# INTERNATIONAL DIMENSIONS TO U.S. MONETARY POLICY

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**Executive Summary**

Federal Reserve monetary policy has traditionally focused on the domestic economy. Over time, however, a number of significant trends have underscored the potential importance of the international dimensions of contemporary monetary policy. Such trends include the following:

- Financial markets continue to become increasingly integrated internationally; capital is evermore mobile.
- The U.S. dollar continues to remain the world's principal international currency despite evolving exchange rate arrangements.
- Official and unofficial dollarization has continued in several emerging market economies.

These trends suggest that monetary policy may have differing transmission mechanisms increasingly involving international variables than was earlier the case. In addition to these trends, empirical evidence recently has accumulated showing that changes in U.S. monetary policy can significantly impact emerging market economies in a number of ways. For example, changes in U.S. monetary policy can (1) dominate capital flows in emerging market economies, (2) be associated with financial crises in these countries, and (3) significantly impact interest rates and financial markets in emerging economies under differing exchange rate arrangements. Furthermore, experience shows that the Federal Reserve can successfully assume international lender-of-last-resort responsibilities and stabilize world financial markets in situations of international liquidity crises.

The Federal Reserve should increasingly recognize these international considerations when conducting monetary policy.

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# INTERNATIONAL DIMENSIONS TO U.S. MONETARY POLICY

## INTRODUCTION

Traditionally, Federal Reserve monetary policy has focused on the domestic economy. Although international factors have not been ignored, they have been subordinate to domestic concerns. International concerns are rarely important rationale influencing Federal Reserve monetary policy decisions; further, the global impacts of U.S. monetary policy decisions seldom receive much attention from monetary officials.

Recent trends and developments, however, suggest this domestic orientation may not be entirely satisfactory for U.S. monetary policy. There is a growing recognition of the fact that financial capital is increasingly mobile, and financial markets are evermore globally integrated. At the same time, varying degrees of dollarization have occurred in several emerging market economies and the dollar remains the world's principal international currency despite evolving developments in exchange rate arrangements. These considerations have a number of important implications for U.S. monetary policy. For example, they help to explain why changes in U.S. monetary policy can have increasingly potent effects on emerging market economies that should be recognized and why the Federal Reserve's implicit international lender-of-last-resort (LOLR) responsibilities are so important.[1] These international considerations can be taken into account by anchoring prices with a price stabilization policy goal and using key market price indicators as policy guides.

After briefly describing these evolving circumstances -- namely, increased capital mobility, dollarization, and the international role of the dollar -- this paper briefly reviews the evidence suggesting that changes in Federal Reserve monetary policy have implications for both emerging markets and the global economy. Implications for the Federal Reserve's international LOLR role are highlighted and some recommendations for monetary policy are outlined.

### Recent Trends and Developments

- Increasing Financial Integration and Growing Capital Mobility.

Clearly, one important trend of recent years is increasing international financial integration and growing capital mobility.[2] Most economists now recognize the inexorable trend toward globalization or growing international integration of financial markets and increasing capital mobility. Empirical results, for example, increasingly provide

[1] For a discussion of these responsibilities, see Robert E. Keleher, "An International Lender of Last Resort, the IMF, and the Federal Reserve," Joint Economic Committee, February 1999.

[2] The word integration denotes the bringing together of parts into a whole. The more integrated markets are, the more they behave as a unified whole, rather than segmented parts. Financial market integration increases the degree of interdependence among financial markets and such integration is alternatively defined as (1) the extent to which markets are connected, (2) the degree of responsiveness and sensitivity to foreign disturbances, or (3) the degree of openness.

evidence of growing capital mobility. In particular, data on capital flows as well as interest rate differentials indicate that a growing degree of capital market integration or increased capital mobility has occurred since the 1970s.[3] The U.S. economy, along with most other economies, is more open. Many experts believe these trends are largely inevitable and irreversible, partly because they are being driven by communications and informational technological change and partly because policymakers increasingly recognize the many compelling benefits of regulatory changes that foster financial integration.[4] Accordingly, a growing consensus among economists is that there is no turning back: i.e., that capital mobility is here to stay.[5]

There are a number of important implications of this increased international financial integration. This more open environment, for example, implies that changes in monetary policy involve a somewhat different transmission mechanism. In particular, the more integrated the economy, the more quickly and substantially do divergent policies affect financial markets and capital flows. And the foreign exchange rate may play an increasingly important role in transmitting changes in monetary policy to the macroeconomy. Accordingly, exchange rate movements potentially may contain more useful information about changes in monetary policy than in previous, more closed (less integrated) circumstances.

- Clarification of the "policy trilemma"

These altered conditions of increased capital mobility also place important constraints on monetary policy, commonly referred to as the "policy trilemma." As Obstfeld ably describes it:

> The limitations that open capital markets place on exchange rates and monetary policy are summed up by the ideas of the 'inconsistent trinity' or …'the open-economy trilemma' ...that is, a country cannot simultaneously maintain fixed exchange rates and open capital markets while pursuing a monetary policy oriented toward domestic goals. Governments may choose only two of the above.[6]

If capital mobility is, indeed, an irreversible given, the policy choices circumscribed by the above trilemma are increasingly limited. In particular, policy choices are now between flexible exchange rate/domestic policy goal (e.g., inflation targeting) regimes and fixed exchange rate/without domestic goal regimes.[7] If

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[3] See, for example, Maurice Obstfeld, "The Global Capital Market: Benefactor of Menace?", Journal of Economic Perspectives, Volume 12, Number 4, Fall 1998, pp.9-30; Maurice Obstfeld and Alan M. Taylor, "The Great Depression as a Watershed: International Capital Mobility over the Long Run," in The Defining Moment: The Great Depression and the American Economy in the Twentieth Century, Edited by Michael D. Bordo, Claudia Goldin, and Eugene N. White, University of Chicago Press, Chicago, 1998, pp.353-402.
[4] See Barry Eichengreen, Toward A New International Financial Architecture, Institute for International Economics, Washington DC, 1999, pp.2-3.
[5] See, for example, Eichengreen, *op. cit*., p.3.
[6] Obstfeld, (1998) *op. cit*., pp.14-5.
[7] These might take the form of currency boards or dollarization regimes.

policymakers fix the exchange rate, they lose control of the interest rate; if they peg the interest rate they can't control the exchange rate. In starker terms, capital mobility "confronts national authorities with a decision over controlling either interest rates or exchange rates."[8] Some authors [e.g., Obstfeld (1998), Eichengreen (1996)] suggest that in recent years, the choice has moved mostly in favor of the flexible exchange rates/domestic policy alternative: i.e., mostly in favor of "controlling" interest rates rather than exchange rates.[9] The U.S. has evolved into such a regime: namely, a *de facto* informal "inflation targeting" position.[10] For most countries, this result may be due in part to considerations of political economy; contemporary political forces may mandate that domestic policy goals be given attention.[11] Nonetheless, the trend does underscore the constraints brought to bear on policy choices by increased capital mobility.

- <u>The Continued International Currency Role of the Dollar</u>

Another important trend relates to the continued international currency role of the U.S. dollar. Despite the collapse of the dollar-based Bretton Woods (fixed exchange rate) system and the move to more flexible exchange rate arrangements, the dollar continues to be used as the principal international currency. As Robert Mundell has aptly stated:

> Flexible exchange rates did not dispense with the need for international reserves or end the dominant role of the dollar. In one sense the dollar became more important than ever. The need for an international unit of account for purposes of international trade and finance was just as great as ever, and the increased uncertainty associated with flexible exchange rates increased, rather than eliminated the need for international reserve assets… The dollar remained the principal international monetary reserve (in the 1980s and 1990s). The enhanced role of the dollar under flexible exchange rates was reflected in the rapid expansions of dollar reserves which has more than kept pace with the growth of trade…[12]

More specifically, the dollar continues to provide the principal functions of an international money and thereby remains the dominant international key, vehicle, and reserve currency. This fact has been documented by several recent studies [such as McKinnon (2000) and Hartmann (1998)].[13]

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[8] Obstfeld, 1998, *op. cit*., p.18.

[9] For an alternative perspective, see Jeffrey Frankel, "No Single Currency Regime is Right for All Countries of at All Times," NBER Working Paper 7338, September 1999.

[10] Inflation targeting in and of itself does not have to be exclusively "inward looking" in the U.S., but instead can be implemented in a way that recognizes international concerns (see below).

[11] See, for example, Barry Eichengreen, <u>Globalizing Capital</u>, Princeton University Press, Princeton, 1996, p.195.

[12] R.A. Mundell, "The Future of the Exchange Rate System," paper prepared for the Rocca di Salimbeni Conference, Monte dei Paschi di Siene, Siena, Italy, November 24, 1994, p.12 (parentheses added).

[13] See Ronald McKinnon, "Mundell, the Euro, and the World Dollar Standard," paper prepared for presentation at the American Economic Association, January 8, 2000, pp.8-10, and Philipp Hartmann, <u>Currency Competition and Foreign Exchange Markets: The Dollar, the Yen, and the Euro</u>, Cambridge University Press, Cambridge, 1998, pp. 35-39, especially Chapter 2.

The continued use of international currency suggests there remains an important demand for the services of international currency: i.e., continued demand for a “money for other monies.” Given this existing global demand, important responsibilities accrue to the supplier of this principal global currency, the Federal Reserve. In particular, if the supplier of international reserve currency pays attention to changes in its demand and, accordingly, adjusts supply to match changes in the demand for international currency, global stability may be promoted. This suggests that the Federal Reserve should focus attention on price signals and should provide a stabilizing price anchor for the current fiat money system. It also suggests that the Federal Reserve -- as the supplier of the dominant international reserve asset -- should recognize that when it tightens policy (thereby restricting the supply of international reserves), other central banks may well tighten, and when it eases, others may ease. In short, its policy moves can be magnified or made more potent because of these reactions. Additionally, the use of global reserves suggests the need for the services of an international lender of last resort (LOLR) for liquidity crisis situations involving sharp increases in the demand for international reserves.[14] Since the Federal Reserve is the ultimate supplier of this liquidity, these international LOLR responsibilities fall upon the Federal Reserve.

- The Dollarization of Emerging Market Economies

Another notable and related development relates to the dollarization -- the official and unofficial use of the dollar to displace domestic currency -- in several emerging market economies. A number of studies examining the extent of such dollarization suggest that it is substantial in a number of countries, especially those in Latin America as well as in Russia.[15] Related evidence indicates that foreigners hold significant percentages (above 50 percent) of dollar notes in circulation.[16]

This widespread dollarization suggests that changes in U.S. monetary policy may have important impacts on the many users of dollars. Accordingly, there may be potential implications for Federal Reserve monetary policy. Since these effects of changes in Federal Reserve policy can be nontrivial, it may be desirable to consider them in policymaking deliberations.

## Implications

The trends and developments outlined here can have some important implications. All of these factors -- the increased international integration of financial markets together with dollarization and the continued international currency role of the dollar -- suggest that changes in Federal Reserve monetary policy may have differing effects than revealed in earlier experience. With this more open economy and key role of the dollar, the transmission mechanism of U.S. monetary policy may have changed. In particular,

[14] See Robert E. Keleher, “An International Lender of Last Resort, the IMF, and the Federal Reserve” Joint Economic Committee, February, 1999.
[15] See Kurt Schuler, “Basics of Dollarization,” JEC Staff Report, July 1999.
[16] See, for example, Richard D. Porter and Ruth A. Judson, “The Location of U.S. Currency: How much is Abroad?” Federal Reserve Bulletin, October 1996, pp.883-903.

various financial markets (e.g., foreign exchange, bonds, equities) may currently play a more significant role in transmitting changes in monetary policy. Changes in U.S. monetary policy may have more potent impacts on foreign countries than earlier was the case. And the global economy itself may experience different impacts of changes in Federal Reserve policy.

**Some Emerging Empirical Evidence**

A growing body of empirical evidence suggests that changes in Federal Reserve monetary policy can have significant impacts on foreign countries, on international financial variables, and, indeed, on the global economy. This evidence, however, is dispersed among varieties of research concerned with related, but differing topics; for example, empirical evidence on the Federal Reserve's international effects has emerged from studies examining the determinants of capital flows in emerging markets, the causes of recent banking and currency crises, and the choice of exchange rate regimes. The evidence is not centralized in readily accessible literature, in part because there are multiple channels through which changes in U.S. monetary policy can have its foreign impact. The form of this impact, moreover, depends in part on the existing exchange rate regime.

This diverse literature relating to the international dimension of changes in Federal Reserve policy is organized into three categories and briefly surveyed as follows:

- <u>Studies examining the determinants of capital flows.</u>

Recently, a number of studies have analyzed the determinants of sensitive capital flows to emerging market economies. Initially, researchers focused on the performance and differing characteristics of individual countries in explaining these capital flows; however, they soon noticed that capital flows tended to affect many emerging economies at the same time, despite their differing characteristics. In short, common (international) factors appeared to be important determinants of these movements.

More specifically, investigators found that factors external to these emerging market economies -- such as international interest rate movements in large industrialized economies and financial centers such as the U.S. -- played a significant role in explaining these capital flows. In particular, changes in U.S. monetary policy tended to be associated with changes in financial (money, bond, and equity) markets in several emerging market economies. This was aptly stated by Calvo, *et al*. (1996):

> The tightening of monetary policy in the U.S. and the resulting rise in interest rates in early 1994 made investment in Asia and Latin America relatively less attractive… higher interest rates quickly and markedly affected developing country debt prices. Indeed, the rise in U.S. rates also triggered market corrections in several emerging stock markets. It seems likely that with highly integrated and technologically sophisticated financial markets, changes

> in relative rates of return will quickly translate into cross-border capital flows.[17]

Similarly, Goldstein and Turner (1996) argued that:

> …empirical evidence suggests that movements in international interest rates can explain between one-half and two-thirds of the swings in private capital inflows to developing countries in the 1990s.[18]

Studies reaching conclusions consistent with these arguments include: Calvo *et al*. (1993), Dooley *et al*. (1994), Chuhan *et al.* (1993), Goldstein (1995), Fernandez-Arias (1994), Eichengreen (1991), and Eichengreen and Fishlow (1996).[19]

In short, this literature establishes that changes in external (or global) factors such as movements in the interest rates of leading industrial countries like the U.S. significantly influence emerging market financial markets and can be dominant determinants of capital flows to these emerging economies (especially in Latin America).

- Studies Examining the Causes of Recent International Financial or Banking Crises

A number of studies have examined the factors causing recent international financial or banking crises. While these studies identify multiple factors contributing to these crises, the literature does find that many banking crises in developing economies are associated with prior increases in the interest rates of key developed economies such as the U.S.

Eichengreen and Rose (1998), for example, note that:

> Our central finding is a large, highly significant correlation between changes in industrial-country (including U.S.) interest rates and banking

[17] Guillermo Calvo, Leonard Leiderman, and Carmen Reinhart, "Inflows of Capital to Developing Countries in the 1990s," Journal of Economic Perspectives, Volume 10, Number 2, Spring 1996, p. 126.
[18] Morris Goldstein and Philip Turner, "Banking Crises in Emerging Economies: Origins and Policy Options," B.I.S. Economic Papers No. 46, October 1996, p. 10.
[19] Guillermo Calvo, Leonard Leiderman, and Carmen Reinhart, "Capital Inflows and Real Exchange Rate Appreciation in Latin America," IMF Staff Papers, Vol. 40, No. 1, March 1993, pp. 108-151; Michael Dooley, Eduardo Fernandez-Arias, and Kenneth Kletzer, "Recent Private Capital Flows to Developing Countries: Is the Debt Crisis History?," NBER Working Paper, No. 4792, July 1994; Punam Chuhan, Stijn Claessens, and Nlandu Mamingi, "Equity and Bond Flows to Asia and Latin America: The Role of Global and Country Factors," Policy Research Working Papers, International Economics Department, World Bank, WPS 1160, July 1993; Morris Goldstein, "Coping With Too Much of a Good Thing," Policy Research Working Paper 1597, International Economics Department, The World Bank, September 1995; Eduardo Fernandez-Arias, "The New Wave of Private Capital Inflows: Push or Pull?" Policy Research Working Paper 1312, The World Bank, November 1994.; Barry Eichengreen, "Trends and Cycles in Foreign Lending," in Horst Siebert (ed.), Capital Flows in the World Economy, Tubingen; Mohr, 1991, pp. 3-28; Barry Eichengreen and Albert Fishlow, Contending With Capital Flows: What is Different About the 1990s? A Council on Foreign Relations Paper, 1996.

> crises in emerging markets… Northern interest rates rise sharply and significantly (relative to their level in non-crisis control group cases) in the year preceding the onset of banking crises, before peaking in the crisis year and the year following.
>
> This result… points strongly to the role played by external financial conditions -- and in particular to the effect of rising interest rates in worsening the access of developing-country banking systems to offshore funds…
>
> Our finding of an important role for world interest rates in the onset of banking crises reinforces the conclusions of (others)… for increases in world interest rates to precipitate banking problems.[20]

Others have come to similar conclusions. Frankel and Rose (1996) find that increases in developed country (including U.S.) interest rates significantly enhance the likelihood of a currency crash in developing countries; increases in foreign (e.g., U.S.) interest rates play a meaningful role in predicting currency problems.[21] Kaminsky and Reinhart (1996) suggest that external factors such as increases in interest rates in the U.S. may play an important role in explaining the prevalence of banking and balance of payment crises.[22] Results consistent with this argument were attained by Chang and Velasco (1998). These authors contend that "the 1997-98 crises in Asia were in fact a consequence of international illiquidity" which could in turn be partly rectified by the liquidity provision of an international lender-of-last resort.[23]

In addition to evidence on the effects of changes in U.S. interest rates on recent international financial crises, evidence also exists as to the causal effects of changes in the foreign exchange value of the dollar on such crises.[24] While several authors mention the role of dollar movements as contributing factors in the recent Asian financial crisis, Whitt (1999) provides convincing evidence that dollar appreciation prior to the recent Asian financial turbulence was a significant contributing factor to this crisis.[25] Specifically, several key emerging economies in Asia tied their currencies to the dollar, yet maintained significant trading relationships with Japan. Consequently, a significant appreciation of the dollar relative to the yen impelled these countries to follow the dollar (and U.S. monetary policy), thereby causing their currencies to appreciate against the

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[20] Barry Eichengreen and Andrew K. Rose, "Staying Afloat When the Wind Shifts: External Factors and Emerging-Markets Banking Crises," NBER Working Paper 6370, January 1998, pp. 5, 6 (parentheses added).

[21] Jeffrey A. Frankel and Andrew K. Rose, "Currency Crashes in Emerging Markets: An Empirical Treatment," Journal of International Economics, 41, Nos. 3/4, November 1996, pp. 351-366.

[22] Graciela L. Kaminsky and Carmen M. Reinhart, "The Twin Crises: The Causes of Banking and Balance Payments Problems," International Finance Discussion Papers, Federal Reserve Board, 1996-554, p. 8.

[23] Roberto Chang and Andres Velasco, "The Asian Liquidity Crisis," NBER Working Paper 6796, November 1998 (quoted from abstract).

[24] Changes in the foreign exchange value of the dollar can importantly reflect changes in U.S. monetary policy.

[25] See Joseph Whitt, "The Role of External Shocks in the Asian Financial Crisis," Economic Review, Federal Reserve Bank of Atlanta, Second Quarter 1999, pp. 18-31, and studies cited therein (p. 24).

yen. Consequently, their trade positions with Japan were severely effected just before the currency attacks began, thereby significantly contributing to the financial crises in Asia.[26]

- Other Evidence

Evidence on the impact of changes in U.S. monetary policy on foreign (international) interest rates recently has emerged from research related to the choice of exchange rate regime literature. In considering alternative exchange rate regimes available to emerging market countries, for example, Frankel and others have examined the interest rate responses in emerging countries to changes in U.S. (Federal Reserve) interest rates.[27] Frankel finds that when the Federal Reserve raises interest rates, these increases are quickly and entirely passed through to those emerging market economies with exchange rates rigidly tied to the dollar. Such exchange rate regimes require the emerging economy to follow the same monetary policy as the U.S. regardless of its appropriateness to local economic conditions. The situation is even more dramatic, Frankel finds, for emerging market economies that maintained a "loose link" to the dollar (such as Brazil or Mexico). In these cases, a Federal Reserve interest rate hike induces local interest rates to increase by more than those in the U.S.; these emerging market rates turn out to be more sensitive to U.S. policy moves and rise by more than one-for-one.[28] (Similar results are found by Hausmann *et al*., and Frankel and Okongwu.) Frankel argues that the reason for this surprising result is that the U.S. interest rate increase has a large negative effect on capital flows and international investors are nervous about the loose exchange rate link, requiring an extra risk premium for devaluation and default risk as well as for the lack of credibility on the part of macroeconomic policymakers.

In short, this evidence indicates that changes in U.S. monetary policy can have potent impacts on the interest rates in emerging market economies under different exchange rate regimes. The evidence suggests that as international financial markets become more integrated, interest rates in emerging economies may become increasingly sensitive to changes in the interest rates of large developed countries.

The empirical evidence briefly outlined here indicates that changes in U.S. monetary policy importantly affect financial markets in emerging markets in a number of ways. These changes may dominate capital flows in emerging market economies and

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[26] See also Ronald I. McKinnon, "Euroland and East Asia in a Dollar-Based System," The International Economy, September/October 1999, p. 45, 67.

[27] See Jeffrey A. Frankel, "No Single Currency Regime is Right for All Countries," Testimony before the Subcommittee on Domestic and International Monetary Policy of the Committee on Banking and Financial Services, U.S. House of Representatives, May 21, 1999(a); Jeffrey A. Frankel, "No Single Currency Regime is Right for All Countries or at All Times," NBER Working Paper 7338, September 1991(b); Jeffrey A. Frankel and Chudozie Okongwu, "Liberalized Portfolio Capital Inflows in Emerging Markets: Sterilization, Expectations, and the Incompleteness of Interest Rate Convergence," International Journal of Finance and Economics, Vol. 1, No. 1, January 1996, pp. 1-23; and Ricardo Hausmann, Michael Gavin, Carmen Pages-Serra, and Ernesto Stein, "Financial Turmoil and the Choice of Exchange Rate Regime," Inter-American Development Bank, Office of Chief Economist, Working Paper #400, 1999. The discussion here follows Frankel 1999(a).

[28] See Frankel 1999(a), pp. 7-8; and Frankel 1999 (b), p. 22.

U.S. rate hikes have been associated with banking or financial crises in these developing economies. Further, movements in U.S. interest rates may have potent effects on interest rates in emerging markets under differing exchange rate regimes.

- Anecdotal Evidence: The Interest Rate Cuts in the Fall of 1998

In addition to this growing collection of formal empirical evidence, anecdotal evidence is also relevant. In particular, assessments of the three Federal Reserve interest rate cuts in the fall of 1998 led several analysts and "Fed watchers" to conclude that international factors may have weighed heavily in precipitating this Federal Reserve action.

These interest rate cuts, it will be remembered, took place in the context of international financial market turbulence associated with the Russian devaluation and debt moratorium in mid-August 1998. It was during this period that the Federal Reserve cut interest rates and took to monitoring risk and liquidity spreads after world financial markets threatened to "seize up" following the Russian problems.

The official rationale for these rate cuts was always framed in terms of their effects on the U.S. economy. Nevertheless, FOMC minutes indicated the moves were undertaken in light of the effects of the prevailing global (international) turmoil including its impact on the liquidity of financial markets.[29]

In assessing the episode, various economists, "Fed watchers," and market observers generally concurred with the need for Federal Reserve action. Their interpretations of this action, however, often more explicitly recognized the international dimension of the Federal Reserve policy moves and of the Federal Reserve's implicit assumption of important international lender-of-last-resort responsibilities (associated with the dollar's reserve currency status).

One well-known market observer, Allen Sinai, for example, argued that:

> The Greenspan Federal Reserve appears to have shifted regime, operating with a new policy framework that takes the world economy and financial system into account, viewing the U.S. as one component in this system.[30]

Another market observer remarked:

> The Fed Chairman understood that he had to act quickly to convince markets the U.S. central bank was ready to assist the world economy in crisis.[31]

[29] See, for example, "Minutes of the Federal Open Market Committee," Federal Reserve Bulletin, January 1999, p. 45.
[30] Sinai was quoted in Gerald Baker, "Man of the Year Alan Greenspan: Guardian Angel of the Financial Markets," Financial Times, December 24, 1998, p. 9.
[31] Baker, *ibid*.

Similarly, in remarks to the American Economic Association in January 1999, the IMF's Stanley Fischer stated that:

> …in recent months the leading central banks, in recognition of the feedbacks between the emerging market and the industrialized economies, have taken actions in the interests of their own countries that stabilize the world economy.[32]

In short, in taking this action, the Federal Reserve indicated it is capable of taking international, global factors into account and, indeed, providing important international lender-of-last-resort services, thereby serving to calm skittish world financial markets in situations of sharp increases in demand for international liquidity.[33] This is another manifestation of the international dimensions of Federal Reserve policy, which is sometimes not explicitly recognized.

**Summary**

Federal Reserve monetary policy has traditionally focused on the domestic economy. Over time, however, a number of significant trends have underscored the potential importance of the international dimension of contemporary monetary policy. Such trends include the following:

- Financial markets continue to become increasingly integrated internationally; capital is evermore mobile.
- The U.S. dollar continues to remain the world's principal international (key, reserve, and vehicle) currency despite evolving exchange rate arrangements.
- Official and unofficial dollarization continues in several emerging market economies.

These trends suggest that monetary policy may have differing transmission mechanisms increasingly involving international variables than was earlier the case. In addition to these trends, empirical evidence recently has accumulated showing that changes in U.S. monetary policy can significantly impact emerging market economies in a number of ways. For example, changes in U.S. monetary policy can (1) dominate capital flows in emerging market economies, (2) be associated with financial crises in these countries, and (3) significantly impact interest rates and financial markets in emerging economies under differing exchange rate arrangements. Furthermore, experience shows that the Federal Reserve can successfully assume international lender-

[32] Stanley Fischer, "On the Need for an International Lender of Last Resort," paper prepared for delivery at the American Economic Association, New York, January 3, 1999.
[33] It should be noted that key market price indicators (i.e., commodity prices, bond yields, and the foreign exchange value of the dollar) were signaling the Federal Reserve to ease at the time and broad measures of price inflation were benign.

of-last-resort responsibilities and stabilize world financial markets in situations of international liquidity crises.

Implications for U.S. Monetary Policy

Several important implications for U.S. monetary policy emerge from these trends and growing empirical evidence. They include the following:

- Given capital mobility and the practical reality that political pressures will dictate a preference for domestic monetary policy goals, the "policy trilemma" for the U.S. boils down to flexible exchange rate arrangements and a price stability objective for monetary policy.

- The Federal Reserve cannot deviate from or lose sight of its price stability goal, and the Federal Reserve should not sacrifice domestic for other goals. Nonetheless, it may be desirable to recognize the significant, increasingly important international repercussions of changes in U.S. monetary policy in order to better achieve these domestic goals. Recognizing these repercussions and their potentially important feedback effects suggest that changes in U.S. monetary policy may be more potent and wide-ranging than earlier believed. Consequently, to best achieve domestic goals in a nondisruptive manner, the degree or speed of policy moves may need to be adjusted accordingly.

  If these increasingly important repercussions and their potential feedback effects (e.g. changes in exports, import prices, or capital flows) can be identified, anticipated, and taken into account, their effects potentially may be offset, resulting in smoother transitions for the domestic economy and for financial markets. By taking these effects into account, implementation of policy changes can result in a less volatile, less costly, less disruptive outcome. Policy implementation may be improved. In short, informal "inflation targeting" by the Federal Reserve may be implemented in a way that recognizes international concerns.

- Recognizing these growing international impacts of changes in monetary policy suggests that in order for the Federal Reserve to best achieve its goals, policy changes may need to be undertaken in a well-telegraphed, gradual, deliberate manner so that no policy surprises or unanticipated repercussions occur, disrupting international and domestic markets. In short, to promote stability, the Federal Reserve may be well advised whenever possible to avoid sharp, rapid, and unexpected policy changes.

- The Federal Reserve should increasingly recognize international LOLR responsibilities and be prepared to respond to international liquidity crises.[34]

[34] For a discussion of these responsibilities and ways to implement them, see Keleher *op. cit*., p. 9.

- These international factors may best be taken into account by maintaining a stable price environment and carefully, jointly monitoring forward-looking market prices such as various bilateral and broad trade-weighted measures of the dollar exchange rate, commodity prices, and bond yields as policy indicators. These market price indicators may in turn be supplemented by various measures of global prices, world commodity prices, and global bond yields to gain information about prospective global price movements, global price expectations, and world liquidity.[35]

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Chief Macroeconomist to the Vice Chairman

[35] See discussion in Keleher, *op. cit*., p.9.