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Report to the Chairman, Committee on Financial Services, and to the Vice Chairman, Joint Economic Committee, House of Representatives

June 2003

INTERNATIONAL FINANCIAL CRISES

Challenges Remain in IMF's Ability to Anticipate, Prevent, and Resolve Financial Crises

GAO-03-734

Highlights of GAO-03-734, a report to Chairman, House Committee on Financial Services and Vice Chairman, House Joint Economic Committee

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Challenges Remain in IMF's Ability to Anticipate, Prevent, and Resolve Financial Crises

Why GAO Did This Study

Building on reform initiatives instituted after the Mexican financial crisis, the IMF implemented new initiatives in the mid-1990s to better anticipate, prevent, and resolve sovereign financial crises. GAO was asked to assess (1) the IMF's framework for anticipating financial crises, (2) the status of key IMF reform initiatives to prevent financial crises, and (3) new IMF proposals to resolve future financial crises.

What GAO Recommends

GAO recommends that the Secretary of the Treasury instruct the U.S. Executive Director of the Fund to work with other Executive Board members to encourage the Fund to

- improve the timeliness of FSAP and ROSC reports;
- expand the coverage, frequency, and publication of updates of participants' implementation of FSAP and ROSC recommendations;
- improve the FSAP and ROSC reports' readability; and
- increase participation in the FSAP and all standards of the ROSC and consider making participation mandatory.

Treasury, IMF, and the World Bank generally agreed with the report's recommendations. The IMF stated that we gave WEO and EWS forecasts greater importance than is warranted in anticipating crises. However, we focused on the only mature and quantifiable elements of the vulnerability framework.

www.gao.gov/cgi-bin/getrpt?GAO-03-734.

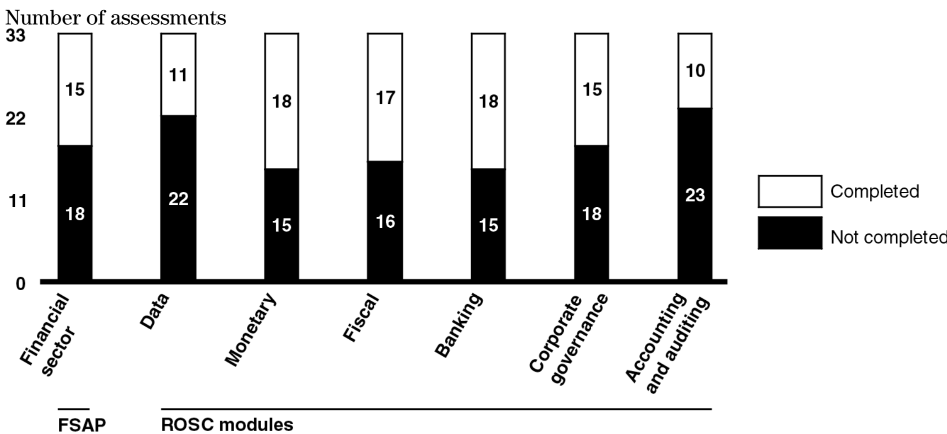
To view the full report, including the scope and methodology, click on the link above. For more information, contact Joseph A. Christoff at (202) 512-8979 or christoffj@gao.gov.

What GAO Found

While the Fund's new vulnerability framework is more comprehensive than its previous efforts, it is too early to assess whether it will improve Fund efforts to anticipate crises. The new framework uses the Fund's major forecasting tools, the World Economic Outlook (WEO) and the Early Warning System (EWS), which have not performed well in anticipating prior crises. The forecasting of crises has been historically difficult for all forecasters.

The Fund, with the World Bank, has made progress in implementing initiatives to prevent crises, but several challenges remain. To obtain better information about country financial sector weaknesses, the Fund and Bank introduced the Financial Sector Assessment Program (FSAP) to report on member countries' financial sectors and the Reports on the Observance of Standards and Codes (ROSC) to assess member countries' adherence to 12 standards. Assessments have not been completed in some major emerging market countries primarily because participation is voluntary, and use of this information has been mixed. For example, some private sector market participants have found the reports untimely, outdated, and dense.

Participation Gaps by 33 Major Emerging Market Countries in Key Assessments, 1999-2003



Sources: GAO analysis of Fund and Bank data (through March 2003).

The Fund is considering two approaches to restructuring unsustainable sovereign debt; however, there are significant challenges to implementing them. One approach involves creating an international legal framework that would allow a specified majority of a country's external creditors to restructure most private sector loans. Under the second approach, the Fund is encouraging members to include renegotiation clauses in individual bonds. Many private sector representatives wish to maintain the existing process in which the Fund assists resolution by providing loans to some eligible members. In response to concerns that its resources may have unintended negative impacts during a crisis, the Fund has clarified and strengthened its criteria for lending to members experiencing crises.

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Abbreviations

BCP	Basel Core Principles
BMA	Bond Market Association
CAC	Collective Action Clauses
CCFF	Compensatory Contingency Finance Facility
CPI	consumer price index
CPSS	Committee on Payments and Settlements Systems
DCSD	Developing Country Studies Division
EFF	Extended Fund Facility
EMCA	Emerging Market Creditors Association

EMTA	Emerging Market Traders Association
EWS	Early Warning System
FATF	Financial Action Task Force
FSA	Financial Sector Assessment
FSAP	Financial Sector Assessment Program
FSSA	Financial System Stability Assessment
GDDS	General Data Dissemination Standard
GDP	gross domestic product
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
IFAC	International Federation of Accountants
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IPMA	International Primary Market Association
ISMA	International Securities Market Association
KLR	Kaminsky, Lizondo, and Reinhart
MSE	mean square error
OECD	Organization for Economic Cooperation and Development
RMSE	root mean square error
ROSC	Reports on the Observance of Standards and Codes
RSS	Residual Sum of Squares
SBA	Stand-By Arrangements
SDDS	Special Data Dissemination Standard
SDRM	Sovereign Debt Restructuring Mechanism
SEC	U.S. Securities and Exchange Commission
SIA	Securities Industry Association
SRF	Supplemental Reserve Facility
STF	Systemic Transformation Facility
UNCITRAL	United Nations Commission on International Trade Law
WEO	World Economic Outlook

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United States General Accounting Office
Washington, D.C. 20548

June 16, 2003

The Honorable Michael G. Oxley
Chairman
Committee on Financial Services
House of Representatives

The Honorable Jim Saxton
Vice Chairman
Joint Economic Committee
House of Representatives

In May 2000, in the aftermath of the Asian financial crisis, the newly appointed Managing Director of the International Monetary Fund (IMF or the Fund) announced his plans to strengthen the Fund's reform initiatives to enable the Fund to more effectively safeguard the stability of the international financial system. Building on reform initiatives instituted in the mid-1990s, after the Mexican financial crisis of 1994–95, these new initiatives were designed to better anticipate, prevent, and resolve sovereign financial crises. A sovereign financial crisis can occur when a country is unable or unwilling to honor its debt obligations and investors lose confidence in that country's financial markets. Recent crises have occurred primarily in "emerging market" countries, larger and more economically advanced developing countries such as Argentina, Brazil, and Turkey. According to World Bank (the Bank) estimates, the financial costs to countries that experienced crises in the 1980s and 1990s exceeded $1 trillion—greater than the total amount of all donors' assistance to developing countries in the 1980s and 1990s.

This letter responds to your request that we examine the Fund's efforts to better safeguard the stability of the international financial system. In this report, we assess (1) IMF's framework for anticipating financial crises, (2) the status of key IMF initiatives to prevent financial crises, and (3) new IMF proposals to resolve future financial crises. In addition, we analyzed the quality of IMF's forecasts produced by the World Economic Outlook (WEO), the Fund's primary forecasting tool (see appendix III).

As part of our assessment, we reviewed documents from the U.S. government, international organizations, and private firms, including testimonies, reports, and relevant laws. We used statistical models that we developed to assess the Fund's WEO forecasts and program projections for selected emerging market countries. We interviewed key officials at the

Fund, World Bank, Department of the Treasury (Treasury), and emerging market bond and equity funds. We also interviewed some representatives of private sector firms that specialize in international finance, economics, and law. Appendix I provides a more detailed description of our objectives, scope, and methodology. Appendix II provides a list of the private sector firms we interviewed.

Background

In 1994–95, Mexico faced a severe financial crisis when a shift in market sentiment led to sudden large capital outflows. Investors also temporarily removed their funds from other emerging market countries, an effect known as contagion. In response to the crisis, Mexico quickly adopted a strong and ultimately successful program of adjustment and reform. To support the program, the Fund approved a loan of $17.8 billion to Mexico—one of the largest loan commitments it had ever made to a country. One of the major reasons cited for the crisis was the lack of timely, reliable, and publicly available economic, financial, and sociodemographic data for Mexico. Beginning in 1996, to correct this weakness, the Fund created data standards to guide countries in disseminating better data to the public. However, as we reported in 1997, the Fund needed to address a number of other financial, economic, and political challenges, in addition to data limitations, to better anticipate, prevent, and resolve financial crises.[1]

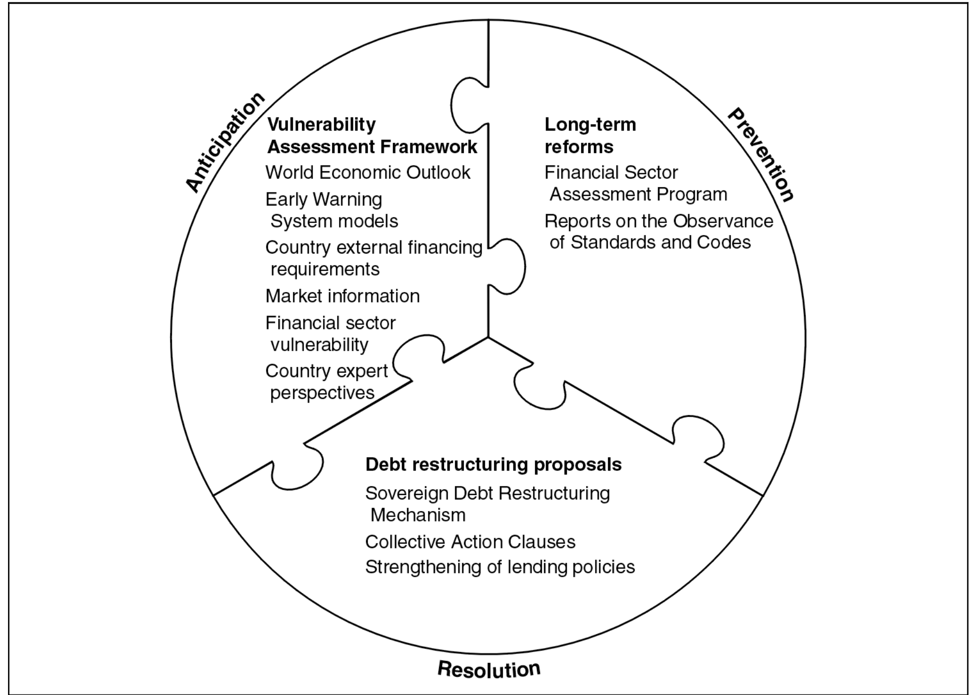
Before the Fund could fully address these challenges, the Asian financial crisis of 1997–98 occurred. After the Asian financial crisis, the Fund assessed the effects of its responses to the crisis and reassessed its role in safeguarding the stability of the international financial system, including rethinking its core mission, operations, and lending activities. The Fund also recognized that it needed to improve its ability to anticipate financial crises; monitor countries' activities; and increase public awareness, particularly that of the investment community. Recognizing its inability to anticipate past crises, the Fund instituted a quarterly vulnerability assessment framework in 2001 to identify countries that may be susceptible to crisis.

[1]U.S. General Accounting Office, *International Financial Crises: Efforts to Anticipate, Avoid, and Resolve Sovereign Crises*, GAO/GGD/NSIAD-97-168 (Washington, D.C.: July 7, 1997).

To improve its ability to prevent future crises, the Fund and the World Bank in 1999 began performing joint assessments of member countries' financial sectors to help identify and monitor existing and potential weaknesses. In addition, the Fund and the World Bank began to work with countries to promote adherence to voluntary standards to reassure the international community that the countries' policies and practices conform to standards and codes of good practice. These include standards to improve transparency in government economic data; fiscal, monetary, and financial policies; and guidelines on strengthening the financial and corporate sectors.

The Fund acknowledges that it would be almost impossible to anticipate or prevent all crises. According to the Fund, past efforts to resolve financial crises during the 1990s were lengthy and very costly to debtor countries. The Fund is encouraging the adoption of agreements that would allow a quicker, more orderly, and predictable restructuring of countries' debts. The Fund's ultimate goal is to maintain investor confidence and stability in the international financial system. Figure 1 shows the Fund's key initiatives for better anticipating, preventing, and resolving financial crises. Treasury through the U.S. Executive Director to the Fund has the lead responsibility for monitoring the IMF's progress in addressing these issues.

Figure 1: IMF Initiatives to Anticipate, Prevent, and Resolve Financial Crises



Source: GAO analysis of IMF data.

Results in Brief

While it is too early to assess the effectiveness of the Fund's new vulnerability framework for anticipating crises, this framework builds on key elements that have been unable to anticipate past financial crises. The new framework is more comprehensive than the Fund's previous efforts, bringing together country-specific knowledge and financial expertise within the Fund to better identify weaknesses in emerging market economies that could lead to a crisis. However, the new framework uses the Fund's major forecasting tools, the WEO and the Early Warning System (EWS), which have not performed well in anticipating prior crises. The WEO has not successfully anticipated past financial crises, and the Fund's EWS models have had a high false alarm rate, having predicted many crises that did not occur. The forecasting of crises has been historically difficult for all forecasters due to complex underlying factors, including concerns about the reliability of important macroeconomic data on emerging market countries.

The Fund, in collaboration with the World Bank, has made progress in implementing initiatives to prevent financial crises, but several challenges remain. In the late 1990s, the Fund and the World Bank adopted two key initiatives designed to assist four parties: Fund staff, World Bank staff, member country governments, and private sector participants. First, financial sector assessments were introduced to provide reports on aspects of member countries' financial sectors such as banking systems and crisis management capacity. Second, the standards initiative was adopted to assess member countries' adherence to 12 standards in areas such as banking supervision and economic data dissemination. Use of the information provided by these two initiatives by various parties has been mixed, and several significant challenges remain. Fund staff frequently incorporate information from the assessments into their policy advice to member countries. However, assessments have not been completed in some important emerging market countries, such as China and Thailand, primarily because participation is voluntary. World Bank staff's use of the assessments to inform country development assistance programs is also affected by the lack of participation by member countries and by borrower countries' competing development needs. Member country governments sometimes use the assessments in prioritizing their reform agendas but often find that the reforms are too difficult to implement. Some private sector participants find the published reports outdated, untimely, and too dense to be useful in making investment decisions. The Fund and the World Bank acknowledge that the assessments cannot prevent all crises because reforms require many years to be fully implemented, and crises can be caused by factors outside the scope of the reforms.

The Fund is considering two approaches to achieve a more orderly and predictable restructuring of unsustainable debt between a country and its creditors; however, there are significant challenges to implementing both approaches. Fund officials assert that the current process for renegotiating the terms of member countries' loans with external private sector creditors is lengthy and costly. The Sovereign Debt Restructuring Mechanism (SDRM), is a proposed international legal framework that would allow a majority of a country's external creditors to quickly restructure most private sector loans. The Fund is also encouraging members to include Collective Action Clauses (CACs) in individual bonds, which would allow a majority of bondholders to renegotiate the bond's terms. Although some elements of both approaches are acceptable to the private sector and to governments, a number of political, legal, and technical challenges stand in the way of implementing the SDRM; it seems unlikely that these issues will be resolved in the immediate future. While private sector officials expect

that many restructurings need only involve the private sector and the debtor country, under some circumstances, voluntary debt restructurings will not adequately resolve all financial crises. In those cases, they said the Fund should provide loans to eligible countries to help fill their external financing gaps. However, some financial experts and government representatives have raised concerns that such loans have the potential to increase the probability of future crises. In response, the Fund has clarified and strengthened its policy of lending in crisis situations.

The Fund's crisis prevention initiatives are hindered by several factors that limit their effectiveness. To strengthen the effectiveness of these initiatives, we are recommending that the Secretary of the Treasury instruct the U.S. Executive Director of the Fund to work with other Executive Board members to encourage the Fund to improve the readability, timeliness, coverage, and frequency of updates of assessment reports. Additionally, the Fund should pursue strategies for increasing participation in the assessment process including the possibility of making participation mandatory for all members of the IMF.

In responding to our draft report, Treasury, IMF, and the World Bank generally agreed with the report's recommendations. However, the IMF stated that we mischaracterized the role of WEO forecasts and EWS models in IMF crisis anticipation efforts by saying that they have a greater importance than is warranted. We disagree with this depiction. Our assessment examined all six components of the IMF's vulnerability assessment framework, including the WEO and EWS. As the only mature and quantifiable elements of the framework, our analysis focused more heavily on the track records of the WEO and EWS. The World Bank expressed concern with the report's suggestion that consideration be given in making participation in the FSAP and ROSC assessments mandatory. While we are not suggesting that the assessments should be made mandatory, the voluntary nature of these assessments has posed an obstacle to full participation by important emerging market countries.

Too Early to Determine If Fund's New Process for Anticipating Financial Crises Improves on Past Efforts

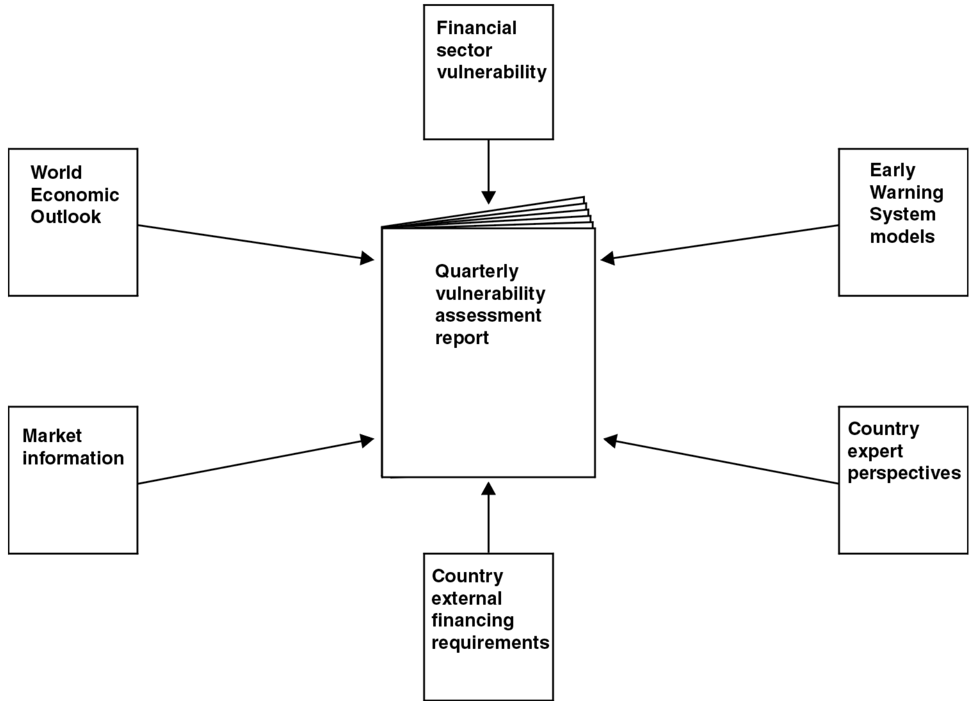
In May 2001, the IMF implemented a new vulnerability assessment framework for emerging market countries to strengthen the Fund's ability to anticipate financial crises. This framework brings together country-specific knowledge and financial expertise within the Fund to better identify weaknesses in emerging market economies that could lead to a crisis. Although the new vulnerability assessment framework is more comprehensive than the Fund's previous efforts, it is new and still evolving. It is too early to tell whether this new framework will successfully anticipate future crises. The new framework uses the Fund's major forecasting tools, the WEO and the EWS, which have not performed well in anticipating prior crises. The WEO has not successfully anticipated past financial crises, and the Fund's EWS models have had a high false alarm rate, having predicted many crises that did not occur. The forecasting of crises has been historically difficult for all forecasters due to complex underlying factors, including concerns about the reliability of important macroeconomic data on emerging market countries.

The IMF Has Recently Implemented a New Vulnerability Assessment Framework

The Fund has attempted for many years to identify countries vulnerable to financial crisis; however, their existing tools were insufficient to anticipate the financial crises of the 1990s and led the Fund in 2001 to develop the new vulnerability assessment framework. This comprehensive framework brings together detailed, country-specific knowledge and financial expertise of various IMF departments, including those with regional, macroeconomic, or forecasting expertise. The new framework monitors the vulnerability of key emerging market countries that borrow significantly from international capital markets. This information is provided in a quarterly report on crisis vulnerability. Fund staff report monthly on countries identified as vulnerable and provide more frequent ad hoc analyses during volatile periods.

To conduct the vulnerability assessment, the Fund integrates six independent inputs that represent the analyses and perspectives of different departments of the Fund (see figure 2).

Figure 2: IMF Vulnerability Assessment Framework



Source: GAO analysis of IMF data.

- *World Economic Outlook:* The WEO is a twice yearly publication that provides analyses of global economic developments. Through the WEO, the IMF provides current and following year forecasts for countries and regions of key economic variables such as economic growth, inflation, and current account.[2] According to Fund staff, WEO forecasts use the best available information and represent the most realistic estimate of key economic variables, including those that could help anticipate a financial crisis. The IMF uses these forecasts as an input in the vulnerability assessment to gauge the impact of unanticipated adverse changes in the global environment. For example, the WEO forecasts for selected countries may be recalculated to examine the impact of sudden

[2]The current account represents a country's trade balance (exports less imports of goods and services) plus the net interest income (or payments) on outstanding international investments (or debts) plus net transfers (grants, workers' remittances).

increases in oil prices or an unanticipated recession in the advanced economies.

- *Early Warning System models:* The Fund uses internal and private sector EWS models that compute the probability of a country having a crisis over the following 12 to 24 months. The model examines a series of vulnerability indicators, including whether a country's real exchange rate is overvalued, or whether the country has significantly depleted its foreign exchange reserves.[3] The output of the EWS models helps the Fund focus on specific areas of vulnerability. For example, if one variable, such as the exchange rate, signals a crisis, the Fund would more closely examine related components of the vulnerability assessment, such as a country's external financing requirements.

- *Country external financing requirements:* On a quarterly basis, the Fund produces an internal assessment of a country's ability to meet its total external debt obligations and estimates whether that country has sufficient foreign exchange to avoid a crisis. This assessment includes estimating a country's ratio of foreign exchange reserves to short-term external debt, estimating the magnitude of its current account deficit, and considering whether and how it manages its exchange rate.

- *Market information:* On an ongoing basis, the Fund analyzes most countries' cost of borrowing on the international market and whether the country is paying a higher interest rate than similar countries. The Fund uses this information to provide an internal analysis of the private sector's expectations of a country's likelihood of default on its foreign debt and to identify possible evidence that financial problems are spreading across countries.

- *Financial sector vulnerability:* The Fund assesses the strengths and weaknesses of a country's financial sector, including the banking system. IMF staff evaluate the financial sector's vulnerability to changes in market conditions, such as fluctuations in interest and exchange rates. Although the detailed results of these assessments are used internally by the Fund, summaries of key findings are frequently published.

[3]Foreign exchange reserves are those external assets that are readily available to and controlled by monetary authorities. Reserves can be used for direct financing of payment imbalances, for indirectly regulating the exchange rate, and/or for other purposes.

- *Country expert perspectives:* IMF country experts examine the data produced by the above analyses, supplementing those results with country-specific details such as the political risks of implementing certain government policies or the relevance of certain market information.

Until 1999, the Fund used the WEO as the primary forecasting tool to help identify country risks and vulnerability to crises. The new vulnerability framework, which has been in operation for about 2 years, is a more comprehensive process. According to the Fund, the quarterly integration of detailed information from country experts who continuously monitor developments in their countries is a great strength of the new vulnerability framework. Effective analysis by Fund staff of the framework's six elements could better allow the Fund to give timely advice to authorities in vulnerable countries. It is too early to tell whether this framework will be successful in anticipating future crises. We assess the performance of the WEO and EWS models, the Fund's primary tools for anticipating crises prior to the implementation of the new framework in May 2001.[4]

Forecasting Elements of the Vulnerability Framework Have Performed Poorly in the Past

The new vulnerability assessment framework uses the Fund's two major forecasting tools—the WEO and the EWS models—which have not performed well in anticipating prior crises. The WEO has not successfully anticipated the severe financial crises of the past decade. The Fund's EWS models have had a high false alarm rate, having predicted many crises that did not occur.

The WEO Is Not a Reliable Tool for Anticipating Crises

Severe financial crises are characterized by a number of negative economic outcomes, including large declines in gross domestic product (GDP), also known as recessions. We found that the WEO had a poor record of forecasting such declines in GDP, tending instead to follow existing positive economic growth trends. In addition, the IMF indicates that the current account is a key variable in explaining financial crises. We found that for the current account, the accuracy of 75 percent of WEO country forecasts was worse than simply assuming that next year's value is the same as this year. The WEO's difficulty forecasting both GDP and current

[4]Data on the performance of the other four components of the framework were not made available to us because these elements are considered part of the staff level deliberative process and are not provided to the Executive Board.

account demonstrate poor performance in anticipating the severe financial crises of the past decade.

WEO Has Performed Poorly at Forecasting Recessions

In most cases, countries experiencing a financial crisis also experience a severe recession in which their GDP declines significantly. Although most recessions do not involve a major financial crisis, successful anticipation of recessions, especially the most severe ones, would greatly increase the likelihood of anticipating impending financial crisis. However, we found that the WEO has a poor track record of forecasting recessions, including those directly associated with a financial crisis.

The WEO did not forecast most of the recessions that occurred in emerging market countries in the last 10 years. During the 1991–2001 forecast period, 134 recessions occurred in all 87 emerging market countries. We found that the WEO correctly forecast only 15, or 11 percent, of those recessions, while predicting an increase in GDP in the other 119 actual recessions.[5] The WEO is considerably more likely to forecast a recession when a recession has occurred in the prior year. However, a prior year recession did not occur in two-thirds of the recessions that the WEO failed to forecast. Thus, WEO forecasts generally follow the existing growth trend within a country, making it unlikely that the WEO would correctly forecast an unanticipated recession. Furthermore, this tendency to follow the current growth trend makes it especially difficult for the WEO to anticipate a financial crisis because nearly all of the crisis-related recessions of the last decade occurred in years following positive economic growth.

Further illustrating our point, the WEO was unable to anticipate large declines in GDP, also known as recessions, that corresponded to 14 major financial crises of the past decade, including the Mexican and Asian financial crises (see table 1).[6]

[5] In one case, the WEO forecast zero growth.

[6] Several studies examining international financial crises from 1990–2001 identified 14 major financial crises in 12 prominent emerging market countries that were considered to be fundamentally sound before the crisis. Balance of payments problems, large GDP contractions, and financial panic commonly characterize these crises.

Table 1: Anticipated and Actual GDP Growth Rate of 14 Financial Crises, 1990–2001

Country	Crisis years	WEO forecast GDP growth rate (percent)	Actual GDP growth rate[a] (percent)
Argentina	1995	4.0	-4.4
Argentina	2001	3.7	-4.4
Brazil	1998	4.0	0.1
Ecuador	1999	2.5	-7.3
Indonesia[b]	1998	6.2	-13.7
Malaysia[b]	1998	6.5	-6.7
Mexico	1995	4.0	-6.9
Philippines[b]	1998	5.0	-0.5
Russia	1998	5.1	-4.6
South Korea[b]	1998	6.0	-5.8
Thailand[b]	1998	3.5	-9.4
Turkey	1994	3.0	-5.5
Turkey	2001	5.5	-7.4
Venezuela	1994	2.5	-3.3
Average growth rates		4.4	-5.7

Sources: Various crisis studies and IMF.

[a]Actual GDP growth rate is from the WEO published 1 year later.

[b]The Asian crisis began in Thailand in the summer of 1997 and spread to the other Asian countries in the latter part of 1997. The full effects of the crisis on the GDP of other Asian countries and Russia occurred in 1998. Thus we are using 1998 actual GDP growth rate data for the Asian countries—Indonesia, Malaysia, Philippines, South Korea, and Thailand. The crisis in Brazil extended into1999.

The WEO's failure to identify these recessions demonstrates that it did not anticipate the corresponding financial crises. In 14 cases, we found that the WEO forecast strong economic growth, averaging a 4.4 percent increase in GDP, despite large declines in actual GDP in 13 of 14 cases.[7] In fact, actual GDP declined by an average of 5.7 percent during the first full year of these 14 financial crises. Indonesia presents the most startling disparity, in which the WEO forecast a growth of 6.2 percent in its GDP, when in fact Indonesia's GDP declined by almost 14 percent in the first full year of its financial crisis.

[7]Brazil was the sole exception, having experienced a small 0.1 percent GDP annual growth rate during the 1998 financial crisis.

WEO Does a Poor Job in Forecasting the Current Account

According to the Fund, a country's current account (primarily exports minus imports of goods and services) is a key variable in anticipating crises. Crises are associated with problems of external financing that result from a country having difficulty obtaining foreign exchange. Since exports are an important source of foreign exchange for developing countries, projections of a country's current account balance provide information about the country's ability to earn foreign exchange and to service its external debt.[8] According to the Fund, an unsustainably large current account deficit can contribute to or precipitate a crisis.[9]

We found that WEO forecasts for current account were inaccurate most of the time. Our analysis for the 87 emerging market countries shows that, for more than 75 percent of the countries, the WEO current account forecasts were less accurate than if the Fund had simply assumed that the next year's current account would be the same as this year's. The results are even more dramatic for G-7 countries; a forecast of no change was a better predictor than the WEO forecast for six of the seven countries. This demonstrates that, even in stable economies with excellent data, the WEO has done a poor job of forecasting this key crisis anticipation variable. (See appendix III for more detailed explanation on our methodology and findings).

[8]A deficit in the current account can also be financed by capital inflows, such as foreign private investment, a drawing down of a country's international reserves, by bilateral or multilateral loans, or by provision of exceptional finance, such as debt service relief.

[9]Fund studies indicate that the current account deficit, as a percentage of GDP, is significantly larger before a crisis than during relatively stable periods, which suggests that unsustainable current account deficits tended to be part of the general overheating of the economy before a crisis.

The Fund's Early Warning System Models Indicate Many Crises That Do Not Occur

Since 1999, the Fund has analyzed the results from internal and private sector EWS models in its crisis anticipation efforts. The Fund's internal efforts focused on two EWS models to systematically identify countries vulnerable to crises: the Kaminsky, Lizondo, and Reinhart (KLR) model, which monitors a set of 15 monthly variables that signal a crisis whenever any cross a certain threshold; and the Developing Country Studies Division (DCSD) model, which uses five variables to compute the probability of a crisis occurring in the next 24 months.[10] The Fund's models use a variable-by-variable approach that allows economists to determine which variables are signaling the crisis. Internal assessments of the Fund's EWS models show that they are weak predictors of actual crises. While the models worked reasonably well in anticipating Turkey's recent financial crisis, they did not successfully anticipate Argentina's financial crisis in 2002. According to the Fund, the models' most significant limitation is that they have high false alarm rates; that is, they predict many crises that did not occur. In about 80 percent of the cases where a crisis was predicted over the next 24 months, no crisis occurred. Furthermore, in about 9 percent of the cases where no crisis was predicted, there was a crisis.[11]

Forecasting Crises Has Been Historically Difficult for All Parties

Financial crises have been historically difficult to anticipate because of a number of complex underlying factors. Economic outcomes are often influenced by unanticipated events such as conflicts and natural disasters. Many factors, in addition to weaknesses in a country's financial structure, can lead to a crisis. These include economic disturbances, such as an unanticipated drop in export prices, political events, and changes in investor sentiment leading to sudden withdrawals of foreign capital. Furthermore, data may be inadequate, particularly in developing countries where data are often not timely and are of poor quality.

[10]More specifically, the DCSD model is a multivariate probit regression. The five variables used are real exchange rate overvaluation, current account, foreign exchange reserve losses, export growth, and the ratio of short-term debt to foreign exchange reserves. Also, the model defines a currency crisis as the weighted average of 1-month changes in exchange rate and reserves more than 3 (country-specific) standard deviations above country average.

[11]The DCSD model had a cutoff probability of 23 percent and the KLR model had a cutoff probability of 15 percent. A forecast probability above these cutoff points is deemed to signal a crisis.

Forecasters consistently fail to foresee crises and recessions. Forecasts produced by private sector economic forecasters, governments, and multinational agencies including the IMF and the Organization for Economic Cooperation and Development, routinely fail to foresee the coming of crises and recessions, and often fail to outperform the naive model, which simply assumes that next year's outcome will be the same as this year's. This is true even for evaluations of recent U.S. forecasts of GDP and inflation. Our review of a number of forecast evaluation studies confirms that the inability to predict recessions is a common feature of growth forecasts for both industrialized and developing countries. The studies also showed that forecast accuracy improves as the time horizon gets shorter, and that there is little difference in forecast accuracy between private sector and WEO forecasts.

Some Progress in Implementing Crisis Prevention Initiatives, but Challenges Remain

In the late 1990s, the Fund and the World Bank began implementing two crisis prevention initiatives designed to assist four parties: IMF staff, World Bank staff, member country governments, and private sector participants. The first initiative, the financial sector assessments, provides reports on aspects of member countries' financial sectors such as banking systems and crisis management capacity. The second, the standards initiative, assesses member countries' adherence to 12 standards in areas such as banking supervision and economic data dissemination. Parties' use of the information provided by these two initiatives has been mixed, and several significant challenges remain. Fund staff frequently incorporate information from the assessments into their policy advice when assessments are available; however, assessments have not been completed in some important emerging market countries primarily because participation is voluntary. Bank staff's use of the assessments to inform country development assistance programs is also affected by gaps in the completion of some assessments and by borrower countries' competing development demands. Member country governments sometimes use the assessments in prioritizing their reform agendas but often find the reforms too difficult to implement. Some private sector participants find the published reports untimely, outdated, and too dense to be useful in making investment decisions. The IMF and the Bank acknowledge that the initiatives cannot prevent all crises because recommended reforms require many years to be fully implemented, and crises can be caused by factors outside the scope of the reforms.

Two Key Crisis Prevention Initiatives Target Four Parties

In the wake of the Mexican and Asian financial crises of the 1990s, the Fund and the World Bank became increasingly aware of the importance of transparent financial data and policies, stronger financial systems, and better-functioning markets as a complement to member country governments' sound macroeconomic policies. Fund evaluations acknowledge that the institution failed to collect information that could have enabled it to detect financial and corporate sector vulnerabilities and to provide appropriate policy advice to the affected countries before the crises occurred.

In response to this, in the late 1990s, the Fund and the Bank jointly launched two initiatives to prevent the long-term likelihood of financial crises. The first initiative, the Financial Sector Assessment Program (FSAP), consists of in-depth assessments of key elements of member countries' financial sectors. These elements include the structure of financial markets, financial systems' response to changes in key variables such as exchange rates, legal arrangements for crisis management, and the quality of financial sector supervision. The second initiative, the Reports on the Observance of Standards and Codes (ROSC), consists of assessments of member countries' adherence to 12 standards[12] related to transparency in government policy making and operations,[13] financial sector regulation, and corporate sector practices (see appendix V).[14] Building on earlier efforts to assess transparency, in 1999, the IMF and the Bank began conducting joint assessments of observance of standards related to

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[12]According to the Fund, 11 of these 12 standards are internationally accepted. The World Bank's corporate insolvency and creditor rights standard is still in draft form.

[13]In addition to the ROSC, the Fund launched an experimental program in 2000 to help prevent possible misuse of Fund resources. This program assesses weaknesses in central banks' ability to safeguard Fund resources through internal controls, accounting, reporting, auditing systems, and legal structure. In 2002, the Executive Board made assessments of central banks' safeguards a permanent policy. See appendix VI for an update on progress in this area.

[14]In February and March 2003, the IMF and Bank published reviews of the FSAP and ROSC initiatives. See International Monetary Fund and World Bank, *Financial Sector Assessment Program—Review, Lessons, and Issues Going Forward* (Washington, D.C.: 2003); International Monetary Fund and World Bank, *International Standards: Strengthening Surveillance, Domestic Institutions, and International Markets* (Washington, D.C.: 2003); International Monetary Fund, *International Standards: Background Paper on Strengthening Surveillance, Domestic Institutions, and International Markets* (Washington, D.C.: 2003); World Bank, *Reports on the Observance of Standards and Codes Background Paper on Standards Review: Assessing Progress and Lessons Learned from Bank-Led ROSC Modules* (Washington, D.C.: 2003).

financial sector regulation, covering areas such as banking supervision and securities regulation. The Bank began performing assessments of standards related to corporate sector practices, including private sector accounting rules and corporate governance principles, in 2000. Some transparency, financial sector, and corporate sector standards may be assessed under the FSAP. Country participation in both initiatives is voluntary. The Fund and the Bank initially considered making participation in the ROSC assessments mandatory for member countries after determining that the Fund's Articles of Agreement could allow such a requirement.

IMF or World Bank staff lead FSAP and ROSC assessment teams, with participation by experts from national central banks and supervisory agencies and standard-setting bodies such as the Basel Committee and the International Organization of Securities Commissions (IOSCO). Before undertaking an FSAP or ROSC, the Fund and the Bank work with country governments to choose areas on which to focus. During the assessment process, FSAP and ROSC teams conduct at least one in-country visit, allowing team members to work with government officials from the finance ministry, the central bank, and regulatory bodies to collect information for the assessment.[15] For example, an FSAP team in Russia analyzed financial information for the largest banks and single largest corporation to determine how changes in economic variables such as oil prices might affect the banking system. The South Korean ROSC team interviewed government officials at financial sector regulatory entities and private sector representatives to determine how closely regulatory practices conform to standards and to identify weaknesses that could put the financial sector at risk.

The two initiatives provide information to assist four parties that play a role in crisis prevention: the Fund, the World Bank, member country governments, and private sector investors. In-depth information on member countries' financial sectors and adherence to standards of good practice is intended to help the IMF and the Bank fulfill their missions. Fund staff identify countries' vulnerabilities and develop appropriate advice to redress them; Bank staff identify long-term financial sector development needs and formulate relevant lending and nonlending responses. Member countries can use these assessments to help prioritize reform agendas and win domestic support for difficult policy decisions that

[15]Appendix VII contains a diagram of the FSAP and ROSC assessment process.

may make their financial sectors and institutions more resistant to crisis. The Fund and the Bank often provide technical assistance to help governments build capacity to implement reforms. The financial crises of the 1990s also raised awareness of the private sector's role in crisis prevention. Thus, the Fund and the Bank expect the assessments to help private sector participants make sounder investment decisions, thereby reducing volatility in capital markets.

Parties' Use of Assessments Is Mixed, and Significant Challenges Remain

The use of FSAP and ROSC assessments in crisis prevention efforts is mixed, and significant limitations remain. Fund staff use the assessments, when available, as inputs for the policy advice they provide to member country governments. However, the Fund lacks crucial information about vulnerabilities to financial crisis because some major emerging market countries have not participated in the assessments. World Bank staff's use of the assessments to inform development assistance priorities is also affected by these gaps in participation and by borrower countries' competing development needs. Many member country governments face limitations in using assessments to make policy decisions because the reforms recommended in the assessments are often difficult to implement. Finally, some private sector participants find assessments of limited use because they are untimely, outdated, and dense.

The Fund Uses Assessments, When Available, to Inform Policy Advice

The IMF uses FSAP and ROSC assessments, when available, as inputs for the policy advice it provides member country governments. According to Fund officials, these assessments highlight issues such as weak banking supervision or high levels of debt held in foreign currency that could make countries vulnerable to crisis. The assessments also provide recommendations to address these issues. The findings and recommendations inform the discussions of policy issues that Fund officials have with member country authorities during Article IV consultations.[16] For example, when an FSAP was performed in Mexico, Mexican authorities had begun replacing a system where the government fully insured all bank deposits with one that covers deposits up to a certain

[16]In accordance with Article IV of the IMF's Articles of Agreement, the IMF holds regular consultations, normally every year, with each of its members. These consultations focus on the member's exchange rate, fiscal, and monetary policies; its balance of payments and external debt developments; the influence of its policies on the country's external accounts; the international and regional implications of those policies; and on the identification of potential vulnerabilities. ("IMF Surveillance: A Factsheet," http://www.imf.org, downloaded 4/23/03).

limit. The FSAP team was concerned because this reform was undertaken before Mexico had developed a well-defined framework for closing unprofitable banks. Without a clear framework for bank closures, the introduction of limited deposit insurance could damage depositor confidence in the banking system and precipitate a banking crisis. According to Fund officials, the FSAP team and Mexican authorities discussed the need to create such a framework, and a subsequent Article IV mission reviewed the government's progress in this area. In Poland, an FSAP team discovered that Polish households and small businesses had high levels of debt held in foreign currency. The team was concerned that a depreciation of Polish currency could raise the cost of these loans and cause widespread repayment difficulties, which could in turn lead to a banking crisis. FSAP team members raised this issue with Polish central bank authorities and followed up again during the next Article IV consultation. In both countries, government officials followed the Fund's advice and implemented reforms. The Mexican government began developing a framework for closing banks, and Poland's central bank established a team to monitor household and small business debt.

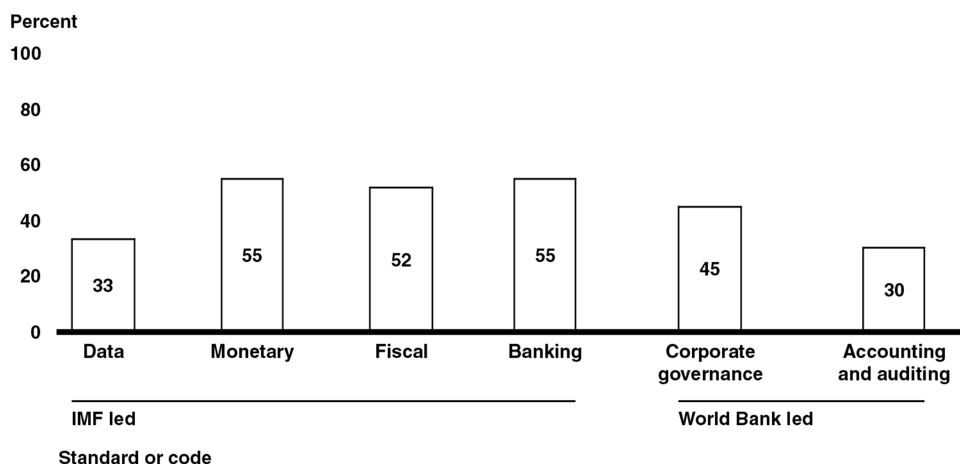
Since 1999, FSAP assessments have been conducted in more than 40 member countries and ROSC assessments in about 90 member countries. However, we found that assessments have not been completed for some major emerging market countries, limiting the Fund's awareness of crisis vulnerabilities in certain countries. Appendix VIII contains a record of country participation in and publication of FSAP and ROSC assessments. Fund and Bank staff encourage participation in FSAP and ROSC assessments by countries whose economies have worldwide or regional implications or have known vulnerabilities to a financial crisis, but officials acknowledge that some governments have persistently resisted their efforts. According to our analysis, between 1999 and 2003,[17] 45 percent of 33 major emerging market countries participated in an FSAP.[18] However, the Fund has not performed FSAPs in important countries such as China and Thailand because their authorities have not agreed to participate. These gaps in participation limit the Fund's ability to develop policy advice based on in-depth knowledge of their financial sectors.

[17]Our analysis is based on Fund and Bank data through March 2003.

[18]These 33 countries, a subset of the 87 we analyzed in the previous section, represent the most significant emerging market participants in the international capital markets, as identified by J.P. Morgan.

According to the Fund, the Mexican and Asian financial crises were caused, in part, by vulnerabilities in areas covered by the ROSCs. Our analysis found gaps in participation in assessments of several key standards that the Fund identifies as contributing factors to past crises (see figure 3). For example, only one-third of major emerging market countries have participated in assessments of their adherence to standards for dissemination of economic and financial data. About half have participated in the fiscal, monetary and financial policy formulation assessments and the banking supervision assessment. In addition, Fund documents point to limited progress in assessing adherence to the four World Bank-led corporate sector standards[19] (accounting, auditing, corporate governance, and insolvency regimes), which play a key role in the effective operation of domestic and international financial systems. Less than one-third of the 33 major emerging market countries have participated in one or more assessments related to accounting and auditing.

Figure 3: Participation of 33 Major Emerging Markets in Key ROSC Assessments, 1999–2003



Sources: GAO analysis of Fund and Bank data (through March 2003).

[19]The Bank performs accounting and auditing assessments simultaneously and publishes them as a single report. An agreed-upon standard for insolvency regimes has not yet been finalized. The Bank's draft standard for insolvency regimes is under review by the Bank and the Fund.

The Fund asserts that its delayed response in preventing or mitigating the Mexican and Asian crises was partially caused by insufficient information on these vulnerabilities. For example, according to the IMF, the Mexican government's publicly available data was outdated and incomplete in 1993–94, which contributed to significant delays in responding to the country's excessive indebtedness. The Fund also was unaware of some Asian countries' unsound corporate accounting practices, which contributed to the Asian financial crisis. Continued participation gaps in these assessments suggest that the Fund still lacks crucial information about some countries' potential vulnerability to crisis.

The World Bank's Use of Assessments in Formulating Country Development Assistance Programs Is Mixed

The World Bank acknowledges the importance of FSAP and ROSC assessments in formulating its financial sector development programs, but limited participation in corporate sector assessments (described earlier) affects the Bank's ability to respond to weaknesses in borrower countries' financial sectors. According to the Bank, country participation in corporate sector assessments has been lower than in areas related to transparency and financial sector regulation because the Bank has experienced delays in finalizing standards and methodologies for evaluating the corporate sector. For example, the methodologies for performing assessments of the accounting and auditing standards were not finalized until October 2000.

Bank officials acknowledge that even when assessments are available, Bank staff do not always incorporate the issues raised as a key priority in formulating its country development assistance programs. In justifying their limited prioritization of FSAPs and ROSCs, Bank officials cited competing development demands and timing issues. First, Bank officials stated that they must balance borrower countries' financial sector reform needs with other demands for development assistance. Most borrower country governments have multiple concerns, and Bank staff may determine that its resources will have more impact in areas other than financial sector development. Second, Bank officials cited the scheduling of the FSAP and ROSC assessments as a reason for their limited use since the timing of many assessments does not coincide with the Bank's preparation of Country Assistance Strategies.[20]

[20]The Country Assistance Strategy describes the Bank's assessment of development priorities in each borrower country and identifies the level and composition of assistance to be provided based on this assessment. These strategies are currently prepared every 3 years.

Member Country Governments' Use of Assessments Is Limited

Although member country authorities sometimes use FSAP and ROSC assessments to inform policy decisions, reforms recommended in the assessments are often difficult to implement. Some member country governments have faced obstacles to implementing reforms, including political opposition, legal constraints, and lack of technical capacity. For example, IMF officials stated that political opposition has limited the South Korean government's progress in eliminating extrabudgetary funds, a key recommendation of the fiscal transparency ROSC. Extrabudgetary funds diminish transparency because they are exempt from rules that require scrutiny and prioritization of expenditures for most of South Korea's budget. Fund officials cited Peru as a case where legal constraints delayed reform efforts. The FSAP and banking supervision ROSC found that protecting bank supervisors from the political pressures of the powerful bankers' lobby would strengthen Peru's banking supervision. According to Fund officials, existing legislation precluded awarding supervisors greater independence, and passage of new legislation was delayed. In Russia, limited technical capacity interfered with the government's ability to implement reform recommendations. For example, the FSAP team reviewed the government's proposal to stimulate competition in the banking sector by introducing a deposit insurance system for household deposits. However, Fund staff noted that Russia's bank supervisory agency lacks the capacity to implement a deposit insurance system for a large number of banks.

Private Sector Participants Find Assessments Difficult to Use

The Fund claims that private sector participants increasingly use the results of FSAPs and ROSCs to inform investment decisions and risk management. However, representatives of major international investment firms and ratings agencies we interviewed stated that the reports were untimely, outdated, and too dense to be useful. For example, several respondents indicated that delays in publishing ROSC assessments reduced their usefulness. Some private sector participants stated that ROSC reports and FSAP summaries, known as Financial System Stability Assessments (FSSAs), should be published within 6 months of performing the assessments. However, our analysis of the 58 ROSC reports published for major emerging market countries found that in one-third of the cases, 9 months or more elapsed between assessment and publication. Several private sector participants we interviewed stated that outdated ROSC reports are unreliable for decision making. The Fund acknowledges that assessments must be current for private sector participants to use them. According to Fund data, 13 countries have published an update of at least one ROSC module. However, IMF officials estimate that, of the more than 40 FSAPs performed to date, only 4 have been fully updated. Some private

sector participants also stated that FSSA and ROSC reports are not clearly written. Representatives of one multinational investment bank stated that the assessments are written in a way that is difficult to understand, which limits the reports' usefulness for investment decisions. While these interviews were limited in number and may not be representative of all private sector participants, they do provide an indication of the problems these individuals may currently have in using FSAPs and ROSCs.

Fund and Bank outreach sessions and a 2002 Fund survey corroborated our findings on private sector participants' difficulties in using ROSC assessments. The Fund reports that private sector participants place high priority on timely publication and frequent updates of ROSC assessments. For example, several participants observed that ROSC reports for Argentina had not been updated since their publication in 1999. Moreover, respondents to the Fund's survey commented that ROSC assessments should state more clearly the deficiencies in a country's adherence to a standard. In a March 2003 review of the standards initiative, the Fund and the Bank concluded that ROSC reports would be more useful if they stated the main findings and their significance clearly and prioritized recommendations more explicitly.

Crisis Prevention Initiatives Cannot Prevent all Crises

The Fund and the World Bank acknowledge that FSAP and ROSC assessments cannot prevent all crises because recommended reforms may require many years to be fully implemented and because crises can be caused by factors outside the reforms' scope. For example, Argentina participated in four ROSC assessments in 1999 to improve economic data dissemination; banking supervision; and transparency in the formulation of fiscal, monetary, and financial policies. According to senior IMF officials, the Argentine government followed many of the recommendations generated by these assessments, but their actions did not address vulnerabilities related to weak fiscal policy and a fixed exchange rate regime that contributed to Argentina's 2001 crisis. Fund officials cite Turkey as another example of a country that made considerable progress in improving transparency and data provision based on reforms recommended by the fiscal transparency and economic data dissemination ROSC assessments of 2000–2001. However, according to the Fund, these reforms could not have prevented Turkey's 2001 crisis, which originated with declines in its exchange rate.

The Fund's Efforts to Better Resolve Future Financial Crises Face Significant Challenges

Fund officials assert that the current process for renegotiating the terms of member countries' loans with external private sector creditors is lengthy and costly. In 2001, the Fund began considering the SDRM, an international legal framework that would allow a majority of a country's external creditors to approve a restructuring of most private sector loans. The Fund is also encouraging members to include CACs in bonds, which would allow a majority of bondholders to renegotiate the terms of that bond. Although some elements of both approaches are acceptable to the private sector and governments, a number of political, legal, and technical challenges stand in the way of implementing the SDRM; it seems unlikely that these issues will be resolved in the immediate future. While private sector officials expect that many restructurings need only involve the private sector and the debtor country, under some circumstances, voluntary debt restructurings will not adequately resolve all financial crises. These officials stated that, in those cases, the Fund should provide short-term loans to eligible countries to help fill their external financing gaps. However, concerns have been raised by some financial experts and government representatives that such Fund loans have the potential to increase the probability of future crises. In response to these concerns, the Fund has clarified and strengthened its policy of lending into crisis situations.

Efforts to Resolve Future Sovereign Debt Crises Face Significant Challenges

According to the Fund, countries facing severe liquidity problems often go to extraordinary lengths to avoid renegotiating or restructuring the terms of their loans. They do so because, in the past, restructuring damaged the economy and the banking system of participating countries. In some cases, even when a voluntary restructuring process is initiated, individual creditors may hold out for the best possible terms or sue in an attempt for better terms. Additionally, countries believe that creditors also may be unwilling to make future loans if they default on their existing debt.

The SDRM approach is an attempt to create a more orderly, predictable, and comprehensive restructuring process and to lower the costs of restructuring for both the debtor and creditors. The approach sought to reduce the duration of the restructuring process from years to months and to provide incentives to restructure debt before default to better protect debtor and creditor interests. In the case of debtors, the Fund maintains that an orderly restructuring process could reduce the likelihood of a reduction in future capital flows. For creditors, it could provide more favorable repayment terms from the restructured debt.

The SDRM is a proposed international legal framework that would allow a member country to declare its debt unsustainable and invoke a process to restructure most of its external private sector loans.[21] A specified majority of the country's external creditors would vote to approve the terms for restructuring, which would bind all eligible private sector creditors. The framework is designed to increase the incentives for the Fund's member countries and their creditors to reach a rapid and collaborative agreement on restructuring unsustainable debt.

A number of political, legal, and technical challenges stand in the way of implementing the SDRM, and it seems unlikely that these issues will be resolved in the immediate future. According to the Fund, successful implementation of SDRM will require overcoming certain political constraints. The SDRM could be put into practice either by countries adopting a new international treaty or by amending the Fund's Articles of Agreement. Both options would be difficult to implement since a number of countries have indicated opposition to the SDRM. The draft framework recommended that the SDRM be created through an amendment to the Fund's Articles of Agreement because the SDRM is closely related to the role already assigned to the Fund under the Articles in the resolution of its members' external financial obligations. However, the Fund acknowledged that, given the opposition of some countries, changing the Articles could be difficult to achieve since it requires acceptance by three-fifths of the members, having 85 percent of the total voting representation. The United States, for example, could unilaterally veto any proposed amendment to the Fund's Articles given its 17 percent voting representation.

[21]The SDRM proposal has undergone several revisions. Our report discusses the proposal presented to the International Monetary and Financial Committee in April 2003. See http://www.imf.org/external/np/omd/2003/040803.htm.

A key legal challenge to the implementation of SDRM is the need for most countries to change their domestic laws to conform to the requirements of any new Fund articles. Before a member country can vote to accept an amendment, it must take all the necessary steps needed under its own domestic law to ensure that the amendment will be given full force and effect under its domestic law. However, some Fund members have raised concerns over whether the domestic legal systems of some member countries could accommodate a new legal framework that applied to preexisting claims. The proposed SDRM approach also faces technical challenges. For example, the proposed framework does not specify how the claims of official bilateral creditors and some guaranteed domestic debts would be treated. The Fund is consulting with the Paris Club on how the Club's practices may be modified to better facilitate coordination between official bilateral and the private creditors in a debt restructuring process.[22]

The Fund Has Encouraged the Adoption of Collective Action Clauses

CACs are terms in individual bonds that permit a specified majority of sovereign bondholders to agree on a debt restructuring that would bind all holders of that bond. In June 2002, the Fund's Executive Board endorsed the use of certain CAC provisions in new bonds and agreed to encourage member countries to incorporate CACs into their sovereign bonds in future restructurings. Inclusion of these clauses into new bonds would be voluntary.

[22]The Paris Club is an informal group of official creditors whose role is to find solutions to the payment difficulties experienced by debtor countries. Paris Club creditors agree to provide a country with debt relief through a postponement and, in the case of concessional rescheduling, a reduction in debt service obligations.

The Fund views CACs and SDRM as complementary instruments in resolving future financial crises. According to the Fund, the existence of CACs in certain bond agreements inspired the development of the SDRM framework. Although the Fund has not created its own CAC framework, it has endorsed the use of two key features from a G-10 Working Group Report[23] and an Industry Associations draft proposal.[24] These features include the following:

- *Majority restructuring provision*[25] enables a qualified majority of bondholders to bind all holders of a particular bond to the financial terms of a restructuring, both before and after a default. Although majority restructuring provisions have generally been included in bonds governed by the laws of the United Kingdom or Japan, they have not been included in bonds governed by the laws of the United States or Germany.

- *Majority enforcement provisions* prevent a minority of creditors from pursuing disruptive legal action after a default and before reaching a restructuring agreement. Many international sovereign bonds governed by both U.S. and English law contain these provisions. Specifically, the Fund supports the requirement that (1) an affirmative vote of a minimum percentage of bondholders is necessary to approve claims following a default and (2) a specified majority of bondholders can reverse an approval of a claim that has already occurred.

In early 2003, Mexico became the first emerging market country to issue a public, SEC-registered global bond with CACs under New York law. Previous issues under New York law by Lebanon, Qatar, and Egypt had been placed privately to institutional investors and included only a limited

[23]The G-10 Working Group on Contractual Clauses (the Working Group) was formed in June 2002 at the behest of ministers and governors. The mandate of the Working Group was to consider how sovereign debt contracts could be modified to resolve debt crises in a more orderly fashion.

[24]The proposal was put forward to Fund members for consideration by the Institute of International Finance and six other financial industry trade associations. The six financial industry associations are the Emerging Market Traders Association (EMTA), the International Primary Market Association (IPMA), the Bond Market Association (BMA), the Securities Industry Association (SIA), the International Securities Market Association (ISMA), and the Emerging Markets Creditors Association (EMCA).

[25]These provisions are referred to in the G-10 Working Group Report as "majority amendment provisions."

range of CACs. For example, the bonds issued by Egypt and Qatar included a very limited form of majority enforcement provisions, while Lebanese bonds did not contain them at all. Since Mexico's successful issue, Brazil, South Africa, and Korea have issued bonds with CACs. Uruguay included CACs in the bonds resulting from its debt exchange. The details of the Brazil, South Africa, Korea, and Uruguay bond provisions were not available at the time we conducted our review.

Some countries criticize CACs because they would only apply to new bond offerings and not existing bonds. Accordingly, during a restructuring of a country's bond obligations, not all creditors would be bound by the CAC provisions. Borrowing countries also contend that inclusion of CACs in bond offerings could suggest to creditors that countries anticipate having difficulty repaying their loans. In response, creditors may charge a higher interest rate. However, a May 2000 academic study[26] compared interest rates on bonds issued in the United States (where CACs are not used) with the United Kingdom (where CACs are used) and found that CACs do not contribute to higher rates in United Kingdom bonds.

While Private Sector Officials Prefer Voluntary Debt Restructuring, They Expect Continued Fund Loans in Exceptional Circumstances

To date, officials from the private sector, including lenders, have expressed preference for continuing the current voluntary process, which only involves the private sector and borrowing countries, in the efforts to restructure sovereign debts. Many private sector officials we interviewed oppose the proposed SDRM approach and the Fund's attempts to integrate CACs into new bond issues, partly because they would interfere with the normal bargaining process. They maintain that a voluntary approach to the restructurings that took place from 1998 to 2001 in Ecuador, Pakistan, Russia, and Ukraine were successful.[27] Private sector officials assert that these and other experiences have worked well enough, and that a substantive change in current market practice is unnecessary. In contrast to the Fund's assertion that new approaches are needed to make restructurings shorter and less expensive, private sector officials note that

[26] See Eichengreen, Barry and Ashoka Mody. "Would Collective Action Clauses Raise Borrowing Costs?" Working paper, Center for International and Development Economics Research, Berkeley, CA, 2000.

[27] The restructurings in Russia involved domestic debt and Soviet-era foreign debt owed to commercial banks. In 1998, Pakistan froze withdrawals in foreign currency from all nonresident foreign currency deposits and subsequently reached restructuring agreements with these nonresident investors.

most recent voluntary restructurings successfully concluded in 1 year or less and that creditor holdouts or litigation did not significantly delay the restructurings.[28]

While private sector officials expect that many restructurings need only involve the private sector and the debtor country, under some circumstances, voluntary debt restructurings will not adequately resolve all financial crises. In those cases, they said the Fund should provide loans to eligible countries to help fill their external financing gaps. Such loans would assist the restructuring process and facilitate efforts at implementing necessary reforms. However, large Fund loans, such as those given during the Asian financial crises, have received substantial criticism from financial experts and government representatives, including U.S. government officials. One concern is that the possibility of receiving substantial financial assistance provides an incentive for debtor countries to adopt unsustainable economic policies to forestall needed reform. Another concern is that these large loans may encourage private sector creditors to continue providing large capital flows to countries with unsustainable economic policies because these otherwise risky investments have the potential of being "bailed out" by future Fund loans. This condition is referred to as "moral hazard." According to these critics, efforts to help resolve existing financial crises through large Fund loans may increase the probability of future crises due to these two concerns. The Fund has advocated the SDRM framework and CACs to replace the current voluntary approach, partially in response to concerns over the potential adverse affects of its lending.

The Fund Has Clarified and Strengthened its Lending Practices to Address Concerns Over Exceptional Lending

To reduce the risk that Fund loans would increase the probability of future financial crises, the Fund clarified and strengthened its policy of lending in crisis situations. The Fund has clarified elements of its Lending into Arrears Policy and strengthened its criteria for requesting large short-term loans under the Supplemental Reserve Facility (SRF). Since 1997, nine countries have received loans under the two mechanisms.

The Fund's Lending into Arrears Policy permits the IMF to provide resources to countries that are unable to repay their external creditors and are thus considered in default. Conceived in the late 1980s and amended in

[28]For some countries, the negotiating process entailed several years and more than one restructuring agreement.

the late 1990s, the policy is designed to protect the value of creditor assets while providing creditors with incentives to enter rapidly into restructuring negotiations with countries. The Lending into Arrears Policy increases the likelihood that a country's private sector lenders would agree to reduce the value of their loans because Fund resources reduce short-term fiscal pressures experienced by the country while in default. A country is eligible for Fund resources while in default if the Fund determines that the debt burden is unsustainable, and the country is making satisfactory progress in implementing reforms. Additionally, the country must have demonstrated a good faith effort to reach a restructuring agreement with creditors to restore its ability to repay its debt. In 2002, the Fund clarified the criteria to be used to determine whether the debtor country is making a good faith effort. For example, the Fund would consider how quickly the debtor engaged in negotiations with its creditors after it defaulted. To date, the Fund has lent into arrears on international bonds on four occasions—Ukraine, Ecuador, Moldova, and Argentina.

Introduced in 1997, the SRF provides large short-term loans to members experiencing exceptional balance of payments difficulties prior to a default. The interest rates on these loans are much higher than standard Fund loans. The increased cost of these loans is expected to reduce the probability that countries consider Fund resources a viable means for underwriting unsustainable economic policies. Higher loan terms also increase incentives for early repayment and compensate for additional repayment risks to the Fund. Countries are expected to repay SRF loans within 2 to 2½ years, but they may request extensions of up to 6 months. All SRF loans carry a substantial surcharge of 3–5 percentage points. In 2003, the Fund strengthened its criteria for providing large short-term loans under the SRF. For example, countries requesting SRF loans must provide a more extensive justification for their repayment difficulties. Additionally, the member has to demonstrate good prospects of regaining access to private capital markets within the time period that Fund resources are outstanding to minimize long-term reliance on Fund resources. To date, the Fund has provided SRF loans on nine occasions to six countries, including Korea, Russia, Brazil, Turkey, Argentina, and Uruguay (see appendix IX).

Conclusion

In accordance with its goal of strengthening the international financial system, the Fund has undertaken a number of reforms to better anticipate, prevent, and resolve sovereign financial crises. The Fund's new vulnerability assessment process is more comprehensive than its previous crisis anticipation efforts, but it is too soon to judge its effectiveness. The

Fund's proposed approaches to better resolve financial crises have met considerable resistance, and it is unclear whether they will ultimately be adopted. The Fund and the Bank have made progress in their crisis prevention efforts by performing assessments of member countries' financial sectors and adherence to standards. However, the effectiveness of these crisis prevention efforts is hindered by (1) private sector participants' limited use of published assessments, which they find untimely, outdated, and too dense to be useful and (2) gaps in crucial information about crisis vulnerabilities in some important emerging market countries due to voluntary participation in the assessments. These limitations prevent multilateral institutions, national policy makers, and private sector participants from making sound decisions, thus reducing the likelihood that these reforms will help prevent crises.

Recommendations for Executive Action

To help strengthen the Fund's crisis prevention initiatives we recommend that the Secretary of the Treasury instruct the U.S. Executive Director of the Fund to work with other Executive Board members to encourage the Fund to

- improve the timeliness of publication of Financial System Stability Assessments and Reports on the Observance of Standards and Codes;
- expand the coverage, frequency, and publication of reports on member countries' progress on implementing assessment recommendations;
- improve the assessment reports' readability, for example, by creating a standardized format in which to present executive summaries and key findings; and
- pursue strategies for increasing participation in the Financial Sector Assessment Program and all modules of the Reports on the Observance of Standards and Codes, including the possibility of making participation mandatory for all members of the IMF.

Agency Comments and Our Evaluation

We received written comments on this report from the Department of the Treasury, the International Monetary Fund, and the World Bank. These comments and GAO's evaluation of them are reprinted in appendixes X, XI, and XII. The organizations also separately provided technical comments

that GAO discussed with relevant officials and included in the text of the report where appropriate.

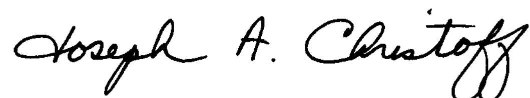
Treasury agreed with the report's recommendations. Treasury recognized that some important countries have not volunteered to participate in the FSAP and ROSC and that there should be a shorter turnaround between the completion of an assessment and its public release. Treasury also pointed out that the acceptance of collective action clauses in some recent bond offerings serves as an important signal to investors that official financing is limited and that they cannot expect to be protected from risks.

The IMF broadly agreed with the report's recommendations. However, the IMF stated that we mischaracterized the role of the WEO forecasts and EWS models in IMF crisis anticipation efforts by saying that they have a greater importance than is warranted. We disagree with this depiction. Our assessment examined all six components of the IMF's vulnerability assessment framework, including the WEO and the EWS. As the only mature and quantifiable elements of the framework, our analysis focused more heavily on the track records of the WEO and EWS. The IMF also stated that its responsibility to maintain financial stability could make its predictions less accurate so as not to contribute to a crisis. The IMF's comment not only validates our finding on the WEO's weakness but also raises questions regarding the purpose and credibility of the WEO forecasts.

The World Bank generally agreed with the report's recommendations. However, the Bank expressed concern with the report's suggestion that consideration be given to making participation in the FSAP and ROSC assessments mandatory. While we are not suggesting that the assessments should be made mandatory, the voluntary nature of the FSAP and ROSC has posed an obstacle to full participation by important emerging market countries.

We are sending copies of this report to the Secretary of the Treasury, the International Monetary Fund, the World Bank, and interested congressional committees. We also will make copies available to other interested parties upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have any questions regarding this report, please call me at (202) 512-8979. Other GAO contacts and staff are acknowledged in appendix XIII.



Joseph A. Christoff, Director
International Affairs and Trade

Objectives, Scope, and Methodology

The Chairman of the House Financial Services and the Vice Chairman of the Joint Economic Committee requested that we assess (1) the International Monetary Fund's (IMF's or the Fund's) framework for anticipating financial crises, (2) the status of key IMF initiatives to prevent financial crises, and (3) new IMF proposals to resolve future financial crises. They requested that our review cover the period after the Mexican financial crisis of 1994–95.

To assess IMF's framework for anticipating financial crises, we examined prior and new IMF mechanisms for anticipating crises. Our analysis focused on the World Economic Outlook (WEO) forecasts and the IMF's Early Warning System (EWS) models that were the IMF's primary forecasting tools prior to the implementation of the new vulnerability assessment framework in May 2001. Data on the performance of the other four components of the framework were not made available to us because these elements are considered part of the staff level deliberative process, and are not provided to the Executive Board. We obtained near-term data from the WEO forecasts, including real gross domestic product (GDP) growth rate and current account balance for 87 emerging market countries for the period 1990–2001 (see appendix III). We focused on the 81 middle-income countries and an additional 6 low-income countries listed by J.P. Morgan as emerging markets. To evaluate the WEO and program forecasts, we used standard econometric techniques based on methods commonly found in the forecasting literature. The formal methodology of our forecast evaluations was based on several expert publications, the replication of our summary statistics with another author's results, and discussions with a forecasting expert. To describe the performance of the IMF's EWS models in anticipating crises, we reviewed and summarized the results of IMF evaluations. We interviewed IMF staff, including country desk economists and staff from several departments, to discuss the IMF's new framework for vulnerability assessment, the EWS models, and the WEO methodology. We also interviewed 23 major private sector emerging market participants to discuss whether and how they use IMF forecasts in their investment decisions.

To assess the status of key IMF initiatives to prevent financial crises, we reviewed Fund and World Bank documents published between 1999 and 2003 on the creation of the Financial Sector Assessment Program (FSAP) and Reports on the Observance of Standards and Codes (ROSC) and evaluations of progress in implementing these reforms. We interviewed senior Fund officials, including staff from the Monetary Affairs and Exchange Department, the Policy Development and Review Department,

and the Fiscal Affairs Department. We also met with senior advisers at the World Bank (the Bank) who oversee the Bank's participation in the FSAP and ROSC initiatives. To gain a better understanding of how the Fund uses FSAP and ROSC assessments to inform the policy advice it provides to member country governments and challenges it faces in using these assessments, we interviewed Fund officials in nine area departments (Argentina, Brazil, Korea, Mexico, Peru, Poland, Russia, Turkey, and Uruguay). We also spoke with Fund officials in these area departments about member country governments' use of the assessments in shaping their reform agendas and the obstacles that member country authorities encounter in implementing the reforms recommended in the assessments. To assess the extent to which emerging market countries have participated in and authorized publication of FSAP and ROSC assessments, we examined Fund and World Bank data on country participation in the FSAP and 12 ROSC modules and publication of the resulting reports between May 1999 and March 2003. To obtain views on the private sector's use of Fund and World Bank assessments, we conducted structured interviews with 13 representatives of private sector firms, including ratings agencies, investment banks, and pension funds. We focused on 33 countries (a subset of the 87 we analyzed in the previous section) identified as the major emerging market countries by J.P. Morgan.[1]

To describe new proposals to resolve future financial crises and their potential challenges, we obtained the most current Fund documentation for the two key proposals, the Sovereign Debt Restructuring Mechanism (SDRM) and Collective Action Clauses (CACs). We examined the purpose, goals, requirements, and status of implementation. To obtain views on the private sector's understanding of the components of the new proposals and potential implementation challenges, we conducted structured interviews with 22 representatives of private sector firms, including ratings agencies, investment banks, and pension funds. We also met with government, private sector emerging market participants, and nongovernmental officials at several conferences. We also interviewed Department of the Treasury officials and experts in international finance and law. The IMF did not meet with us on these proposals because they were still under negotiation at the time of our review.

[1]These 33 countries represent the most significant emerging market participants in the international capital markets, as identified by J.P. Morgan.

We conducted fieldwork in Washington, D.C., and in New York. We performed our work from May 2002 to May 2003 in accordance with generally accepted government auditing standards.

Private Sector Structured Interview Participants

Company	Perspectives obtained on IMF efforts in crisis		
	Anticipation	Prevention	Resolution
Citicorp	x	x	x
Cleary Gottlieb & Hamilton	x		x
Credit Suisse	x	x	x
Darby's Overseas Investments	x	x	x
Elliot Associates	x		x
Emerging Market Traders Association	x		x
eStandards Forum	x	x	x
Eurasia Group	x	x	x
Fitch Ratings	x	x	x
HBK	x		x
HSBC	x	x	x
International Primary Markets Association	x		x
Institute for International Finance	x		x
Japan Center for International Finance	x		x
J.P. Morgan	x		x
Lehman Brothers	x	x	x
Mass Mutual	x		x
Moody's Investor Service	x	x	x
Securities Industry Association	x	x	x
Societe Generale	x	x	x
Standard & Poor's	x	x	x
Straus & Boies	x		x
Wilshire Associates	x	x	

Source: GAO.

Assessment of IMF Forecasting

Congress expressed concerns regarding the accuracy of the International Monetary Fund's (IMF's) growth rate projections and asked us to examine them. In response, we analyzed the quality of the forecasts produced by the World Economic Outlook (WEO), the Fund's primary forecasting tool. Using econometric techniques common to forecast evaluation studies, we examined the basic measures of forecast accuracy, bias, and efficiency. This assessment supplements our finding on WEO's efforts to anticipate crises reported earlier. We found that WEO forecasts of gross domestic product (GDP) growth and inflation perform somewhat better than an assumption that next year's rate will be the same as this year's (called a "naive" forecast). However, there is evidence of an optimistic bias in the forecasts of GDP growth and inflation. In addition, we found that the naive forecast of the current account generally performed better than the WEO forecast. Moreover, WEO forecasts for the major industrialized countries were superior to emerging market forecasts, and forecasts for emerging market countries that had been on an IMF program were better than for those countries that were not. The shortcomings we observed in WEO forecasting are similar to those encountered by other private sector and official forecasters.

GAO Analysis Used Standard Econometric Techniques for Forecast Evaluation

We evaluated IMF forecasts for 87 emerging market countries. Our analysis focused on WEO forecasts of GDP, inflation, and the current account. Our measures of forecast quality relied on generally accepted econometric measures of accuracy, bias, and efficiency.

Overall Approach

To evaluate the quality of IMF forecasts, we analyzed the near-term and year-ahead WEO forecasts for 87 middle-income emerging market countries.[1] Appendix IV lists the 87 emerging market countries used in the analysis. Our analysis focused on three WEO forecast variables: (1) the growth rate of real GDP, (2) consumer price index (CPI) inflation (average over period), and (3) current account balance in billions of U.S. dollars. Our evaluation methodology is based on standard econometric techniques commonly found in the forecast literature, including the work of

[1]Our analysis focused on 81 middle-income countries and an additional 6 low-income countries listed by J.P. Morgan as emerging markets.

forecasting experts such as Stekler (1991), Artis (1996), and Loungani (2001).[2]

We also compared the quality of WEO forecasts of emerging market countries with WEO forecasts of the G-7 countries and we compared borrowers of IMF resources with those that were not.[3] Our comparison with the G-7 countries[4] allowed us to informally assess whether income level or data quality mattered in forecast quality. Our analysis of forecasts for program countries permitted us to assess whether WEO forecasts differ from forecasts contained within program documents, which are produced under conditions of greater staff scrutiny.[5] We also reviewed a number of forecast evaluation studies to see how our results compared to previous reviews and to contrast IMF forecast quality with other forecasting efforts.

Basic Definitions and Methods of Evaluation

Our analysis focused on the WEO's near-term and year-ahead forecasts. Near-term forecasts originate from the May WEO for each year, and they project for the remainder of the existing year (approximately 6 months ahead). The year-ahead forecasts come from the October WEO of the preceding year. Thus, a near-term forecast for 2000 would come from the May 2000 WEO, and a year-ahead forecast for 2000 would come from the October 1999 WEO. We compared these WEO forecasts to the "first settled estimate," which comes from the October WEO of the following year for which the forecast is made. Thus, we compared both the near-term and

[2]Herman Stekler, "Macroeconomic Forecast Evaluation Techniques," *International Journal of Forecasting* 7 (1991): 375-384; Michael J. Artis, "How Accurate are the IMF's Short-Term Forecasts? Another Examination of the World Economic Outlook," WP/96/89 (Washington, D.C.: International Monetary Fund [IMF], August 1996); Prakash Loungani, "How Accurate are Private Sector Forecasts? Cross-Country Evidence from *Consensus Forecasts of Output Growth*," *International Journal of Forecasting* 17 (2001): 419-432.

[3]We include the following General Resources Account-funded IMF programs: Stand-By Arrangements (SBA), Extended Fund Facility (EFF), Systemic Transformation Facility (STF), Compensatory Contingency Finance Facility (CCFF). Under the CCFF, countries can borrow resources on a stand-alone basis, i.e., outside of an IMF program. Macedonia and South Africa borrowed funds under the CCFF.

[4]The G-7 include Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

[5]Of the 87 emerging market countries analyzed, 57 were on an IMF program for some part of the 1990–2001 period.

year-ahead forecasts for 2000 with the "first settled estimate" from the October 2001 WEO.[6]

Most of the econometric tools we used to assess the quality of WEO forecasts analyze the errors deriving from the forecasts. Our econometric tools examined these errors for certain qualities and patterns. We defined the forecast error, e_t, as the difference between the forecasted, f_t, and realized, a_t, value of an indicator. Hence, we have

$$e_t = f_t - a_t.$$

Our examination of the errors in the Fund's forecasts focused on three measures of "goodness": accuracy, bias, and efficiency. We performed these tests separately for the 87 countries over the 11-year forecasting period.

Accuracy

The credibility of a forecast is established by its accuracy. The ultimate test of any forecast is whether it can predict future events accurately. Accuracy assesses whether forecasts tend, by some standard, to be close to actual outcomes. Although there is no objective standard of accuracy, comparisons to alternative forecasting methods, such as a naive model that uses historical trend data, is one way to judge relative accuracy. The accuracy measure we used is Theil's U-statistic (U_1), based on the naive model that assumes this year's growth rate will be the same as last year's.[7]

The Theil U-statistic is based on an examination of the forecast's root mean square error (RMSE). To compute RMSE, the forecast errors are squared and averaged over the sample to get the mean square error (MSE). RMSE is the square root of MSE.

[6]A persistent issue in the forecasting literature concerns which "actual" value to use to evaluate the accuracy of the forecasts: the first available estimate (available in May of the following year), the first settled estimate (available in October of the following year), or a later revision. We have taken the middle ground, as suggested by Loungani (2001), on the basis that forecasters are not attempting to predict later revisions, which incorporate information such as revisions of weights and changes in methods of construction that forecasters would not have been aware of at the time of the forecast.

[7]That is, the naive model assumes there is no change in the growth rate between t-1 and t.

$$RMSE = \sqrt{MSE} = \sqrt{\left(\frac{1}{N}\right)\sum_{t=1}^{N}(e_t)^2}$$

The Theil U-statistic allows us to scale the RMSE by the variability of the underlying data. The standard Theil statistic, commonly denoted as U_1, compares the RMSE of forecast series to the RMSE of the actual series,

$$U_1 = \frac{\sqrt{\left(\frac{1}{N}\right)\sum_{t=1}^{N}(e_t)^2}}{\sqrt{\left(\frac{1}{N}\right)\sum_{t=1}^{N}(\Delta a_t)^2}}$$

where $\Delta a_t = a_t - a_{t-1}$. A U_1 statistic greater than one denotes that the naive model performed better than the model being tested.

Bias

Bias determines whether forecast errors in one direction tend to be larger and/or more numerous than errors in the opposite direction. Forecast errors can be divided into two parts. One part is the "random error," which varies unsystematically, or randomly, from one forecast to the next. The other part is the "bias error," which remains constant for any particular forecasting procedure. Bias happens when factors other than random events influence the forecast results, resulting in an upward or downward tendency. An unbiased forecast means that forecast errors are approximately zero on average over time. However, an unbiased forecast does not guarantee that a forecast will be accurate enough to be useful if the errors are large.

To assess the extent of bias in the forecasts, we regress the forecast error on a constant term and then carry out a t-test for the coefficient. For a time series of forecasts (1990–2001 in our analysis), we have the set of forecast errors $\{e_1, e_2, \ldots, e_N\}$. The regression test for bias involves estimating the intercept coefficient, β_0, for the simple regression

$$e_t = \beta_0 + \varepsilon_t.$$

This reflects a partition of the forecast error into an estimate of the systematic component and a random component (ε_t). A t-test with $N-1$ degrees of freedom is then performed to test $H_0: \quad \beta_0 = 0$ versus the two-sided alternative $H_A: \quad \beta_0 \neq 0.$ We perform a t-test to determine whether the average bias is significantly different from zero. If the p-value is less than .05, we reject the hypothesis that there is no bias at the 95 percent level of significance. This means that there is less than a 5 percent chance that we are making a false rejection, that is saying the forecast is biased when it is not. A determination that a forecast is unbiased is a necessary, although not sufficient, condition for concluding that a forecast is efficient.

Efficiency

Efficiency examines whether a forecast has taken into account all available information. Establishing that a forecast is efficient means that no other model or readily available information would be able to improve the forecast, and there is no way to predict the direction or size of the errors. A test of efficiency makes use of the simple linear model where we regress the actual outcome on the forecast

$$a_t = \beta_0 + \beta_1 f_t + \varepsilon_t.$$

If the forecast is efficient in predicting the actual outcome, then the intercept, β_0, should be equal to 0 and the slope, β_1, should be equal to 1.[8] Using the regression model defined above, we perform a joint hypothesis test to check whether these conditions hold simultaneously.

[8]A zero intercept implies that the errors are randomly distributed; they vary unsystematically (unbiased). However, a forecast can be unbiased and not efficient. A slope of 1 implies a straight line through the zero intercept, denoting efficiency. A slope of 1 indicates that the forecast and actual value essentially coincide.

The algebraically simplified version of the test statistic for this hypothesis is shown below.[9]

$$F^*_{2,N-2} = \left[N\hat{\beta}_0^2 + 2(\hat{\beta}_0)(\hat{\beta}_1 - 1)(\sum_{t=1}^{N} f_t) + (\sum_{t=1}^{N} f_t^2)(\hat{\beta}_1 - 1)^2 \right] \times \left(\frac{2}{N-2} \right) \times \left(\frac{1}{RSS} \right)$$

The reference distribution for this statistic is an F-distribution with 2 and $N-2$ degrees of freedom. If the p-value for this statistic is less than .05, then we reject the hypothesis at the 95 percent level of significance that both the intercept is zero and the slope is one. This means that there is only a 5 percent chance that we are making a false rejection, that is saying the forecast is not efficient when it is.

WEO Forecasts Demonstrate Some Accuracy, but Also Optimistic Bias

Our analysis of the WEO forecasts for 87 emerging market countries shows that WEO forecasts perform somewhat better than a naive model for GDP growth and inflation, but not for current account (see table 2).

Table 2: Forecast Quality for 87 Emerging Market Countries, 1990–2001

	Accuracy[a] (percent)		Bias[b] (percent)		Direction of bias[c]		Efficiency[d] (percent)	
Forecast variable	**Year-ahead**	**Near-term**	**Year-ahead**	**Near-term**	**Year-ahead**	**Near-term**	**Year-ahead**	**Near-term**
GDP growth rate	62	74	21	15	Upward	Upward	76	85
Inflation	55	70	21	13	Downward	*Downward*[e]	72	67
Current account (billions of U.S. $)	24	56	8	8	*Upward*[e]	Indeterminate	67	79

Source: GAO analysis of IMF data.

[a]The percentage of countries in which the WEO forecast does a better job than the naive forecast (based on the Theil statistic).

[b]The percentage of countries in which there is statistically significant bias (at the 5 percent level).

[c]When bias occurs in 15 percent or more countries and the forecast errors tend to vary predominantly in one direction (more than 70 percent), then we indicate the direction of this bias.

[9]RSS is the residual sum of squares.

[d]Percentage of countries where we fail to reject the joint hypothesis that the intercept is zero and the slope is one; i.e., the evidence is not strong enough to reject the assumption of efficiency.

[e]Italics indicate that there are too few countries to consider bias a systematic trend.

We found the year-ahead WEO forecast does a better job than the naive forecast in more than 60 percent of the countries with GDP, in more than half the countries with inflation, and in about one-quarter of the countries with the current account. However, even for GDP, nearly 40 percent of the country forecasts were no better than an assumption that next year's value is the same as this year's. For all three variables, the shorter the forecast period, the more accurate the forecast. When the forecast time horizon shortens from 1 year to 6 months, the percentage of cases in which the WEO does a better job forecasting than the naive model increases for all three variables, exceeding 50 percent for the current account.

WEO forecasts for GDP and inflation demonstrated bias in about 20 percent of the country cases. The direction of the bias was upward for GDP and downward for inflation, indicating an optimistic tendency within the WEO forecasting process.[10] Although the bias was upward for the current account, also consistent with optimism, it occurred in only 8 percent of country forecasts.[11] For all three variables, we could not reject the hypothesis that WEO forecasts were efficient for at least two-thirds of the country's forecasts. However, in about one-fourth of the country cases, the WEO forecast could have been improved through the use of a different model or the addition of new information.

Forecasts for Major Industrialized Countries Are Better than Emerging Market Forecasts and Program Forecasts Are Better than Nonprogram Forecasts

WEO forecasts of the most developed countries are superior to its forecasts of emerging market countries when compared to the naive model forecasts. The improved forecast quality is likely due to better available data and greater stability of the wealthiest economies. Similarly, WEO forecasts for countries that borrow from the IMF are superior to those that do not. The increased scrutiny of borrowing countries by IMF staff likely contributes to the improved forecasts.

[10]Our finding of an optimistic (upward) bias for GDP forecasts is consistent with, and helps explain, our finding in the main report of the WEO's difficulty in forecasting recessions.

[11]An optimistic bias in the current account means that the forecast was for a smaller current deficit or a larger surplus than occurred.

WEO Forecasts for Major Industrialized Countries Are Better than Those for Emerging Markets

WEO forecasts of GDP and inflation for the G-7 countries are considerably better than its forecasts for the emerging market countries when compared to the naive model forecasts. (see table 3).

Table 3: Forecast Quality for G-7 Countries, 1990-2001

Forecast variable	Accuracy[a] (number of countries)		Bias[b] (number of countries)		Direction of bias (number of countries)		Efficiency[c] (number of countries)	
	Year-ahead	Near-term	Year-ahead	Near-term	Year-ahead	Near-term	Year-ahead	Near-term
GDP growth rate	6	7	2	0	*Upward*[d]	N/A	5	7
Inflation	6	7	0	0	N/A	N/A	7	7
Current account (billions of U.S. $)	1	5	1	0	*Downward*[d]	N/A	5	7

Legend

N/A = not applicable

Source: GAO analysis of IMF data.

Note: Number of countries, and not percentages, are reported given the small number of cases.

[a]The number of countries for which the WEO forecast does a better job than the naive forecast (based on the Theil statistic).

[b]The number of countries in which there is statistically significant bias (at the 5 percent level).

[c]The number of countries where we fail to reject the joint hypothesis that the intercept is zero and the slope is one, i.e., the evidence is not strong enough to reject the assumption of efficiency.

[d]Italics indicate that there are too few countries to consider bias a systematic trend.

This improvement is evident across the full range of analyses. For example, in six out of seven countries, the year-ahead WEO forecasts of GDP and inflation for the G-7 countries were found to be accurate, and the near-term forecasts for GDP and inflation were accurate for all of the G-7 countries. These results are considerably better than WEO forecasts for emerging markets. In the year-ahead forecasts, bias and efficiency were a concern in two forecasts of GDP, and one current account forecast, but they were not a concern in the inflation forecasts. Although the year-ahead forecast for current account was inaccurate for six of seven countries, the near-term forecast was accurate for five of the G-7 country cases. The improved quality of WEO forecasts for the G- 7 countries is likely due to better available data and greater stability of these economies, compared to emerging market countries.

WEO Forecasts of Countries on an IMF Program Are Superior to Nonprogram Country Forecasts

We found that WEO forecasts for 57 countries that were on an IMF program[12] (or that borrowed Fund resources under the CCFF) for any part of the forecast period tend to be more accurate than WEO forecasts for the 30 countries that were never on an IMF program during this period (see table 4).

Table 4: Comparison of Year-Ahead WEO Forecasts for Program and Nonprogram Countries, 1990–2001

	Accuracy Theil U-statistic[a]		Bias 5-percent significance level[b]		Direction of bias	
Forecast variable	**57 program countries**	**30 Nonprogram countries**	**57 program countries**	**30 Nonprogram countries**	**57 program countries**	**30 Nonprogram countries**
GDP growth rate	.827	.941	Yes	No	Upward	N/A
Inflation	.776	.918	Yes	No	Downward	N/A
Current account (billions of U.S. $)	2.399	1.129	No	Yes	N/A	Downward

Legend

N/A = not applicable

Source: GAO analysis of IMF data.

[a]For pooled countries, if the U statistic is greater than 1, the naive forecast does a better job than the forecast under evaluation.

[b]Bias at the 5 percent level of significance means that there is less than a 5 percent chance that we are making a false rejection—i.e., saying the forecast is biased when it is not.

Countries that borrow from the IMF are likely to be under greater scrutiny from Fund staff than those that do not borrow, which could contribute to an improved forecast. For this analysis, we compared the Theil statistics for GDP growth, inflation, and current account for the two pooled forecasts. We found that the WEO forecasts of GDP and inflation for program countries are more accurate than those for nonprogram countries. That is, when compared to the naive model, the program countries have a lower Theil statistic than nonprogram countries. For both groups, the forecast of current account is inferior to the naive forecast (a Theil statistic greater than 1). The WEO program countries forecasts for GDP and inflation are biased, whereas the forecasts for the nonprogram countries were not. This indicates that by assuming implementation of the policies

[12]We include countries that were on the following General Resources Account-funded IMF programs and facilities: SBA, EFF, STF, CCFF. Some countries were on more than one program during the forecast period.

contained within the program, the Fund expects that GDP and inflation will perform better than they actually do.

In addition to the publicly available WEO forecasts for all countries, the IMF also produces a set of program forecasts for countries in the years they borrow from the Fund.[13] According to the Fund, these two forecasts should be very similar since they are prepared by the same staff in the same manner. Our comparison of program[14] and WEO forecasts for the initial year that each country was on program confirmed that the accuracy of the two forecasts for GDP and inflation were nearly identical (see table 5).

Table 5: Comparison of Program and WEO Year-Ahead Forecasts, for 52 Countries in the Initial Years on Program, 1990–2001[a]

	Accuracy Theil U-statistic[b]		Bias 5 percent significance level[c]		Direction of bias	
Forecast variable	**Program forecasts**	**WEO forecasts**	**Program forecasts**	**WEO forecasts**	**Program forecasts**	**WEO forecasts**
GDP growth rate	.689	.676	Yes	Yes	Upward	Upward
Inflation	.683	.694	No[d]	No[d]	N/A	N/A
Current account (billions of U.S. $)	.524	2.292	No	No	N/A	N/A

Legend

N/A = not applicable

Source: GAO analysis of IMF data.

Note: This analysis is based on 96 country/year observations, which is an average across three variables.

[a]We were able to obtain program projections for only 52 of the 57 program countries.

[b]If the U statistic is greater than 1, the naive forecast does a better job than the forecast under evaluation.

[c]Bias at the 5 percent level of significance means that there is less than a 5 percent chance that we are making a false rejection—i.e., saying the forecast is biased when it is not.

[d]The forecast is biased at the 10 percent level of significance means that there is less than a 10 percent chance that we are making a false rejection—i.e., saying the forecast is biased when it is not.

[13]For most of the years studied, these forecasts were not made public. In recent years, when countries agree, these forecasts are made public.

[14]We used the original program numbers, that is, the projections established at the outset when the IMF's Executive Board first approves an arrangement.

However, program forecasts of current account are substantially better than those reported in the WEO. In addition, in all cases the program forecasts were substantially more accurate than the naive model. This is further evidence that the greater scrutiny experienced by these countries while under a program probably contributes to an improved forecast.

Other Forecasting Efforts Have Difficulties Similar to the Fund

Our review of other forecast evaluations found that the shortcomings we observed in WEO forecasting are similar to difficulties encountered by other forecasters.[15] These studies examined forecasts[16] produced by the private sector (for example, consensus forecasts), governments, and multinational agencies including the IMF and Organization for Economic Cooperation and Development. These studies, similar to our observation in this report, found a general inability to predict recessions. In addition, consistent with our results, these studies found that (1) the shorter the time horizon, the more accurate the forecasts; (2) current account forecasts are

[15]Harjit K. Arora & David J. Smyth, "Forecasting the Developing World: An Accuracy Analysis of the IMF's Forecasts," *International Journal of Forecasting* 6 (1990): 393-400; Michael J. Artis, "How Accurate are the IMF's Short-Term Forecasts? Another Examination of the World Economic Outlook," WP/96/89 (Washington, D.C.: International Monetary Fund [IMF], August 1996); José M. Barrionuevo, "How Accurate Are the World Economic Outlook Projections?" in *World Economic Outlook*, ch. 2, Staff Studies for World Economic Outlook (Washington, D.C.: IMF, 1993); Roy Batchelor, "The IMF and OECD *versus* Consensus Forecasts" (London, England: City University Business School, August 2000); William W. Beach, Aaron B. Schavey, & Isabel M. Isidro, "How Reliable Are IMF Economic Forecasts?" CDA 99-05 (Washington, D.C.: The Heritage Foundation, The Heritage Center for Data Analysis, August 27, 1999); David Fintzen & H.O. Stekler, "Why Did Forecasters Fail to Predict the 1990 Recession?" *International Journal of Forecasting* 15 (1999): 309-323; IMF, "The Accuracy of World Economic Outlook Growth Forecasts: 1991–2000," in *World Economic Outlook*, Box 3.1 (Washington, D.C.: IMF, December 2001): 37-39, and IMF, "How Well Do Forecasters Predict Turning Points?" in *World Economic Outlook*, Box 1.1 (Washington, D.C.: IMF, May 2002): 6-8; Grace Juhn & Prakash Loungani, "Further Cross-Country Evidence on the Accuracy of the Private Sector's Output Forecasts," *IMF Staff Papers* 49, no. 1 (2002); Prakash Loungani, "How Accurate are Private Sector Forecasts? Cross-Country Evidence from *Consensus Forecasts of Output Growth*," *International Journal of Forecasting* 17 (2001): 419-432; Albert Musso & Steven Phillips, "Comparing Projections and Outcomes of IMF-Supported Programs," *IMF Staff Papers* 49, no. 1 (2002); Scott Shuh, "An Evaluation of Recent Macroeconomic Forecast Errors," *New England Economic Review* (January/February 2001); Marten Blix et al., "How Good is the Forecasting Performance of Major Institutions?" *Economic Review* (Stockholm, Sweden: Sveriges Riksbank Monetary Policy Department, March 2001): 38-68; and Victor Zarnowitz, "The Record and Improvability of Economic Forecasting," *NBER Working Paper No. 2099* (December 1986).

[16]Forecasters evaluated the accuracy of many variables, including output (GDP), inflation, current account, exports, and imports, among others.

markedly weaker than the forecasts for GDP and inflation; (3) when bias is found, forecasts tend to overestimate GDP and underestimate inflation; and (4) GDP and inflation forecasts for the industrial countries tend to be more accurate and less biased than forecasts for developing countries. While several studies found that WEO forecasts for developing countries were inferior to those generated by the naive model, one study found that WEO forecasts for developing countries did notably better than a naive forecast. A number of studies compared the quality of WEO forecasts with those produced by the private sector. Although some studies found the relative quality of the forecasts to be generally the same, a few studies found WEO forecasts to be less accurate than those of the private sector.

Eighty-seven Emerging Market Countries

	Country	Region[a]	Income group[b]
1	Albania	Countries in transition	Lower middle income
2	Algeria	Africa	Lower middle income
3	Antigua and Barbuda	Western Hemisphere	Upper middle income
4	Argentina	Western Hemisphere	Upper middle income
5	Bahrain	Middle East and Turkey	Upper middle income
6	Belarus	Countries in transition	Lower middle income
7	Belize	Western Hemisphere	Lower middle income
8	Bolivia	Western Hemisphere	Lower middle income
9	Botswana	Africa	Upper middle income
10	Brazil	Western Hemisphere	Upper middle income
11	Bulgaria	Countries in transition	Lower middle income
12	Cape Verde	Africa	Lower middle income
13	Chile	Western Hemisphere	Lower middle income
14	China	Developing Asia	Lower middle income
15	Colombia	Western Hemisphere	Lower middle income
16	Costa Rica	Western Hemisphere	Upper middle income
17	Cote d'Ivoire	Africa	Low income
18	Croatia	Countries in transition	Upper middle income
19	Czech Republic	Countries in transition	Upper middle income
20	Djibouti	Africa	Lower middle income
21	Dominica	Western Hemisphere	Upper middle income
22	Dominican Republic	Western Hemisphere	Lower middle income
23	Ecuador	Western Hemisphere	Lower middle income
24	Egypt	Middle East and Turkey	Lower middle income
25	El Salvador	Western Hemisphere	Lower middle income
26	Equatorial Guinea	Africa	Lower middle income
27	Estonia	Countries in transition	Upper middle income
28	Fiji	Developing Asia	Lower middle income
29	Gabon	Africa	Upper middle income
30	Grenada	Western Hemisphere	Upper middle income
31	Guatemala	Western Hemisphere	Lower middle income
32	Guyana	Western Hemisphere	Lower middle income
33	Honduras	Western Hemisphere	Lower middle income
34	Hungary	Countries in transition	Upper middle income
35	India	Developing Asia	Low income

(Continued From Previous Page)

	Country	Region[a]	Income group[b]
36	Indonesia	Developing Asia	Low income
37	Iran, Islamic Rep. of	Middle East and Turkey	Lower middle income
38	Iraq	Middle East and Turkey	Lower middle income
39	Jamaica	Western Hemisphere	Lower middle income
40	Jordan	Middle East and Turkey	Lower middle income
41	Kazakhstan	Countries in transition	Lower middle income
42	Kiribati	Developing Asia	Lower middle income
43	Korea	Developing Asia	Upper middle income
44	Latvia	Countries in transition	Lower middle income
45	Lebanon	Middle East and Turkey	Upper middle income
46	Libya	Middle East and Turkey	Upper middle income
47	Lithuania	Countries in transition	Lower middle income
48	Macedonia, former Yugoslav Rep. of	Countries in transition	Lower middle income
49	Malaysia	Developing Asia	Upper middle income
50	Maldives	Developing Asia	Lower middle income
51	Mauritius	Africa	Upper middle income
52	Mexico	Western Hemisphere	Upper middle income
53	Morocco	Africa	Lower middle income
54	Namibia	Africa	Lower middle income
55	Nigeria	Africa	Low income
56	Oman	Middle East and Turkey	Upper middle income
57	Pakistan	Developing Asia	Low income
58	Panama	Western Hemisphere	Upper middle income
59	Papua New Guinea	Developing Asia	Lower middle income
60	Paraguay	Western Hemisphere	Lower middle income
61	Peru	Western Hemisphere	Lower middle income
62	Philippines	Developing Asia	Lower middle income
63	Poland	Countries in transition	Upper middle income
64	Romania	Countries in transition	Lower middle income
65	Russia	Countries in transition	Lower middle income
66	Samoa	Developing Asia	Lower middle income
67	Saudi Arabia	Middle East and Turkey	Upper middle income
68	Seychelles	Africa	Upper middle income
69	Slovak Republic	Countries in transition	Upper middle income
70	South Africa	Africa	Upper middle income
71	Sri Lanka	Developing Asia	Lower middle income
72	St. Kitts and Nevis	Western Hemisphere	Upper middle income

(Continued From Previous Page)

	Country	Region[a]	Income group[b]
73	St. Lucia	Western Hemisphere	Upper middle income
74	St. Vincent and the Grenadines	Western Hemisphere	Lower middle income
75	Suriname	Western Hemisphere	Lower middle income
76	Swaziland	Africa	Lower middle income
77	Syrian Arab Rep.	Middle East and Turkey	Lower middle income
78	Thailand	Developing Asia	Lower middle income
79	Tonga	Developing Asia	Lower middle income
80	Trinidad and Tobago	Western Hemisphere	Upper middle income
81	Tunisia	Africa	Lower middle income
82	Turkey	Middle East and Turkey	Upper middle income
83	Turkmenistan	Countries in transition	Lower middle income
84	Ukraine	Countries in transition	Low income
85	Uruguay	Western Hemisphere	Upper middle income
86	Vanuatu	Developing Asia	Lower middle income
87	Venezuela	Western Hemisphere	Upper middle income

Sources: IMF, World Bank, and J.P. Morgan.

[a]Based on WEO regional groupings, IMF 2002.

[b]World Bank analytical classification by income, July 2001.

Standards, Codes, and Principles Assessed under IMF and World Bank Reports on the Observance of Standards and Codes

Assessment start date	Responsible institution	Standard or code and rationale for adoption
Transparency standards: The standards on transparency in government operations and policy making are considered within the Fund's direct operational focus.		
1996–97	IMF	IMF *Special Data Dissemination Standard* (SDDS) and *General Data Dissemination Standard* (GDDS). The purpose of the IMF's SDDS is to guide member country governments that have, or might seek, access to international capital markets in publishing comprehensive, timely, accessible, and reliable economic and financial statistics. The purpose of the GDDS is to help any member country government provide more reliable economic data. The SDDS and GDDS were created in 1996 and 1997, respectively.
1998 (modified 2001)	IMF	IMF *Code of Good Practices on Fiscal Transparency.* This Code is intended to help member country governments improve the disclosure of information about the design and results of fiscal policy, making governments more accountable for policy implementation and strengthening credibility and public understanding of macroeconomic policies and choices.
1999	IMF	IMF *Code of Good Practices on Transparency in Monetary and Financial Policies.* This Code is designed to increase the effectiveness of monetary and financial policies by raising public awareness of the government's policy goals and instruments and making governments (especially independent central banks and financial agencies) more accountable.
Financial sector standards: The financial sector standards are considered within the direct operational focus of both the Fund and the World Bank and are generally assessed under the joint Fund-Bank FSAP.		
1999	Joint IMF-Bank	Basel Committee's *Core Principles for Effective Banking Supervision* (BCP). The BCP is intended to guide the development of an effective system for supervising banks, a large sector of most economies. The IMF and World Bank began assessments of countries' compliance with the BCP standard in conjunction with the Financial Sector Assessment Program (FSAP) launched in 1999.
1999	Joint IMF-Bank	International Organization of Securities Commissions' (IOSCO) *Objectives and Principles for Securities Regulation*. The IOSCO Objectives and Principles are designed to help governments establish effective systems to regulate securities which contribute strongly to investor confidence. The IMF and World Bank began using them to assess securities regulation in conjunction with the FSAP, launched in 1999.

(Continued From Previous Page)

Assessment start date	Responsible institution	Standard or code and rationale for adoption
1999 (modified 2000)	Joint IMF-Bank	International Association of Insurance Supervisors' (IAIS) *Insurance Core Principles.* The IAIS Core Principles are designed to contribute to effective insurance supervision that supports financial stability. The IMF and World Bank began assessing member countries' regulatory practices in this area in conjunction with the FSAP, launched in 1999.
1999	Joint IMF-Bank	Committee on Payments and Settlements Systems' (CPSS) *Core Principles for Systemically Important Payment Systems.* The CPSS Core Principles are intended to strengthen payments systems, which provide the channels through which funds are transferred among banks and other institutions. The IMF and the World Bank began assessing member countries' observance of this standard in conjunction with the FSAP, launched in 1999.
2002	Joint IMF-Bank	Financial Action Task Force (FATF) *40 Recommendations on Anti-Money Laundering* and *8 Special Recommendations on Terrorism Financing.* The FATF's 40 Recommendations and 8 Special Recommendations are intended to promote policies that combat money laundering and terrorist financing, which threaten financial system integrity and may undermine the sound functioning of financial systems. In 2002, the IMF and World Bank agreed to perform anti-money laundering and terrorist financing assessments as a 12-month pilot program, generally in conjunction with the FSAP.
Corporate sector standards: The corporate sector standards are considered important for the effective operation of domestic and international financial systems and are assessed by the World Bank.		
2000	World Bank	Organization for Economic Cooperation and Development's (OECD) *Principles of Corporate Governance*. The OECD developed its corporate governance principles to help governments evaluate and improve their legal, institutional, and regulatory frameworks for corporate governance. The World Bank developed a template for assessing adherence to corporate governance principles based on the OECD's Principles established in 1999.

(Continued From Previous Page)

Assessment start date	Responsible institution	Standard or code and rationale for adoption
2000	World Bank	International Accounting Standards Board's (IASB) *International Accounting Standards.* The ROSC's accounting module is intended to compare member countries' corporate accounting practices with international accounting standards and to analyze actual accounting practice to determine the extent of compliance with applicable standards. There is special focus on the strengths and weaknesses of the institutional framework for supporting high quality accounting and financial reporting. In 2000, the World Bank developed a template for assessing adherence to accounting standards based on the IASB Standards.
2000	World Bank	International Federation of Accountants' (IFAC) *International Standards on Auditing.* The ROSC's auditing module compares member countries' auditing standards and auditors' professional code of ethics with the standards and codes issued by IFAC. Also, the quality of actual auditing practices is evaluated. There is special focus on the strengths and weaknesses of the institutional framework for supporting high quality audit. In 2000, the World Bank developed a template for assessing adherence to auditing standards based on the IFAC's Standards.
2001 (draft)	World Bank	World Bank *Principles and Guidelines for Effective Insolvency and Creditor Rights Systems.* In 2001, the World Bank developed draft *Principles and Guidelines* intended to help countries develop effective insolvency and creditor rights' systems, two important components of financial system stability. The World Bank has conducted several assessments based on its draft *Principles and Guidelines*. The United Nations Commission on International Trade Law (UNCITRAL) is completing a draft *Legislative Guide on Insolvency Law*. UNCITRAL, Bank, and IMF staff are working toward a single standard.

Sources: IMF and World Bank.

Update on the International Monetary Fund's Safeguards Assessments

In response to allegations of misreporting and misuse of International Monetary Fund (IMF or the Fund) disbursements in the late 1990s, the Fund increased its efforts to protect its resources by introducing safeguards assessments, a process for evaluating the controls employed by the central banks of borrowing member countries and for recommending measures to address inadequacies. Safeguards assessments have detected numerous inadequacies that could lead to misuse of Fund resources and have recommended measures to remedy them.

The Fund Introduces Safeguards Assessments for Member Countries That Currently Borrow

In 2000, the Fund introduced safeguards assessments, a process for identifying inadequacies in central banks' ability to ensure the integrity of their operations, especially the use of Fund resources. Safeguards assessments evaluate central banks' internal and external audit mechanisms, legal structure and independence, financial reporting procedures, and systems of internal controls.

In April 2002, the Fund's Executive Board made safeguards assessments a permanent policy. Safeguards assessments apply to all member countries with current or anticipated borrowing arrangements with the Fund. Countries with borrowing arrangements approved after June 30, 2000, are subject to a full safeguards assessment covering the five areas listed above. Countries with arrangements in effect before June 30, 2000, that have not yet repaid all Fund resources, were subject to a partial assessment covering only the external audit mechanism. Countries that do not have borrowing arrangements or have already repaid all Fund resources are not subject to safeguards assessments. According to Fund officials, since 2000 the IMF has not provided financial resources to countries that did not meet its safeguards requirements.

As of December 2002, the Fund had performed 37 full safeguards assessments and 27 partial assessments, with 23 assessments under way.[1] The completed assessments detected a number of serious vulnerabilities that could lead to misuse of central bank resources, including those borrowed from the Fund. Of the full safeguards assessments, the Fund found the following:

[1]International Monetary Fund, *Safeguards Assessments – Semi-Annual Update*, SM/03/88 (Washington, D.C.: Mar. 6, 2003).

- Inadequate accounting standards in 82 percent of the central banks, which interfere with the accurate recording of central bank operations. For example, some central banks did not adhere to a financial reporting framework such as the International Accounting Standards (IAS), which would help prevent misreporting of transactions.

- Deficient internal audit in 79 percent of central banks, which reduces their ability to address risks of misuse and misreporting of Fund resources. For example, some internal audit departments did not audit high-risk areas such as foreign reserves management.

- Poor controls over foreign reserves and data reporting to the Fund in 49 percent of the central banks, increasing the possibility of misreporting and misuse of Fund resources. For example, safeguards assessments identified improper techniques for valuing foreign reserves and failure to reconcile data reported to the Fund for program monitoring purposes with underlying accounting records.

According to Fund officials, when IMF staff detect significant weaknesses in the controls of assessed central banks, they recommend that the government take corrective actions. For actions that IMF staff consider essential, they may incorporate the recommendations into the list of preconditions that the Fund requires borrower countries meet before receiving IMF resources, or they may suggest that the government include the recommended actions in its official economic program. The Fund reports that of the 275 recommendations that were expected to be implemented on or before December 31, 2002, 23 percent were incorporated as conditions for IMF resources or included in official economic program statements.

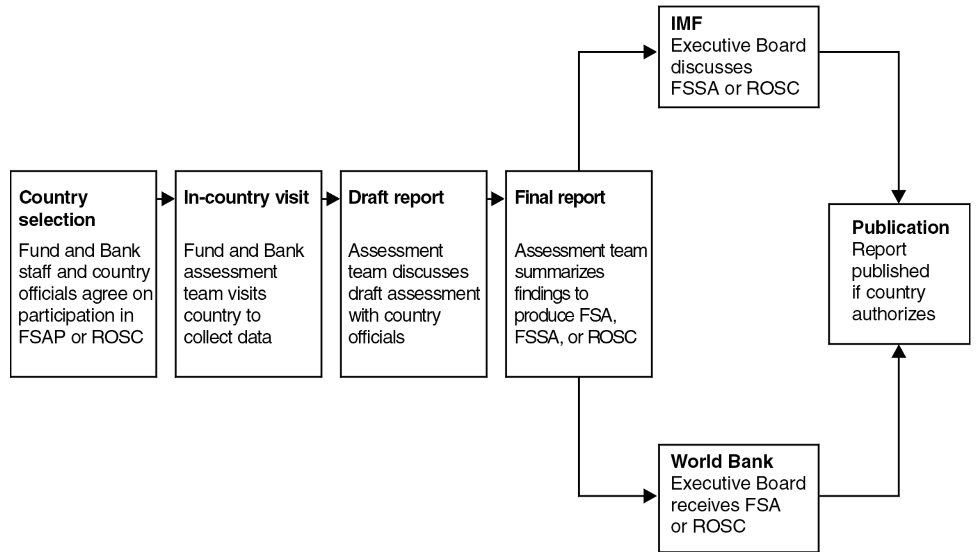
Implementation of the Fund's Assessment Recommendations

Fund staff monitor central banks' implementation of recommendations by performing in-depth reviews of their audited annual financial statements and other documents every 12 to 18 months until the borrower country government has repaid all Fund resources. The Fund monitors on a continuous basis, central banks' implementation of all other safeguards measures and of developments within the central banks that may lead to new vulnerabilities.

Recently, the Fund reported that central banks have implemented 90 percent of recommendations that IMF staff included as a precondition for receiving IMF resources. According to Fund officials, the IMF stopped disbursing resources in the few cases where governments failed to implement these essential recommendations. Similarly, the Fund reported that central banks have implemented 84 percent of measures included in governments' official economic program statements.

On the other hand, the Fund reported that some recommendations made by the safeguards assessments have not been implemented as intended, although Fund officials state that these delays typically occurred in nonpriority areas. When central bank authorities fail to implement the recommendations, Fund staff increase pressure to comply, often proposing the measures' inclusion as a precondition for the next disbursement. However, the Fund reports that staff can only adopt this approach in countries where the Fund is actively disbursing funds. For countries that are not currently receiving Fund disbursements, implementation of recommendations from the safeguards assessments tends to be more problematic because the Fund cannot exert pressure through a borrowing arrangement.

Fund/World Bank FSAP and ROSC Process



Sources: GAO analysis of Fund and Bank data.

Country Participation in and Publication of FSAPs and ROSCs

Figure 4 lists all countries that have participated in Financial Sector Assessment Program (FSAP) or Reports on the Observance of Standards and Codes (ROSC) assessments and whether or not these assessments were published. The figure describes participation and publication by the 33 major emerging market countries. Countries highlighted in bold have not participated in any assessments. Figure 5 describes participation and publication by other countries (industrial, developing, and smaller emerging markets).

Figure 4: FSAP and ROSC Participation and Publication by Major Emerging Market Countries

	FSAP/FSSA	Data	Fiscal	Monetary	Banking supervision	Insurance	Securities	Payments	Corporate governance	Accounting and auditing	Insolvency	Anti-money laundering
Algeria					●							
Argentina		●	●	●	●						●	
Brazil			●	◒	◒	◒	◒	◒	◒	◒	◒	
Bulgaria	●	●	●	●	●	●	●	●	◒	◒		
Chile		●							◒			
China												
Colombia[a]	◒			◒	◒							
Cote d'Ivoire												
Croatia	●			●	●	●	●	●	●	●		
Czech Republic	●	●	●	●	●	●	●	●	●		●	
Ecuador		●										
Egypt, Arab Rep. of	◒		◒	◒	◒	◒	◒	◒	●	◒		
Hungary[a]	◒	●	●	●	●	●	●	●	●			
India[a]	◒		●	◒	◒		◒	◒	●			
Indonesia												
Korea, Rep. of	●	◒	●	●	●	●	●	●	●			●
Lebanon[a]	◒			◒	◒							
Malaysia									●			
Mexico	●		●	●	●	●	●	●				
Morocco		◒							◒	●		
Nigeria	◒			◒	◒		◒	◒				
Pakistan			●									
Panama												
Peru	◒			◒	◒			◒				
Philippines	◒		●	◒	◒	◒	◒	◒	●	●		
Poland	●		●	●	●	●	●	●	●	●		
Russian Federation		◒	◒	◒						◒		
Slovak Republic	●		●	●	●	●	●	●		●	●	
Thailand												
Turkey		●	●						●		◒	
Ukraine			●						◒	●		
Uruguay		●	●									
Venezuela												

◒ Participated in assessment and did not publish report.

● Participated in assessment and published report.

Sources: IMF and World Bank (through March 2003).

[a]These countries participated in the FSAP under a pilot program. The reports were not intended for publication.

Figure 5: FSAP and ROSC Participation and Publication by Other Countries

	FSAP/FSSA	Data	Fiscal	Monetary	Banking supervision	Insurance	Securities	Payments	Corporate governance	Accounting and auditing	Insolvency	Anti-money laundering
Albania		●										
Armenia	◒	●	●	◒	◒			◒				
Australia		●	●	●	●							
Azerbaijan		●	●									
Bahrain					◒							
Bangladesh		◒										
Barbados	●			●	●	●	●	●				
Benin			●									
Botswana		●										
Burkina Faso			●									
Cameroon[a]	◒	●	●	●	●	●		●				
Canada[a]	◒		●	●	●	●	●	●				
Costa Rica	◒	●		◒	◒			◒				
Dominican Republic	◒			◒	◒	◒		◒				
El Salvador[a]	◒			◒	◒			◒				
Estonia[a]	◒	●	●	●	●	●	●	●				
Euro Area				●				●				
Finland	●			●	●	●	●	●				
France			●	●								
Gabon	●			●	●	●						
Georgia	●			●	●	●		●	●			
Ghana	◒			◒	◒	◒	◒	◒				
Greece			●									
Guatemala	◒			◒	◒		◒					
Guyana			◒									
Honduras			●									
Hong Kong SAR of China		●	●	●	●				◒			
Iceland	●			●	●	●	●	●				
Iran, Islamic Rep. of[a]	◒		●	◒	◒							
Ireland[a]	◒			●	●	●	●	●				
Israel	●			●	●	●	●	●				
Italy		●	●									
Japan			●									

	FSAP/FSSA	Data	Fiscal	Monetary	Banking supervision	Insurance	Securities	Payments	Corporate governance	Accounting and auditing	Insolvency	Anti-money laundering
Jordan		●										
Kazakhstan[a]	◒	●	◒	◒	◒	◒	◒	◒				
Kenya										●		
Kyrgyz Republic	●		●	●	●			●			◒	
Latvia	●		●	●	●	●	●	●	●			
Lithuania	●	●	●	●	●	●		●	●	●	●	
Luxembourg	●			●	●	●	●	●				
Mali			●									
Malawi			●									
Mauritania			●									
Mauritius		●						●				
Mongolia		●	●									
Mozambique		●	●									
Namibia		●										
Nicaragua			●									
Papua New Guinea			●									
Romania		●	●						◒			
Senegal	●	●		●	●	●	●					
Slovenia	●		●		●	●	●	●				
South Africa[a]	◒	●	◒	◒	◒	◒	◒	◒	◒	◒		
Sri Lanka	◒	●	●	◒	◒		◒	◒				
Sweden	●	●	●	●	●	●	●	●				
Switzerland	●			●	●	●	●	●				
Tanzania			●									
Tunisia	●	●	●	●	●	●	●	●				
Uganda	●	●	●	●	●			●				
United Arab Emirates	●			●	●			●				
United Kingdom	●	●	●	●	●	●	●	●				●
United States												
Yemen, Rep. of	◒			◒	◒			◒				
Zambia			◒	◒	◒			◒				
Zimbabwe									●			

◒ Participated in assessment and did not publish report.
● Participated in assessment and published report.

Sources: IMF and World Bank (through March 2003).

[a]These countries participated in the FSAP under a pilot program. The reports were not intended for publication.

Fund Resources Provided under the Supplemental Reserve Facility

In recent financial crises, the International Monetary Fund (IMF or the Fund) provided large short-term loans under the Supplemental Reserve Facility (SRF) with high interest rates to member countries experiencing exceptional balance of payments problems. These problems resulted from a sharp decline of investor confidence and significant outflows of capital. These loans generally were provided when the countries had exceeded their financing limit under other loan mechanisms, including the Stand-By Arrangement (SBA). In some circumstances, such as Argentina and Uruguay, the Fund provided a mix of SRF and SBA loans. Table 6 lists Fund members receiving SRF loans from 1997 to 2002.

Table 6: IMF Supplemental Reserve Facility Loans, 1997–2002

Country	Loan approval date	Loan mix	SRF repaid as of May 2003
Korea	12/18/97	SRF	Yes
Russia	7/20/98	SRF	Yes
Brazil	12/2/98	SRF	Yes
Turkey	12/21/00	SRF	Yes
Argentina	1/12/01	SRF (40%) SBA (60%)	No
Argentina	9/7/01	SRF (63%) SBA (37%)	No
Brazil	9/14/01	SRF	No
Uruguay	6/25/02	SRF (33%) SBA (67%)	No
Brazil	9/6/02	SRF (33%) SBA (67%)	No

Source: IMF.

Comments from the Department of the Treasury

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C.

UNDER SECRETARY

June 3, 2003

Mr. Joseph Christoff
Director, International Affairs and Trade
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Christoff:

I am responding on behalf of Secretary Snow to your request of May 21 for Treasury Department comment on GAO-03-734 "International Financial Crises: Challenges Remain in IMF's Ability to Anticipate, Prevent, and Resolve Financial Crises."

The Department of the Treasury agrees with the GAO's specific recommendations on the FSAP and ROSC program. The FSAP and ROSC are extremely valuable tools, and we strongly support an increase in the FSAP/ROSC coverage and frequency. We appreciate the IMF's effort in designing these products. Country demand for assessments and updates has been strong. We recognize, however, that not all important countries have volunteered to participate in the program.

Treasury consistently has urged the IMF and World Bank to move to a presumption of publication for FSAP/ROSCs. Treasury staff have worked with their IMF and World Bank counterparts to make the FSAP/ROSC more "user-friendly" for the private and official sector audience for these reports. The objective of shorter turn-around between assessment and public release is one we share.

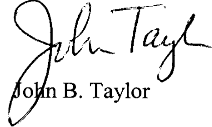
I concur with the GAO report's finding that improving the IMF's surveillance is an unfinished agenda, and Treasury will continue to advocate for improvement in the quality and utility of IMF surveillance. The GAO report notes correctly the WEO's mixed predictive power. The foundation of IMF surveillance is the bilateral review process. Article IV reports should be crisper and more focused – and publicly available. Bilateral surveillance should use new tools such as debt sustainability analysis, the increased use of vulnerability and financial soundness indicators, and better statistical data. The last few years have witnessed an improvement in the transparency of IMF operations and the quantity and quality of country data made available to the public.

As for crisis prevention and resolution, I would like to emphasize the substantial momentum toward the introduction of collective action clauses by emerging market countries that has built up over the last year. The United States strongly encouraged the development and implementation of collective action clauses as an important contribution to the prevention and resolution of emerging market financial crises through voluntary and market-based mechanisms. Previous to this effort, no emerging market country had

issued bonds publicly in New York with CACs. Mexico's CAC issuance this year marked a turning point in accepted market practice, with Brazil, South Africa, and Korea cementing the acceptance of CACs as standard practice. The introduction of such clauses serves as an important signal to investors that official financing is limited and that they cannot expect to be protected from risks.

I appreciate the opportunity to comment on the GAO report.

Sincerely,



John B. Taylor

Comments from the International Monetary Fund

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

INTERNATIONAL MONETARY FUND
WASHINGTON, D.C. 20431

FIRST DEPUTY
MANAGING DIRECTOR

CABLE ADDRESS
INTERFUND

June 2, 2003

Mr. Christoff
Director
International Affairs and Trade
United States General Accounting Office
Washington, DC 20548

Dear Mr. Christoff:

We welcome the opportunity to comment on your report entitled, "*Challenges Remain in the IMF's Ability to Anticipate, Prevent, and Resolve Financial Crises.*" We broadly agree with its main recommendation to improve the timeliness and coverage of the FSAP and ROSC reports, increase the frequency of the reports and updates, and encourage increased participation in these initiatives.

See comment 1.

However, the report reflects some serious misconceptions about the nature of the IMF's work—notably in its characterization of our initiatives to anticipate crises. The central focus of the report is on the limited value of the World Economic Outlook (WEO) and of early warning system (EWS) models in predicting financial crises—neither of which in fact plays this role in the Fund's efforts prevent crises. It is true that macroeconomic projections for individual countries that are published in the WEO rarely, if ever, depict a crisis occurring, and the forecasts in the WEO have the familiar and well-documented difficulties of forecasting in general.[1]

See comment 2.

One reason that the WEO does not predict crises is that, if it did, these predictions could be self-fulfilling—which would improve our apparent accuracy, but would clearly be irresponsible. Given our responsibilities for global financial stability, we are instead looking for better ways to use our analysis to motivate vulnerable countries to make policy changes that can help head off crises—even if this makes our predictions appear less accurate. That is not to say that our methods of assessing countries' vulnerability to crises have been perfected. On the contrary, we are constantly learning and seeking to improve these methods.

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[1] For example, recent WEO boxes have discussed *The Accuracy of WEO Growth Forecasts: 1991-2000* (December 2001; *The Accuracy of Forecasts of Recovery* (April 2002); and *How Well Do Forecasters Predict Turning Points* (May 2001). As well, the general over-optimism in the WEO's forecasts for Africa has been noted several times in the WEO.

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Moreover, in most cases the timing of a crisis cannot be confidently predicted six months to a year in advance; usually a crisis can only be characterized as more or less likely. Building on the experience of the capital account crises of recent years, IMF staff have put in place a range of initiatives to examine on a high-frequency basis the factors that may make countries vulnerable to crisis—including the strengths and weaknesses of their banking systems, their external financing needs, the adequacy of their external reserves, and the composition of their external debt. They have also developed an improved framework for assessing the sustainability of external and public debt. This work has improved the IMF's ability to predict crises by providing better informed judgment of the risks and vulnerabilities facing individual countries, regions, and the global economy. These risks are usually discussed at some length in the text of the WEO.

See comment 3.

The report also focuses on the high rate of "false alarms" in econometric "early warning system" (EWS) models of crises. This is true—both of the models used by the IMF and of other EWS models developed in private financial institutions—for some logical reasons. First of all, EWS models do not actually predict crises, but estimate a probability of their occurrence. The user can set a threshold probability at which to "call" a crisis: this involves a clear tradeoff, since if this threshold is set conservatively low, there will inevitably be false alarms, while if it is set higher we would fail to predict real crises. Given that the purpose for which we use these models is not to make final predictions of crises but to supplement other approaches to identifying vulnerable countries that require further scrutiny, setting a conservatively low threshold is appropriate. We are of course well aware of the shortcomings of EWS models, and that is why we do not rely on these models as our main tool in assessing vulnerability.

See comment 4.

See comment 5.

We also felt the report was unduly negative on the experience with the Financial Sector Assessment Program (FSAPs) and Reports on the Observance of Standards and Codes (ROSCs). In our view, these have been a valuable tool in assessing vulnerabilities related, respectively, to financial systems and other aspects of the institutional frameworks, although we are working to make them better focused and more effective. We recognize that many recommendations made in these assessments are difficult to implement, for a combination of technical and political reasons. To address the technical constraints, these assessments are frequently followed up by technical assistance from the IMF, the World Bank and other agencies. Political and legal barriers to change are often more difficult to overcome, but identifying the problems is an important first step. Of course, we recognize that the ROSCs and FSAPs are work in progress, and welcome the GAO's recommendation for enhancing their effectiveness. In our view, these are worthwhile projects which we should continue to improve, and the recent reviews in the IMF and World Bank have led to a number of changes to strengthen the implementation of both these initiatives.

See comment 6.

Finally, the brief examination of the Fund's experience with safeguards in Appendix VI provides a misleading assessment of the objectives and outcomes of the safeguards policy. For this reason—and given that it is, at best, only tenuously related to work on crisis prevention and resolution and was not in the original terms of reference—it would be appropriate to delete it from the final report. The discussion in the report is a follow-up to a

statement by the Joint Economic Committee that "Fund lending safeguards are still lagging" (Press Release, April 2, 2003); a rebuttal of that earlier statement has already been sent to the Joint Economic Committee.

Very truly yours,

Anne Krueger
First Deputy Managing Director

cc: Ms. Jacklin, Executive Director for the United States

The following are GAO's comments on the letter from the International Monetary Fund, dated June 2, 2003.

GAO Comments

1. Our assessment of IMF's efforts to anticipate financial crises did not focus exclusively on the World Economic Outlook (WEO) and the Early Warning System (EWS) models. We examined all six components of the IMF's vulnerability assessment framework. However, as the only mature and quantifiable elements of the framework, our analysis focused more heavily on the track records of the WEO and EWS. As we reported, these elements have not performed well at anticipating prior crises. While we acknowledge that the new framework is more comprehensive than past efforts at anticipating crises, it is too early to assess whether this framework will be successful in anticipating future crises.

2. The IMF's comment supports our finding. The IMF states that its responsibility to maintain financial stability could make its predictions appear less accurate since an accurate prediction of crises within WEO forecasts would be irresponsible and could lead to a crisis. In effect, the IMF acknowledges that their forecasts are overly optimistic and validates our finding on the weakness of the WEO component of the vulnerability assessment framework. This raises questions regarding the purpose and credibility of the WEO forecasts.

3. We state in the report that the IMF's new vulnerability assessment framework, which includes the examination of external reserve adequacy and the strengths and weaknesses of banking systems, is more comprehensive than its previous efforts to identify countries at risk of crisis. However, it is too early to assess whether this framework will be successful in anticipating future crises.

4. We recognize that the EWS models are just one of six components of the IMF's vulnerability assessment framework. However, the IMF's own internal review of the EWS models concluded that the false alarm rate was too high.

5. The report recognizes that the FSAP and ROSC assessments constitute a valuable source of information about vulnerabilities in member countries and states that IMF staff use these assessments to formulate policy recommendations. The report also recognizes that the IMF often provides technical assistance to help member countries build their

capacity to implement FSAP and ROSC recommendations. However, the report points out several factors that limit the usefulness of FSAP and ROSC assessments. Our recommendation, with which the IMF agrees, is designed to improve the timeliness and coverage of these assessments.

6. We based our description of IMF safeguards assessments on the IMF's reviews of this program. We consider this topic to be within the scope of this evaluation because the framework for conducting safeguards assessments is derived from the IMF's *Code of Good Practices on Transparency in Monetary and Financial Policies*. Safeguards assessments are thus related to the standards initiative, which constitutes a central element of this report.

Comments from The World Bank

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

The World Bank
Washington, D.C. 20433
U.S.A.

OFFICE OF THE PRESIDENT

June 2, 2003

Mr. Joseph Christoff
Director
International Affairs and Trade
U.S. General Accounting Office
Washington DC 20548

Dear Mr. Christoff,

Thank you for the opportunity to comment on the sections of the General Accounting Office's draft report -- "International Financial Crises: Challenges Remain in IMF's Ability to Anticipate, Prevent, and Resolve Financial Crises" (GAO-03-734, May 2003) -- that have been shared with the World Bank.

The Bank's role and responsibilities in the topic matter covered in the sections of the draft report are appropriately delineated, and we appreciate the GAO's acknowledgement of the progress made in recent years in implementing the Financial Sector Assessment Program (FSAP) and the Reports on the Observance of Standards and Codes (ROSCs). We believe the use of these assessments will help to reduce the risk of financial crises and the associated economic and social costs. However, these assessments cannot forestall all financial crises for a number of reasons. Reforms proposed as a result of these assessments are sometimes difficult to implement for technical or political reasons. In addition, financial crises often are, as we have seen in recent years, caused by factors beyond the scope of the two initiatives. In that regard, one of the conclusions of the GAO review, suggesting that a principal obstacle to crisis prevention is the limited use made of the assessments by private sector participants and insufficient information about vulnerabilities, seems unwarranted.

See comment 1.

We generally agree with your recommendations to improve the timeliness and coverage of the FSAP and ROSCs, further refine the presentation to highlight main findings and recommendations, and encourage the publication of the reports by our client countries. Indeed these were the conclusions we reached in our recent reviews that were discussed by the Bank and IMF Boards of Directors earlier this year. Both Boards also highlighted the need for greater prioritization given the resource constraints and capacities of the two institutions. Accordingly they agreed that greater priority should continue to be given to systemically important economies, while keeping appropriate balance in coverage. We are concerned about the draft report's suggestion that mandatory

See comment 2.

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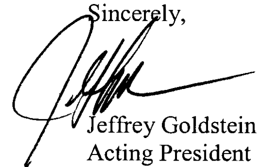
participation should be considered (by the IMF's Board). The principle of voluntary participation is an essential aspect of the FSAP and ROSC initiatives and, in our view, critical for the quality of the assessments and the ownership and likelihood of reforms that are the key objective of the two exercises.

Again, let me thank you for the opportunity to comment on those sections of the draft report that were shared with the Bank.

Sincerely,



Jeffrey Goldstein
Acting President

The following are GAO's comments on the letter from the World Bank, dated June 2, 2003.

GAO Comments

1. The report states unambiguously that crises can stem from a number of factors, some of which are outside the scope of the FSAP and ROSC assessments. However, there is broad agreement that the roots of the Mexican and Asian financial crises lay in weaknesses in financial systems and other institutions. The IMF and the World Bank based their decision to launch the FSAP and ROSC initiatives on the premise that timely identification of financial sector and institutional vulnerabilities can contribute to crisis prevention. The IMF and the World Bank have also acknowledged that FSAP and ROSC assessments can contribute to crisis prevention efforts by helping private sector participants make better informed investment decisions.

2. Our recommendation to pursue strategies to increase participation in the FSAP and ROSC assessments, including the possibility of making these assessments mandatory, stems from the IMF's and the World Bank's recognition of the need to prioritize participation by important emerging market countries. Although many of these countries have volunteered to participate in these assessments, others have not. While we are not suggesting that the assessments should be made mandatory, it is evident that the voluntary nature of the FSAP and ROSC has posed an obstacle to full participation by important emerging market countries.

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Staff Acknowledgments

In addition to those individuals named above, Eric Clemons, Suzanne Dove, Bruce Kutnick, Jonathan Rose, R.G. Steinman, Ian Ferguson, Mary Moutsos, Lynn Cothern, Carl Barden, David Dornisch, and Martin De Alteriis made key contributions to this report.

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