emerging markets is required. This evaluation would include defining the government’s responsibilities as a risk regulator and risk intermediary as part of its role as a financial regulator and intermediary. Since derivatives influence the allocation of funds both within a country and globally with each operating differently and each posing some financial dangers, it is certainly a legitimate area of inquiry regarding regulation. However, it means the Central Bank and other regulators in these markets need to actively consider which derivatives are the most beneficial to trade, investment and development, such as a relatively free foreign exchange market. They may also wish to address bank regulation differently if the banks are market makers or lenders, and firms differently if they are borrowers, speculators or hedgers. This is particularly true when one considers the banks as deposit-takers are already leveraged and extend credit. Derivatives add to this leverage and use bank capital. Further, if derivatives concentrate risk rather than diversifying it due to bandwagon effects in particular markets, a bank’s viability can be affected. Yet, derivatives can also represent an important part of a bank’s connection to the global financial system and the services it provides its customers. For this reason, though, their use needs to be monitored and regulated to some extent.

3 In their report on “Turbulence in Mature Financial Markets”, the IMF (1998) makes several pointed comments on various issues also raised in this paper. Some of these seem worth repeating. The statements regard bank stocks, indirect exposure to emerging markets, yen strengthening, liquidity risk, counterparty risk, sovereign risk perceptions, and building system leverage. – On banks stocks, they note “Bank stocks were hit particularly hard … reflecting concerns about bank exposures to emerging markets.” On indirect exposure to emerging markets, they believe “in addition to direct exposures … financial institutions have significant indirect exposures to emerging market risks, including to counterparties that take on emerging market risks.” On the yen, they observe “this unprecedented yen/dollar adjustment was partly the result of the unwinding of the ‘carry-trade,’ in which investors around the world borrowed yen cheaply, swapped into other currencies (probably mostly dollars), and then purchased assets with higher returns in a wide range of countries and markets, including U.S. government securities.” On liquidity and counterparty risk, they state “In September and October, indications of heightened concern about liquidity and counterparty risk emerged in some of the world’s deepest financial markets.” On sovereign risk perceptions and especially the impact of the Russian default in terms of reassessing risk assumptions, their assessment is: “Nevertheless, for market participants the Russian unilateral restructuring seems to have been a defining event. The restructuring appears to have challenged fundamental assumptions about emerging market finance-widely held by the major financial institutions and priced into all but the safest investments-perhaps including a presumption that countries would not unilaterally restructure sovereign debt obligations. In the event, and regardless of the subjective reasons, the Russian crisis drove risk managers to question the validity of their assumptions and the balance of financial risks in their international portfolios.” And finally on system leverage, they describe the following: “some investors had purchased Russian GKO s, on margin, through investment banks that had funded the purchases with short-term repurchase agreements and commercial paper in U.S. markets. Other Russian and emerging market securities had been funded in Japan
Summary and Conclusions

We began this paper by noting that derivatives have probably played a positive role in the growth in global trade and investment from which emerging markets have benefited. They have done this by facilitating the hedging of many risks associated with trade and investment and by improving the earnings of major international financial firms. At the same time, it is not clear that a continued laissez-faire approach to derivatives is the best policy alternative and that all regulation will negatively impact this global benefit. Rather in some cases it may improve market performance and related benefits by reducing asymmetric swings in capital availability, economic growth and market liquidity.

There may also be situations where a country is exporting or importing large amounts of a commodity such as oil or rubber, and it makes sense for the government to wholesale the country’s participation in the international futures markets for that good and then retail it to various producers. This would be true if the government were not using this procedure as a tax collection mechanism but could actually reduce transaction costs as well as hedge its own exposure in terms of taxes and related revenues. In this case, as with a foreign exchange market, a forward market, and a stock or bond futures market, the issue for the government is what a derivative market contributes to the country’s growth and development through providing liquidity and finance to local companies and local markets. That is from a country’s perspective what is the best use of local funds and foreign capital and what are the government’s development priorities in terms of capital allocation. From this inquiry should flow an appropriate use for

and swapped into local currencies or dollars. Accordingly, the initial unwinding of financing for emerging market positions, hedges, and leverage meant that mature market positions related to these investments also had to be unwound or hedged, because the Russian restructuring triggered margin calls and led to a widespread increase in margin requirements. Because many of the investments that needed to be unwound were highly leveraged, the downward price adjustments were unusually sharp in a wide range of markets. The leveraging of investments magnifies returns when asset prices are appreciating, but it also magnifies losses, and requires the expenditure of scarce capital to meet margin calls, when adverse price movements occur, thereby forcing market participants to liquidate positions as rapidly as possible.” … “This adjustment process ultimately posed potential systemic risks because of its impact on market liquidity and dynamics.” … “The resulting dynamics … reflected the very high degree of leverage that accumulated in these markets through the late summer 1998. … These features and market dynamics ultimately exposed the international financial system to unexpected and unwarranted risks.”
derivatives to hedge investment or trade risks as compared to their use to speculate or reallocate capital among various investors, some of whom may be foreign.

At the same time, it is clear the events in the international financial markets of last summer and fall have markedly changed perceptions concerning derivatives, risk management and supervisory responsibilities. Large-scale systemic and default risk as well as the need to avoid such risks are now taken much more seriously, especially as they relate to sovereign debt in emerging markets. Both derivative market participants and financial regulators now recognize that a crisis in even a small market can be magnified and extended globally in terms of value at risk due to the complex interweaving of product and counterparty risk in combination with the leverage implicit in derivative contracts. From this viewpoint, it would seem to be in the interest of emerging-market governments to introduce in their own countries the recommendations put forward in the Basle and Basle/IOSCO papers regarding derivatives and highly leverage institutions. However, given their smaller financial sectors and capital markets, many emerging markets may want to consider additional policy measures for regulating derivative markets in their economies that more directly address their liquidity and capital allocation concerns. Some possible recommendations in this regard follow, though it should be noted that in many cases these recommendations will merely make existing prudential regulations or tax measures more effective by reducing the current level of tax and regulatory arbitrage using derivatives and structured transactions (Garber 1998).

1) Real transaction rule and declaration of purpose for local participants – Such a rule or regulation would force local counterparties entering into a derivative contract to indicate they are hedging an actual business or investment risk as well as the nature of that risk. It is one way to reduce speculation and force any local speculators into the cash market where monetary authorities may be better able to restrict credit and monitor the evolution of any crisis. To be fully effective, however, bank and security company supervisors would also need to closely monitor investor holdings of structured transactions (Garber 1998). However, the disclosure rule would help to identify the use of such innovative transactions to avoid regulatory or tax consequences. This rule is limited to local participants for two important reasons. One
to have a fully functioning market to manage and hedge financial risks, one needs participants who are willing to be compensated for taking risk (Kregel 1998). At the same time, these participants should be able to absorb those risks but this absorption should not involve the commitment of large amounts of scarce local capital. Thus, this function should be left to the international speculators. In turn, the international speculators access to local funds can be controlled by their ability to borrow local currency and the ability of local banks to create large open positions. (See item 3 below.) As part of this regulatory provision, the government may also wish restrict the number of local market makers to those having minimum levels of capital, systems, and trading expertise. This will help limit the surveillance burden while still allowing local financial institutions to develop some experience and connections in an important and rapidly growing part of the global financial system. This rule should not be overly restrictive in practice as two international market makers told us that generally they were not extending that much unhedged credit to local participants.

2) Full contract settlement – Normally, when counterparties enter into a derivative contract, especially when it is coupled with an offsetting derivative or cash position, they need only settle with the market maker at the end of the contract period for the net amount owed. One way to reduce such arbitrage is to compel the counterparty to settle with the market maker for the full amount of the contract, thus increasing the cash, credit and capital needed to support this type of trading activity.

3) Limiting the forward exposure of local banks or other financial intermediaries and/or requiring a balanced FX position – Prior to the Thai, Mexican and Russian crisis local banks and securities companies built large open positions between their spot and future positions by buying baht, pesos and rubles forward (Kregel 1998 and Garber 1998). As explained above, this was usually done in conjunction with sales of local bonds to foreign investors. Foreign banks did not participate in this activity since they normally keep a balanced position, are dollar-based firms and have limited use for such currencies. To avoid a large outflow of foreign exchange and excessive foreign purchases of fully hedged local securities, the government may want to restrict local
firms’ ability to maintain such open positions by forcing all forward contracts to be covered in the spot market. They will then only have a maturity exposure and not an exchange exposure as well. As explained in item 1, it is also a way to control speculative runs using derivatives.

4) Timing the introduction of foreign exchange, bond and stock futures including index arbitrage – There are no well established guidelines relating economic development and the evolution of financial derivative markets. However, we do know that generally countries evolve from immature debtors to mature creditors as they accumulate capital. Similarly, their financial structures usually move from indirect to direct finance in tandem with the evolution of firm size, the size of the economy, and capital accumulation. If historically the development of financial derivative markets is generally coupled with the evolution of direct finance and large capital markets, then prudence suggests it is reasonable to allow financial institutions, markets and usage to evolve in this manner. Once they reach a size and maturity that can logically support a full-blown derivatives market, then such activities can be introduced.

5) Require banks, security firms and other intermediaries to hold collateral held against open positions. – As already explained, one reason for the recent large counterparty losses and the potential systemic impact of an LTCM failure was such counterparties’ ability to use double leverage. They did this by pledging borrowed collateral or by borrowing unsecured and buying collateral they margined against their derivative contracts. Requiring collateral to be held by the lenders would reduce the potential for such excessive leverage. Margin limits on repos should probably be increased too.

6) Current rules limit lending to a single firm. However, given the potential for indirect exposure and increases in value at risk from derivatives, credit limits need to be extended by counterparty, position and market situation too. Further, counterparty credit limits need to be computed on a total exposure basis including loans and repos. Emerging market regulators need to work with supervisory agencies in advanced
markets to implement these prudential controls on a global basis as recommended by the Basle Committee.

7) Risk management should include “fail safe” mechanisms and scenario planning addressing situations outside normal trading models. – While these recommendations have been suggested or required with respect to major market makers, they are also useful exercises for supervisors in emerging markets to require. In addition, central banks and monetary authorities in emerging markets might regularly participate in such financial “war games” to identify weaknesses in their own systems and controls.

8) An emerging market government may want to assess the possible benefits to its country in terms of scale, external economies and information to wholesaling certain derivative transactions from major market makers. - This could include buying and selling commodity futures to hedge a country’s exports (e.g. coffee) or imports (e.g. oil) and then retailing these to individual exporters or importers by offering them a fixed price. This procedure could prevent local firms from using excessive leverage by entering into multiple contracts with different market makers. If so, a certain amount of centralization at the early stages of development may be warranted. However, this should only been seen as a way to reduce excessive leverage, capital usage, and transaction costs and not as a form of taxation with the government taking a spread between world prices and its payments to market participants, e.g. Ghana and cocoa.

9) Is growth in credit derivatives worrisome? – Emerging market policymakers should also occasionally take a “reality check” with respect to the country’s use of derivative contracts, financial engineering and leverage in terms of their policy goals, capital scarcity and development objectives. If financial and asset markets are booming, potential excess liquidity and exposure should be reviewed along with potential crisis scenarios. If we have learned something from the events of the last two years and especially the last nine months, it should be a sense of caution concerning derivatives and development. When things seem to be too good, perhaps they are.


