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## The politics of IMF forecasts

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# THE POLITICS OF IMF FORECASTS

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# THE POLITICS OF IMF FORECASTS

## Abstract

Using panel data for 157 countries over the period 1999-2005 we empirically investigate the politics involved in IMF economic forecasts. We find a systematic bias in growth and inflation forecasts. Our results indicate that countries voting in line with the US in the UN General Assembly receive lower inflation forecasts. As the US is the Fund's major shareholder, this result supports the hypothesis that the Fund's forecasts are not purely based on economic considerations. We further find inflation forecasts are systematically biased downwards for countries with greater IMF loans outstanding relative to GDP, indicating that the IMF engages in "defensive forecasting." Countries with a fixed exchange rate regime also receive low inflation forecasts. Considering the detrimental effects that inflation can have under such an exchange rate regime, we consider this evidence consistent with the Fund's desire to preserve economic stability.

JEL Code: C23, D72, F33, F34.

Keywords: IMF, economic forecasts, political influence.

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## 1. Introduction

A core responsibility of the International Monetary Fund (IMF) is to promote a dialogue among its member countries on the national and international consequences of their economic and financial policies. This process of monitoring and consultation is normally referred to as “surveillance.” In a globalized world, where the economic and financial policies of one country may affect many other countries, international cooperation to monitor economic developments on a global scale is essential.<sup>1</sup> Implicit in its original mandate, the IMF’s responsibility to oversee the international monetary system was made explicit when the *Articles of Agreement* were amended in 1978. In the words of the deputy director of IMF External Relations, “The IMF usually describes surveillance as its most central and important activity, and it absorbs the largest part of its budgetary resources” (Hacche 2007, 98). At the 2006 spring meetings, the IMF was actually given the duty to devote more effort to “multilateral” surveillance. In order to look for collective solutions, the IMF is to focus on how the policies of each member impacts the policies and outcomes of every other member in turn.<sup>2</sup> The surveillance role of the IMF will probably become even more important as the Fund seems to be getting out of the lending business.

The IMF regularly forecasts major macroeconomic variables in various developed and developing countries. The goals are both to monitor the world economy and also to help evaluate the effectiveness of the programs of economic reform it sponsors in the developing world. The IMF makes specific projections for the “performance criteria” of countries under such programs to help assess the degree of implementation of required policy changes (known as “conditionality”). Specifically, the IMF focuses on GDP growth, inflation, the rate of unemployment, balance of payments, current account, foreign trade, and fiscal indicators. Forecasts for these variables are published bi-annually (in April and September) in *World Economic Outlook (WEO)*, which also discusses prospects for the world economy and provides in-depth analyses of specific issues. The analyses and projections contained in *WEO* then become a significant source for other

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<sup>1</sup> Such importance has actually been confirmed by the recent episodes of financial crises.

<sup>2</sup> *The Economist*, April 27th 2006. Also see the description of the IMF’s Medium Term Strategy, available at <http://www.imf.org/external/np/exr/ib/2006/041806.htm> (accessed September 9, 2007).

forecasts of global economic activity, and a key element in the Fund's multilateral surveillance activities. Given the important role of surveillance, it is vital that the task be performed accurately.<sup>3</sup>

The forecasts published in *WEO* are described as the product of a review of world economic developments, which draws primarily on information the IMF staff gathers through its consultations with member countries (e.g., see *WEO* 2006). There is no question that initial projections are based on an econometric model.<sup>4</sup> Subsequent adjustment of forecast estimates leave much discretionary leeway for political influence, however, as well as potentially self-serving adjustments people at the IMF may have an incentive to make.

Previous studies of IMF surveillance have used statistical tests to determine the accuracy of forecasts published in *WEO* (among others, see Artis 1988, 1997; Barrionuevo 1993; Beach *et al.* 1999; Loungani 2000; Batchelor 2000; Pons 2000; Aldenhoff 2007; Timmermann 2007).<sup>5</sup> Beach *et al.* (1999) find evidence that the IMF forecasts for developing regions have been overly optimistic: *WEO* forecasts overestimated output and underestimated inflation. This was not the case of the major industrialized countries whose forecasts of GDP and inflation were both unbiased and efficient. In addition, these authors found that the error term was increasing with the size of the IMF loan a country receives, suggesting some kind of support of the Fund's lending activity. While this kind of "defensive forecasting," may be disappointing, the result stands to reason. IMF loans are typically tied to policy conditions. Forecasts for countries receiving IMF loans may mirror the expected outcome of the policies suggested by the IMF, and this bias would result in forecasts that are too optimistic. A bias in the other direction would be quite strange. It would indicate that the IMF itself expects its own recommended policies to be ineffective.

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<sup>3</sup> Specifically, since the importance of conditional lending is fading, a good rate in terms of IMF surveillance could possibly overtake the role that conditionality had as a signal of a country's "good performance" in reassuring private investors (see Marchesi and Thomas, 1999; Marchesi, 2003 and

<sup>4</sup> See IMF (1998) for a detailed description of the IMF's MULTIMOD forecasting model.

<sup>5</sup> In these studies, the IMF forecast error was also frequently compared with that of some other national research institute, e.g., Consensus Economics (an international economic organization in London) which are expected to be more independent. Whereas Artis and Loungani find little difference between the IMF and Consensus prediction errors, Batchelor shows that the IMF growth forecasts are more biased toward optimism and that the IMF inflation forecasts are less biased toward pessimism than the Consensus Economics forecasts.

Recent evidence from Aldenhoff (2007) indicates that IMF growth forecasts are distorted in both industrial and developing regions. In the case of industrial countries, who can use their influence at the IMF to obtain favorable outcomes, such an optimistic bias is attributed to political reasons: forecasts attract public attention and optimistic ones may help incumbents to be reelected. As for developing countries, Aldenhoff attributes the bias to the IMF's own interests in promoting promising prospects for countries participating in IMF-sponsored programs. IMF staff may be tempted to produce optimistic predictions for the general survival and growth of their lending organization and in their personal objectives. Thus, the IMF may either be put under pressure by powerful member states, or it may opportunistically make overly optimistic predictions. Broadly consistent with this view, Timmermann (2007) finds that *WEO* forecasts of GDP growth display a tendency for systematic overprediction, while he finds a bias toward the underprediction of inflation.

The studies noted above (with the exception of Timmermann, 2007) have considered individual country forecasts for only the Group of Seven (G-7), relying on regional aggregates for the rest of the world. In this paper, we start by evaluating the accuracy of *WEO* forecasts of GDP growth and inflation (i.e. unbiasedness and efficiency) using panel data for individual developing countries, as opposed to regional averages. We choose to consider growth and inflation forecasts because both play an important role in public discussions and are easily interpreted. By employing country-specific data, we are able to test hypotheses that cannot be tested on a regional basis.

After testing for the presence of bias in the IMF's economic forecasts, we then seek to explain the bias. We consider the potential political and reputational motivations of the IMF. We also consider reasons having to do with the specific mandate of the IMF – ensuring the stability of the international monetary system.

Regarding politically strategic motivations, we consider the influence of the most powerful members of the IMF. Influence at the IMF is explicitly tied to the economic size of members. Clearly, the top five shareholders at the IMF – the US, Japan, Germany,

France and the United Kingdom – control major Fund decisions.<sup>6</sup> With about 17 percent of the total votes, the US by itself has veto power over major decisions at the IMF, including the appointment of the IMF Managing Director, which requires an 85 percent supermajority. There is ample evidence that the Fund’s major shareholders use their influence to pursue political objectives.<sup>7</sup> Thacker (1999), for example, shows that governments that vote along the lines of the US on key issues in the United Nations General Assembly are more likely to participate in IMF programs – presumably the IMF loan acts as a reward. Stone (2002, 2004) shows that governments favored by the US (as measured by the amount of US foreign aid disbursed to a country) receive lighter punishments for noncompliance with policy conditions under IMF programs. The recent empirical literature on political influences on the IMF shows that developing countries get better treatment from the IMF when they have closer ties with the US and other G-7 countries, as measured by their voting behavior in the UN General Assembly (Barro and Lee 2005, Vreeland 2005, Oatley and Yackee 2004, Dreher and Jensen 2007, Copelovitch 2007) and while being temporary members of the UN Security Council (Dreher, Sturm, and Vreeland 2006).<sup>8</sup>

To the extent that governments benefit from optimistic economic forecasts, it follows from the previous literature that the Fund’s major shareholders and their allies should receive such forecasts because of the way political power is wielded at the IMF. In comparison, countries opposed to the major shareholders are likely to receive more pessimistic forecasts. Arguably, the IMF cannot credibly produce just any forecast it might wish, and so there should be a limit to any such bias.

Beyond furthering the political interests of its major shareholders, the Fund might have other interests in providing biased forecasts. In the case of developing countries, for example, overly optimistic forecasts may serve to justify IMF lending programs. Marchesi and Sabani (2007a, 2007b) show that the Fund’s concern with its reputation of being a good monitor/advisor might distort its lending decisions away from punishing

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<sup>6</sup> These members alone control nearly 40 percent of the vote share and are the only countries that automatically have seats on the IMF 24 member Executive Board. The rest of the world vies for representation through elections and shared seats.

<sup>7</sup> See Fratianni and Pattison (2005) for a recent survey. See Gisselquist (1981), Loxley (1986) and Andersen, Hansen and Markussen (2006) for anecdotal evidence.

<sup>8</sup> Also consider Broz and Hawes (2006), Faini and Grilli (2004), Rieffel (2003), Woods (2003).

non-compliance with economic reforms. Such departures from the social optimum are associated with countries that have a longer relationship with the Fund. Consistent with this idea, Goldsbrough et al. (2002, Table 2, p4) show that the performance criteria for the programs of prolonged users often have an optimistic bias, especially regarding projections of real GDP growth and export growth. We thus expect forecast bias to increase with the duration of the lending relationship between a country and the Fund.

The IMF may also care about its reputation of being a good manager of its resources. To put it bluntly, the Fund may care about getting repaid. To avoid reporting a loss in its balance sheets, the IMF may have a perverse incentive to extend new loans to borrowers with repayment difficulties to ensure that the existing loans are paid back on schedule (Ramcharan 2001, 2003). Such “defensive lending” may be accompanied with optimistic “defensive forecasts.” Accordingly, we expect the forecast bias to increase with the amount of outstanding loans a country has from the IMF (relative to GDP).

Finally, we consider an explanation of forecast bias related to the IMF’s concern for worldwide economic stability. Since the IMF has the specific mandate of preserving the stability of the international monetary system, it might want to avoid the responsibility of being blamed for self-fulfilling prophecies. Its forecasts are thus likely to be more optimistic when economic stability is at risk.

To anticipate our results, we do find a systematic bias in IMF forecasts, broadly consistent with previous studies. We find that the IMF is overly optimistic about inflation for high-income OECD countries, and overly pessimistic about growth for non-OECD countries.

The major contribution of our paper is, however, to explain the bias. We identify the characteristics of countries when they receive optimistic and pessimistic forecasts. Our results indicate that countries voting in line with the US in the UN General Assembly receive lower inflation forecasts. The effect for inflation appears to be particularly strong when governments face upcoming elections. As the US is the Fund’s major shareholder, this result supports the hypothesis that the Fund’s forecasts are not purely based on economic considerations.



We also find some limited evidence of the defensive forecasting hypothesis. The Fund's inflation forecasts are systematically biased downwards for countries that are more heavily indebted to the IMF.

Finally, we find that countries with a fixed exchange rate regime receive lower inflation forecasts. Considering the detrimental effects that inflation can have under such an exchange rate regime, we consider this evidence consistent with the Fund's desire to preserve economic stability. Whether this is motivated by wishful thinking or by the actual effect that biased forecasts can have is beyond the purview of this paper.

We continue as follows. The next section presents our hypotheses. Section three tests for any bias or inefficiency in the forecasts of the IMF. Section four describes our data on the variables we use to explain bias in IMF forecasts and the method we use to test our hypotheses. Our results are presented in section five. A brief conclusion follows.

## **2. Hypotheses**

We suspect that IMF surveillance produces overly optimistic forecasts for growth and inflation. Our analysis distinguishes between three sets of explanations of such optimism: (1) politically strategic, (2) defensive forecasting, and (3) stability mandate oriented. We consider each in turn.

### *Politically Strategic Hypotheses*

The first set of hypotheses derive from politically strategic arguments, according to which the Fund may be pressured, either explicitly or implicitly, by the governments of the member states to make overly optimistic economic forecasts.

We suspect that governments are interested in optimistic forecasts, as economic environments perceived to be "good" may increase approval by their citizens. True, deviations from overly optimistic forecasts might harm politicians in the longer run. The public may have high expectations and see government policy as failing. Yet, as politicians are usually rather short-sighted (e.g. Lagerspetz, 1999), we think it is likely that politicians do – on average – want the future economic environment to look as positive as possible.

Arguably, optimistic forecasts are more important for the government at some times than at others. In election years, the benefits of positive forecasts are obvious. Forecasts attract public attention and may influence the way voters evaluate the policy performance of their governments: optimistic forecasts may help the incumbent to win elections. We expect, therefore, incumbents to be especially interested in optimistic forecasts prior to a national election. As Aldenhoff's (2007) time series analysis for the US shows, over optimism is indeed significantly more prevalent prior to elections. We expect to find a similar pattern for countries that are important to the IMF.

Because the IMF depends on the support of its member governments, it may be tempted to produce forecasts biased in their favor. The IMF may be pressured by the governments of developed and developing countries alike. Whether and to what extent the IMF will serve the interests of governments, however, depends on the power they enjoy at the Fund, and the support they receive from other powerful members (Dreher, 2004).<sup>9</sup> As Bird and Rowlands (2003) argue, a government's power to negotiate depends greatly on the willingness of other countries to support it. According to Gould (2003, 2006), the IMF also responds to pressure from private banks, as evidenced by the fact that IMF programs include conditions that support their interests. To the extent that the private banks benefit from optimistic forecasts in a country, governments important to such institutions may receive favorable forecasts from the IMF.

Based on the politically strategic arguments, we thus expect:

**Hypothesis 1: The greater a country's direct influence at the Fund, the more optimistic the IMF's forecasts are for that country.**

**Hypothesis 2: Allies of the Fund's major stakeholders receive more optimistic IMF forecasts.**

**Hypothesis 3: Major IMF shareholders and their allies receive more optimistic forecasts at election time.**

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<sup>9</sup> We should also note that there is interplay between the Fund and national authorities as advanced economies and the largest developing countries provide a full set of projections for each *WEO* exercise while the smallest countries provide updates of key variables only.

Note that we leave it open whether powerful countries explicitly pressure the IMF, or whether the Fund recognizes their implicit preferences and pursues them opportunistically, hoping to please the most important funders of the IMF. We consider other opportunistic motivations the IMF may face under our defensive forecasting set of hypotheses.

### *Defensive Forecasting Hypotheses*

Our second set of hypotheses focuses on the IMF's incentives to make optimistic forecasts in order to sustain its lending activity in developing countries and to protect its reputation as a competent international financial organization. Such motivations may lead the IMF to engage in "defensive forecasting."

The IMF may forecast optimistically hoping to defend outstanding loans. This argument follows from ideas about "defensive lending," where the Fund lends to countries so deeply in debt they may not be able to make their next scheduled repayment. Hence, one reason the Fund may decide to extend new loans to borrowers with repayment difficulties is to ensure that existing debt is serviced on schedule, in order to avoid to report a loss in its balance sheets.

If the country does not adopt policy changes to ameliorate its economic situation, of course, rolling over the debt simply postpones the default crisis.<sup>10</sup> When engaging in defensive lending, the IMF must believe – or least claim to believe – that a country's economy policy, and consequently the economic situation, is going to improve. Otherwise, defensive lending is obviously foolhardy. We suspect that these situations are likely to lead to either an intentional or an unintentional positive bias in IMF forecasting. As countries with a higher stock of IMF debt relative to the total amount of IMF outstanding credit are the most likely to receive defensive loans, we also expect them to receive defensive forecasts.

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<sup>10</sup> Therefore, to understand the Fund's defensive lending, we should refer either to some "political cost" borne by current IMF officials after a borrower's inability to pay has become public (as current officials have a shorter horizon than the institution they work for), or to the possibility that postponing default might come at a relatively lower pecuniary cost due to, for example, catalytic finance (Shin and Morris, 2005) or to future debt relief programs (Ramcharan, 2001, 2003).

There are other ways in which the IMF may use forecasts to defend its lending. In particular, Marchesi and Sabani (2007a, 2007b) explicitly model the political costs of the dual role played by the Fund, acting at the same time as a lender and as a monitor/advisor of economic policy. To the extent that the IMF is responsible for the bad economic performance of a country, a borrower's inability to repay may hurt the reputation of the IMF as the steward of sound economic policy. Reputational costs can be severe for the IMF. For example, the most powerful Fund members might refrain from increasing the Fund's resources if its reputation as good manager of "public resources" is damaged.

When the IMF has lent to a country that has continued to experience poor economic performance, the IMF may find its reputation in jeopardy for at least three reasons. First, the Fund may indeed have prescribed the wrong economic policies. Second, the Fund may have been incapable of detecting deviations from the prescribed policies. Third, the Fund may have been incapable of credibly threatening the interruption of financial assistance to enforce policy changes.

For all of these reasons, the IMF looks bad when it is forced to cut off a country from borrowing because of the country's poor economic performance. Failure to refinance a country – particularly countries with longer histories of borrowing from the Fund – confirm the IMF's failure as a lender and a policy monitor/advisor, since this outcome is partly caused by the past advice of the IMF. The empirical results of Marchesi and Sabani show, indeed, that a longer history of IMF lending does increase the probability of IMF loan disbursements. Therefore, the desire to justify its lending activity may lead the IMF to over optimism when engaging in surveillance. Specifically, we expect that the longer the relationship with the borrowing country, the stronger the effect on forecasting.

Based on the defensive forecasting arguments, we thus expect:

**Hypothesis 4: Countries with a higher stock of debt owed to the Fund (relative to the total amount of IMF credit), receive more optimistic IMF forecasts.**

**Hypothesis 5: Countries with longer IMF relations receive more optimistic forecasts.**

*Stability Mandate Hypotheses*

The third set of hypotheses is related to the IMF's primary responsibility of overseeing the stability of the international monetary system. One basic principal of this "mandate" is that the actions of the IMF certainly should not spread financial crises.

With respect to inflation, the mandate has direct implications. It is widely believed that monetary policy is mainly about expectations – particularly coordinating expectations. To the extent that a negative forecast can actually precipitate crises, the IMF may systematically tend towards optimism. An overly pessimistic forecast would lead to expectations of high inflation, unnecessarily putting excessive pressure on the exchange rate. This is particularly true for countries under a fixed exchange rate regime. Flexible exchange rates can withstand slight deviations, whereas the announcement of high inflation for a fixed currency could completely undermine its value. Since financial crises are often associated with countries under a fixed exchange rate regime, and since the expectations of high inflation would lead to pressure on the exchange rate, we expect to find more optimistic forecasts for countries with fixed exchange rates.

Overly pessimistic growth forecasts could precipitate crises in other situations. The expectation of low growth could affect debt sustainability undermining the stability of the international monetary system. If a forecast for growth is low enough, it could provoke a stampede of creditors. This is particularly true for short term and dollar denominated sovereign debt. Given the correlation between financial crises and the ratio of debt to GDP (especially short term and dollar denominated sovereign debt) we expect a tendency of the IMF to announce more optimistic growth forecasts for countries with higher short-term debt to GDP ratios.

Based on the stability mandate forecasting arguments, we thus expect:

**Hypothesis 6: Countries with a fixed exchange rate regime have more optimistic inflation forecasts.**

**Hypothesis 7: Countries with a higher (short-term) debt to GDP ratio have more optimistic growth forecasts.**

**Table 1: Variables definition**

<i>Hypotheses</i>	<i>Proxies</i>	<i>Variables</i>	<i>Source</i>
<b>H1: Direct influence in the Fund</b>	“Power”	GDP	World Bank (2006a)
<b>H2: Indirect influence in the Fund</b>	Influence of private creditors	Arrears on private debt	World Bank (2006b)
	Countries’ standing with the Fund’s most important shareholder (US)	Percentage of votes within a year which are in line with the US	Voeten (2004)
<b>H3: More optimistic forecasts at election time</b>	Temporary members of the UN Security Council	Dummy for temporary UNSC membership	Dreher, Sturm and Vreeland (2006)
	Influence of elections	Share of the year prior to the elections	Dreher and Vaubel (2007)
	Influence of voting in line with the US in the pre-election time	Interaction between voting in line with the US and the pre-election variable	

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<b>H4: Defensive forecasting due to the political costs of a default</b>	Influence of a higher stock of debt owed to the Fund	IMF loan share	IMF (2006) & IMF webpage
<b>H5: Defensive forecasting due to “reputational effect”</b>	Influence of the length of the relationship with the IMF	Number of past consecutive arrangements	IMF (2006) & IMF webpage
<b>H6: Influence of the IMF mandate on inflation</b>	Influence of the IMF mandate of ensuring stability on inflation	Fixed exchange rate regime	World Bank (2006b)
<b>H7: Influence of the IMF mandate on growth</b>	Influence of the IMF mandate of ensuring stability on growth	Short term to GDP ratio	World Bank (2006b)

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In order to test the hypotheses laid out above, we employ a wide range of explanatory variables. Table 1 summarizes our hypotheses and presents the definitions and sources of our explanatory variables. Before testing our explanations of bias, however, we first explore how much overall forecast bias, if any, there is. The next section tests for the bias and efficiency of IMF forecasts.

### 3. Testing for Bias and Efficiency

We begin our analysis by replicating the previous work on IMF economic forecasts with our data. Timmermann (2007) finds that the overprediction bias for GDP growth and the underprediction bias for inflation are stronger in the longer time horizon forecasts. We believe this is because the longer the time horizon the greater the room for discretionary forecasting.<sup>11</sup> Thus, we focus on the longest run forecasts available. The *WEO* publishes four types of forecasts: spring forecasts for the current and the following year, and fall forecasts for the current and the following year. We focus on fall forecasts for the following year. Our data are organized in an unbalanced panel including a maximum of 157 developed and developing countries over the period 1999-2005.

The accuracy of a forecast is based on the properties of the forecast error. A forecast is considered to be accurate if it is unbiased and efficient.

A forecast is unbiased if its average deviation from the outcome is zero. Bias may be identified with the significance of the mean forecast error, as indicated by a simple regression of the error on a constant term, testing whether it is significantly different from zero (Holden and Peel, 1990).

For each country  $i$  during year  $t$ , define  $e_{it} \equiv F_{it} - R_{it}$ , where  $e$  represents forecast error,  $F$  denotes the forecast, and  $R$  denotes its respective realization. The test for biasedness is based on the regression expressed as:

$$e_{it} = \mu + u_{it}, \quad (1)$$

with  $u_{it}$  being an i.i.d. residual and where  $\mu$  is a constant term. We define the mean forecast error (ME) as:

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<sup>11</sup> Moreover, the bias is less likely to be remembered by the voters at the time of realization.



$$ME = \frac{1}{T \cdot I} \sum_{i=1}^I \sum_{t=1}^T e_{it}, \quad (2)$$

With T being the number of years and I the number of countries in our sample.

Forecast efficiency implies that the deviation between the outcome and the projection is not related to information available at the time the projection was made (Barrionuevo, 1993; Holden and Peel, 1990). This condition is tested by measuring the statistical significance of the co-movements between the deviation of the outcome of the forecast and the forecast itself ( $\beta$ -test), and the co-movement between the deviation of the outcome of the forecast in the current period and that in the previous period ( $\rho$ -test).  $\beta$  is estimated by a least-squares regression of the forecast error on a constant and the forecast (equation 3), and  $\rho$  is estimated by a regression of the current-period forecast error on a constant and the previous period error (equation 4). Therefore, a condition for efficiency is that both  $\beta$  and  $\rho$  be zero.

$$e_{it} = \alpha_i + \beta_i F_{it} + u_{it}, \quad (3)$$

$$e_{it} = \gamma_i + \rho_i e_{it-1} + u_{it}, \quad (4)$$

where e and F denote forecast error and forecast, respectively, and  $\alpha$  and  $\gamma$  are constant terms (with  $u_{it}$  again being an i.i.d. residual).

If  $\beta$  and  $\rho$  are both different from zero, the inefficiency is partly due to the way in which new information is incorporated into projected values and partly because the present errors are highly correlated with past ones (Barrionuevo, 1993; Pons, 2000).

Table 2 reports the results for high-income OECD countries and other countries separately.<sup>12</sup> As can be seen from columns (1) and (2), IMF forecasts are indeed biased. In high-income OECD countries, inflation forecasts are optimistic. They are significantly biased downwards, at the one percent level of significance. Specifically, the average inflation forecast in those countries is 0.24 percentage points lower than actual realizations. The Fund's growth forecasts, in contrast, are too pessimistic for non-OECD countries, with a coefficient significant at the five percent level. The forecast is, on average, 0.36 percentage points lower as compared to realizations. We detect no bias for OECD growth forecasts or non-OECD inflation forecasts.

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<sup>12</sup> As classified by the World Bank (2006a).

**Table 2: Bias and Efficiency, OLS**

	(1)	(2)	(3)	(4)	(5)	(6)
	Bias		Previous error		Forecast	
	Inflation	Growth	Inflation	Growth	Inflation	Growth
OECD countries	-0.237 (3.54)***	0.147 (1.31)	0.299 (4.08)***	0.122 (1.56)	0.008 (0.11)	-0.070 (0.64)
Number of countries	22	23	22	23	22	23
Number of observations	146	152	130	136	146	152
non-OECD countries	0.248 (0.41)	-0.362 (2.25)**	0.458 (10.27)***	0.142 (2.81)***	0.319 (31.81)***	0.468 (9.59)***
Number of countries	133	146	133	141	133	146
Number of observations	562	600	427	451	562	600

Notes:

The dependent variable is the forecast error (forecast minus realization).

\*\* significant at 5%; \*\*\* significant at 1%

Turning to our tests for efficiency, columns (3) and (4) show that the previous error in estimating inflation contributes to explaining the current error for both OECD and non-OECD countries. The effect is positive and significant at the one percent level. The same is true regarding growth forecasts for non-OECD countries. As columns (5) and (6) show, in non-OECD countries, the magnitude of the error significantly depends on the magnitude of the forecast itself, with higher forecasts implying bigger mistakes.

Our results confirm, to an extent, previous studies that show bias and inefficiency in IMF forecasts. The bias is not across all estimates. Yet, the existence of an overall bias is not necessary for our subsequent analysis. Even if, on average, bias is zero, it is possible that forecasts for some types of situations are systematically high, while for others they are systematically low. The next section presents our strategy to test if bias is related to any of our previously presented hypotheses.

#### 4. Data and Method

We test our hypotheses by regressing the forecast error on the variables suggested above. Specifically, we test:

$$e_{it} = \alpha + \beta_1' HYP_{it} + \beta_2 F_{it} + \eta_i + u_{it}, \quad (5)$$

where  $e_{it}$  represents the forecast error in country  $i$  at year  $t$ , and  $HYP$  is a vector containing the variables introduced above (see Table 1). Note that we also include the level of the forecast ( $F$ ), given its significance in most specifications above. Finally,  $\eta_i$  are country fixed effects.<sup>13</sup>

A potential problem with this specification is that the within-groups estimator is biased and inconsistent in the presence of a lagged dependent variable in a short panel (Nickell 1981). Thus, as a test for robustness, we employ the system GMM estimator as suggested by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998). The dynamic panel GMM estimator exploits an assumption about the initial conditions to obtain moment conditions that remain informative even for persistent data. It is considered most appropriate in the presence of endogenous regressors. Results are based on the two-step estimator implemented by Roodman (2005) in Stata, including

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<sup>13</sup> The Hausman test rejects a random effects specification. We also tested time dummies, but they are not jointly significant, so we do not include them.

Windmeijer's (2005) finite sample correction. We apply the Sargan-Hansen test on the validity of the instruments used (amounting to a test for the exogeneity of the covariates) and the Arellano-Bond test of second order autocorrelation, which must be absent from the data in order for the estimator to be consistent. We treat the lagged dependent variable and the economic variables as endogenous and all other variables as predetermined. To anticipate the results, the Sargan-Hansen test and the Arellano-Bond test do not reject these specifications at conventional levels of significance.

Turning to the variables employed to test our hypotheses (the *HYP* vector), "power" (H1) is proxied by (log) GDP, following Dreher (2004).<sup>14</sup> Both a country's own (direct) influence in the Fund and support by other countries arguably rise with the size of its economy. Moreover, countries with higher GDP are more important for the world economy. This variable is measured in constant 2000 US\$, taken from the World Bank's (2006a) *World Development Indicators*. Ideally, we would also employ a country's "quota," the capital subscription each member holds on deposit at the IMF that directly determines its voting power. However, given that our analysis includes dummies for each country and that quotas' variability is very limited over time, we cannot use it.

We test the influence of private creditors (H2) by including countries' arrears on private debt, taken from World Bank (2006b). Sometimes governments press the IMF to lend to countries which are in arrears to them or to their banks (Dreher 2004). The Fund might want to present an optimistic forecast in order to avoid outright default.

Next, we employ two proxies for countries' standing with the Fund's most important stakeholder (H2). We follow the bulk of literature and employ data on voting coincidence in the UN General Assembly as provided by Voeten (2004). In particular, we follow Thacker (1999), coding votes in agreement with the US as 1, votes in disagreement as 0, and abstentions or absences as 0.5. The resulting numbers are then divided by the total number of votes in each year. This results in a variable ranging from zero to one, with zero indicating total disagreement with the U.S., and one showing full agreement.

Clearly, the amount of effort a country puts on influencing others will depend on the importance of a vote. Not all votes in the General Assembly are likely to be of great

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<sup>14</sup> Descriptive statistics are reported in the Appendix.

importance to the US. Focusing the analysis on a sub-set of votes might thus be superior. However, inclusion of all votes has also been defended. Wittkopf (1973) states that none of the alternatives focusing on “important” votes is preferable to the general approach. Wittkopf replicates his overall results including only those votes on which the US and the Soviet Union disagreed, finding that the results do not differ substantially from the analysis including all votes. Similarly, he replicates the previous analysis of Russett (1967), and also finds no substantial differences between “important” votes and all votes. Moreover, while the US State Department provides a classification of votes they consider of particular importance, the transmission of US foreign policy preferences from the State Department to the IMF is not necessarily a direct one (Thacker 1999), as it is mainly the Treasury controlling the IMF (Kahler 1990). The State Department’s preferences might thus not give a good indication as to actual lobbying efforts. We thus follow most of the recent literature and include all votes in our analysis (e.g. Dreher and Sturm 2006).

The recent work in Dreher, Sturm and Vreeland (2006) suggests an additional proxy for US and other major Fund members’ interests. Their analysis shows that non-permanent members of the United Nations Security Council are more likely to receive IMF programs and fewer conditions under these programs. They attribute this to the influence of the Fund’s major shareholders, bribing or rewarding temporary members of the Security Council to vote according to their interests. Consequently, we include temporary Security Council membership as an additional variable.

In testing the influence of elections for important countries (H3), we include a variable measuring the share of a certain year that is within 12 months prior to a national (legislative or executive) election, and include its interaction with a measure of country importance. To capture the importance of a country, we use the previously mentioned variable capturing voting inline with the US in the UN General Assembly. Data on elections is taken from Dreher and Vaubel (2007) based on Beck et al. (1999), and has been updated employing various sources, so data are available until 2006. The underlying idea is that the closer the elections for important countries, the stronger the bias in optimism should be.

**Table 3: Explaining the Bias in INFLATION Forecasts**

	HP1 OLS	HP2 OLS	HP3 OLS	HP4 OLS	ALL HP OLS	ALL HP GMM
Forecast (t)	1.083 (16.94)***	1.109 (16.89)***	1.098 (16.89)***	1.102 (16.70)***	1.119 (18.42)***	0.140 (2.34)**
GDP (log)	0.068 (0.05)	0.915 (0.64)	0.895 (0.63)	0.982 (0.68)	0.378 (0.43)	0.364 (1.23)
Arrears (relative to GDP)		-43.950 (1.42)	-45.928 (1.50)	-49.988 (1.58)	-75.578 (2.71)***	27.180 (0.66)
UNSC dummy		0.320 (0.27)	0.200 (0.17)	0.117 (0.10)	0.204 (0.18)	1.240 (1.07)
Voting with USA		-21.158 (2.24)**	-21.500 (2.28)**	-21.747 (2.30)**	-2.496 (0.27)	-3.213 (0.80)
Pre-election period			6.069 (2.18)**	6.123 (2.18)**	6.491 (2.43)**	5.768 (2.72)***
Voting*pre-election			-11.202 (1.83)*	-11.196 (1.81)*	-12.362 (2.15)**	-11.056 (2.63)***
IMF loan share				-32.755 (0.47)	-26.847 (0.42)	-33.032 (3.04)***
Consecutive IMF arrangements				-0.039 (0.13)	0.103 (0.37)	0.003 (0.01)
Fixed exchange rate					-0.647 (1.98)**	-1.112 (2.02)**
Lagged dependent variable						-0.006 (0.05)
Constant	-8.367 (0.41)	-22.101 (1.01)	-21.621 (1.00)	-23.336 (1.06)	-12.826 (0.91)	-4.423 (0.68)
Observations	390	390	384	384	359	361
Number of countries	148	148	142	142	131	132
Arellano-Bond-Test (p-level)						0.14
Sargan-Hansen Test (p-level)						1.00

Notes:

The dependent variable is the forecast error (forecast minus realization).

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

OLS regressions include fixed country dummies.

Our first defensive forecasting hypothesis (H4) is tested by including each country's outstanding credit in percent of IMF total outstanding credit under all IMF facilities (as provided by the World Bank, 2006b).

For our other defensive forecasting hypothesis (H5), the duration of the Fund's relationship with a country is proxied by a variable that progressively numbers the years spent consecutively by a country under a Fund arrangement, since 1970.<sup>15</sup>

Our classification of exchange rate regimes (H6) follows Levy-Yeyati and Sturzenegger (2005). They provide an index of de facto exchange rates on a scale from one to five, with higher values reflecting more rigid exchange rate systems. Short-term debt relative to GDP (H7), finally, is taken from the World Bank's (2006b) Global Development Finance.

The next section reports the results.

#### **4. Results**

We estimate our panel for a maximum of 157 countries for the period 1999 to 2005 both by OLS with country specific effects and with GMM.<sup>16</sup> Table 3 presents the results of the estimation of equation (5) for the determinants of the inflation bias. Table 4 presents robustness tests. Tables 5 and 6 replicate the analysis for economic growth forecasts.

First, consider our primary findings for inflation (Table 3). Column 1 includes GDP in addition to the forecasts. The following columns add the variables referring to our specific hypotheses one at the time, while column 5 shows the full model (estimated with OLS).

Consistent with the results of our test for efficiency (Table 2), the forecast error rises with the forecast itself. Larger forecasts are associated with more bias.

Turning to one of our main variables of interest, inflation forecasts are more optimistic for countries with higher arrears on private debt, in line with our a priori

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<sup>15</sup> When the IMF program spell is interrupted this variable goes to zero and, as soon as a new program begins (after an interval of at least one year), we start counting again. See Marchesi and Sabani (2007b), Przeworski and Vreeland (2000) and Vreeland (2003).

<sup>16</sup> Since the hypothesis of no first order autocorrelation is rejected by the data, we estimate a fixed effects linear models with an AR(1) disturbance.

expectations. The result is significant at the one percent level when we control for other variables.

Interestingly, we find inflation forecasts are generally more pessimistic at election time, but are more optimistic for closer friends of the US. Calculating the marginal effects of the interacted election and voting with the US variables, the results show that the inflation forecast increases by 5.2 percentage points when the election variable changes from zero to one for countries voting at the minimum value of the UN voting variable (0.10), significant at the five percent level (not shown in the table). At the maximum value of 0.95, the inflation forecast is reduced by 5.3 percentage points, but just fails to be significant at the 10 percent level (p-value of 0.112).<sup>17</sup> This result is consistent with the idea that the IMF may be tempted to produce forecasts biased in favor of “friends” of its major shareholder and treat countries that are not friends of the US unfavorably. The positive effect of the election variable itself is consistent with the hypothesis of the political monetary cycle (e.g. Dreher and Vaubel, 2007), namely with the idea that the IMF expects inflation to increase following the election. Apparently, however, their expectations are too pessimistic.

Countries with fixed exchange rates also obtain better inflation forecasts as the coefficient of the variable for a fixed exchange rate regime is negative and significant at the one percent level. This result confirms the hypothesis that the IMF is more willing to produce optimistic inflation forecasts for countries which are more exposed to the risk of financial crises due to their exchange rate regime. Specifically, an increase in the exchange rate indicator by one point reduces the inflation forecast by 0.65 percentage points.

The results also show, however, that in contrast to our expectations, the size of a country’s economy (measured by GDP) and temporary membership in the UN Security Council do not matter for the forecast bias. In addition, all IMF-related variables are completely insignificant. Specifically, the amount of debt owed to the Fund (relative to the total amount of Fund credit) and the number of years spent consecutively under an IMF arrangement do not affect the forecast bias.

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<sup>17</sup> However, the marginal effects for UN voting at the minimum and maximum of the election index fail to be significant at conventional levels (not shown in the table).



**Table 4: Explaining the Bias in INFLATION Forecasts (tests for robustness)**

	w/o OECD countries OLS	w/o OECD countries GMM	w/o high risk OLS	w/o high risk GMM	w/o low risk OLS	w/o low risk GMM
Forecast (t)	1.125 (14.87)***	0.109 (1.44)	1.380 (21.84)***	0.812 (3.60)***	1.376 (9.99)***	0.153 (2.64)***
GDP (log)	0.328 (0.30)	0.513 (0.60)	41.887 (3.54)***	0.948 (2.36)**	-0.118 (0.18)	1.120 (1.17)
Arrears (relative to GDP)	-74.665 (2.15)**	34.875 (0.54)	-363.031 (4.76)***	92.380 (1.61)	26.509 (0.96)	54.782 (0.91)
UNSC dummy	0.219 (0.13)	2.652 (1.28)	-0.222 (0.21)	1.388 (1.86)*	1.261 (0.32)	2.291 (0.78)
Voting with USA	-5.486 (0.39)	-6.166 (1.37)	-16.046 (1.01)	0.877 (0.18)	-11.540 (1.17)	-5.312 (0.76)
Pre-election period	12.920 (2.52)**	11.426 (2.63)***	8.425 (3.61)***	8.537 (2.73)***	-9.909 (1.10)	10.654 (2.30)**
Voting*pre-election	-33.482 (2.19)**	-27.549 (1.91)*	-15.875 (3.11)***	-14.880 (2.08)**	20.644 (0.94)	-19.036 (2.28)**
IMF loan share	-13.010 (0.16)	-42.204 (2.24)**	-124.705 (1.79)*	-63.519 (3.42)***	-674.900 (0.46)	-4.086 (0.15)
Consecutive IMF arrangements	0.153 (0.44)	0.150 (0.95)	0.589 (1.12)	0.050 (0.17)	-0.072 (0.29)	0.212 (1.20)
Fixed exchange rate	-0.744 (1.80)*	-2.766 (1.98)**	-0.512 (1.28)	-0.804 (2.02)**	0.054 (0.13)	-1.082 (1.71)*
Lagged dependent variable		-0.024 (0.22)		0.568 (2.39)**		-0.033 (0.33)
Constant	-12.582 (0.74)	-1.447 (0.07)	-1,077.016 (6.80)***	-25.439 (2.61)***	-1.054 (0.09)	-21.543 (1.07)
Observations	257	259	169	171	113	190
Number of countries	109	110	53	54	54	131
Arellano-Bond-Test (p-level)		0.09		0.53		0.98
Sargan-Hansen Test (p-level)		0.45		0.98		0.90

Notes:

The dependent variable is the forecast error (forecast minus realization).

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

OLS regressions include fixed country dummies.

In column 6 of Table 3 we replicate the analysis employing the consistent GMM estimator. Note that the Sargan test and the Arellano-Bond test do not reject the specification at conventional levels of significance. As can be seen, the lagged dependent variable fails to be significant at conventional levels, supporting the validity of our previous OLS estimates. The OLS results displayed in column 5 are generally confirmed – with two exceptions, however. The coefficient for the amount of arrears on private debt is not significant, and inflation forecasts are significantly lower for countries with a higher share of the IMF loan portfolio. Arguably, the latter finding provides evidence that the IMF cares about its reputation as a good manager of its resources. It does not like financing apparently “bad performing” countries, so it is tempted to provide overly optimistic projections to justify its lending activity.

Table 4 tests the robustness of these results. First, we replicate the analysis – with both OLS and GMM – excluding high income OECD countries from our sample (columns 1 and 2) and separating countries with high and low country risk ratings, as produced by Institutional Investor (columns 3-6)<sup>18</sup> The rationale for these robustness tests rests in the way in which forecasts are made. To some extent, the IMF’s economic forecasts are the result of an interaction between those responsible for compiling the forecasts at the IMF and members of the various area departments who frequently have access to official national forecasts for the countries under investigation.<sup>19</sup> Excluding high-income OECD countries might be important, as interactions between IMF staff members and country officials might be different in these countries, as compared to the rest of the sample.<sup>20</sup> Arguing along similar lines, we would also expect the interaction between staff and country officials to be different in countries with high as compared to low credit risk.

As can be seen from the table, excluding high-income OECD countries does not affect the results (Table 4, columns 1 and 2). However, some differences arise when we exclude the countries in the highest four percentiles of the country risk ratings. We

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<sup>18</sup> Institutional Investor publishes a rating specifically for “country credit” (essentially, sovereign risk). We thank Carmen Reinhart for providing these data (as used in Reinhart et al., 2003).

<sup>19</sup> Kenen and Schwartz (1986).

<sup>20</sup> We do not report separate results for OECD countries due to the small number of observations.

choose this cut-off as it splits the sample approximately in half, according to the OLS estimates.<sup>21</sup>

According to the OLS estimates in column 3, we find that the IMF loan share is significant at conventional levels and with the expected sign. Surprisingly, the fixed exchange rate regime is not significant anymore, but, consistent with H1, we find that the size of GDP induces more optimistic inflation forecasts. In the GMM specification most of the results are consistent with those previously obtained but with some differences: the lagged dependent variable is now significant and, surprisingly, both the size of GDP and the dummy for being a temporary UNSC member induce less optimistic inflation forecasts.

Finally, where we strongly reduce our sample in order to include only countries with high risk rating (last two columns), only with the GMM specification do we obtain coefficients that are significant. As before, we find that inflation forecasts are more optimistic for countries voting in line with the US at election times (where the pre-election index is still positive and significant) and for countries with a fixed exchange rate regime. For obvious reasons, the share of a country's debt in the IMF loan portfolio is not significant here. With riskier countries, the IMF needs to be cautious.

Turning to our estimates of growth forecast bias, Table 5, column 4, presents the OLS estimates for the full model. As can be seen, the forecast error is positively related to the forecast itself. Most of our hypotheses, however, receive no support. The only hypothesis that is not rejected by the data is H2: countries voting in line with the US obtain more optimistic forecasts. None of the other variables are significant, with the exception of the variable indicating the number of years consecutively spent under an IMF program, but the coefficient has the "wrong" sign: countries with longer histories with the IMF receive overly pessimistic growth forecasts. While there is plenty of evidence that IMF programs are bad for economic growth,<sup>22</sup> it thus seems even the IMF is too pessimistic in countries with a long history of IMF arrangements.

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<sup>21</sup> Note that – due to the inclusion of an AR(1) term – we lose a substantial amount of observations in the OLS regressions as compared to the GMM specification.

<sup>22</sup> See Vreeland (2007) for a review.

**Table 5: Explaining the Bias in GROWTH Forecasts**

	HP1	HP2	HP3	HP4	ALL HP	ALL HP
	OLS	OLS	OLS	OLS	OLS	GMM
Forecast (t)	0.802 (4.18)***	0.792 (4.20)***	0.800 (4.18)***	0.741 (3.87)***	0.763 (3.98)***	0.008 (0.03)
GDP (log)	-2.085 (2.23)**	-1.465 (1.59)	-1.425 (1.56)	-1.378 (1.44)	-1.262 (1.28)	-0.092 (0.51)
Arrears (relative to GDP)		-7.449 (0.41)	-7.700 (0.42)	-8.776 (0.47)	-4.744 (0.25)	-33.970 (0.83)
UNSC dummy		-0.538 (0.75)	-0.549 (0.76)	-0.547 (0.77)	-0.557 (0.79)	-0.410 (1.12)
Voting with USA		21.566 (4.13)***	21.464 (4.07)***	20.496 (3.93)***	20.521 (3.96)***	2.243 (1.65)*
Pre-election period			0.743 (0.42)	0.576 (0.32)	0.578 (0.33)	1.208 (0.83)
Voting*pre-election			-1.471 (0.37)	-0.964 (0.24)	-1.176 (0.30)	-1.212 (0.46)
IMF loan share				-2.714 (0.12)	-5.891 (0.26)	4.483 (1.00)
Consecutive IMF arrangements				-0.428 (2.40)**	-0.474 (2.62)***	0.006 (0.13)
Short-term debt					-14.531 (1.39)	-4.470 (1.30)
Lagged dependent variable						0.346 (2.98)***
Constant	47.464 (2.42)**	25.213 (1.30)	24.277 (1.27)	24.375 (1.20)	22.275 (1.05)	1.485 (0.32)
Observations	414	414	408	408	408	406
Number of countries	157	157	151	151	151	151
Arellano-Bond-Test (p-level)						0.85
Sargan-Hansen Test (p-level)						0.67

Notes:

The dependent variable is the forecast error (forecast minus realization).

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

OLS regressions include fixed country dummies.

**Table 6: Explaining the Bias in GROWTH Forecasts (tests for robustness)**

	w/o OECD countries OLS	w/o OECD countries GMM	w/o high risk OLS	w/o high risk GMM	w/o low risk OLS	w/o low risk GMM
Forecast (t)	0.788 (3.14)***	-0.001 (0.00)	1.763 (8.11)***	0.344 (0.97)	0.901 (2.15)**	-0.256 (0.58)
GDP (log)	-1.202 (0.95)	-0.111 (0.42)	-38.377 (7.12)***	-0.044 (0.09)	0.253 (0.33)	0.673 (2.18)**
Arrears (relative to GDP)	-8.432 (0.38)	-32.330 (0.83)	-98.690 (3.01)***	-67.265 (1.78)*	-9.382 (0.44)	-5.941 (0.14)
UNSC dummy	-0.247 (0.24)	-0.243 (0.41)	-0.561 (0.78)	-0.789 (1.38)	3.604 (1.23)	-0.042 (0.03)
Voting with USA	25.573 (3.73)***	1.570 (0.82)	-32.289 (3.35)***	3.312 (1.07)	10.323 (1.70)*	0.107 (0.04)
Pre-election period	-1.631 (0.48)	-0.976 (0.37)	1.815 (1.06)	-0.021 (0.01)	-12.883 (2.43)**	-1.595 (0.68)
Voting*pre-election	5.996 (0.56)	6.131 (0.72)	-7.119 (1.82)*	-1.217 (0.45)	34.469 (2.49)**	1.849 (0.29)
IMF loan share	-7.147 (0.27)	5.482 (0.82)	-21.993 (1.15)	7.051 (1.29)	995.463 (1.16)	-23.816 (2.66)***
Consecutive IMF arrangements	-0.469 (2.21)**	-0.005 (0.09)	0.151 (0.41)	-0.007 (0.03)	-0.339 (1.77)*	0.150 (1.76)*
Short-term debt	-13.804 (1.12)	-3.841 (1.05)	2.651 (0.12)	8.819 (0.42)	-10.442 (1.02)	-0.720 (0.26)
Lagged dependent variable		0.354 (3.17)***		0.170 (0.86)		0.261 (1.55)
Constant	19.480 (0.73)	2.065 (0.34)	995.474 (7.72)***	-0.720 (0.05)	-14.721 (0.96)	-15.464 (1.94)*
Observations	302	300	192	193	133	213
Number of countries	128	128	60	61	67	149
Arellano-Bond-Test (p-level)		1.00		0.99		0.80
Sargan-Hansen Test (p-level)		0.36		0.75		0.48

Notes:

The dependent variable is the forecast error (forecast minus realization).

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

OLS regressions include fixed country dummies.

In the GMM specification (last column of Table 5) the only variable that is significant with the expected sign is voting in line with the US. This confirms again our hypothesis that friends of the IMF's most important shareholder do obtain more optimistic growth forecasts. However, while the result is robust to the exclusion of high-income OECD countries (first column in Table 6) and, consistently, to the exclusion of low risk countries (column 5, Table 6), quite surprisingly, the coefficient of UN voting becomes significantly negative once countries with high risk rating are excluded (column 3, Table 6). Overall, therefore, our hypotheses clearly find less support for growth, as compared to inflation forecasts. As possible explanation, growth forecasts might be more widely debated than inflation forecasts requiring the IMF to be more cautious.

## 5. Conclusion

Following the East Asian financial crisis in the late 1990s, calls came from across the political spectrum for the IMF to get out of the lending business. The calls were heard. These days lending is way down at the IMF. Emerging market countries are finding alternatives to IMF loans that are not tied to IMF policy conditions. The IMF finds itself tightening its belt as the revenue it has generated in the past from lending is beginning to dry up. Like many times in its past, the IMF is looking for a new primary purpose from among the various functions laid out in the *Articles of Agreement*.

The IMF's new *raison d'être* appears to be surveillance. Already accounting for the largest part of its budgetary resources, Managing Director Rodrigo de Rato announced in 2006 that the IMF would explore "new directions in surveillance," including strengthening the analysis presented in the *WEO*:

*The difficulties in tackling unprecedented global imbalances and the challenges facing individual countries underscore the need for stronger exercise of the Fund's policy analysis and advice to its member countries, a process known as surveillance.*<sup>23</sup>

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<sup>23</sup> The IMF "Medium Term Strategy": <http://www.imf.org/external/np/exr/ib/2006/041806.htm> (accessed September 9, 2007).

Past lending activities of the IMF have been plagued by political problems, both international and domestic. These problems contributed to the disappointing results that prompted calls for the IMF to cut back its lending activities. As the IMF shifts focus from “lender” to “monitor,” it is important to ask whether political problems will plague this activity of the IMF as well.

Using panel data for a maximum of 157 countries over the period 1999-2005, we have empirically investigated the politics involved in IMF economic forecasts. We find a systematic bias in growth and inflation forecasts. Our results indicate that countries voting in line with the US in the UN General Assembly receive better inflation and – depending on the sample of countries included in the analysis – growth forecasts. As the US is the Fund’s major shareholder this result supports the hypothesis that the Fund’s forecasts are not purely based on economic considerations. Our results also confirm the defensive forecasting hypothesis as inflation forecasts are systematically biased downwards for countries more heavily indebted to the IMF.

Although the empirical work has revealed some strong patterns in the data, much remains to be done. So far, we have only considered the IMF as monolithic entity. A potentially fruitful extension would be to take into account the interactions, within the IMF, between the various executive directors and the IMF staff and officials. It would also be interesting to explore the interaction of the IMF staff and officials with monitored countries. For example, the incentives of vulnerable members of the IMF staff may lead them to downplay risk to avoid mistakes. Such perverse incentives could lead to a lack of accurate surveillance.

If the IMF is to remain relevant by increasing surveillance endeavors, Fund forecasts must be free from political and opportunistic bias. The importance of this activity requires scholars of the IMF to investigate whether and to what extent IMF surveillance is laden with political and self-serving interests. As surveillance becomes the central focus of IMF activity, it should also become a central part of the research agenda on the international institution.

## References

- Aldenhoff, Frank-Oliver, 2007, Are economic forecasts of the International Monetary Fund politically biased? A Public Choice Analysis, *Review of International Organizations* 2(3): 239-260.
- Andersen, Thomas B.; Hansen, Henrik and Thomas Markussen, 2006, US politics and World Bank IDA-lending, *Journal of Development Studies* 42(5): 772-794.
- Arellano, Manuel and Stephen Bond, 1991, Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations, *Review of Economic Studies* 58: 277–297.
- Arellano, Manuel and Olympia Bover, 1995, Another Look at the Instrumental Variable Estimation of Error-components Models, *Journal of Econometrics* 68(1): 29-51.
- Artis, Michael J., 1997, How Accurate Are the WEO's Short-Term Forecasts? An Examination of the World Economic Outlook, *Staff Studies for the World Economic Outlook* (Washington, International Monetary Fund).
- Artis, Michael J., 1988, How Accurate Is the World Economic Outlook? A Post Mortem on Short-Term Forecasting at the International Monetary Fund, *Staff Studies for the World Economic Outlook* (Washington, International Monetary Fund): 1-49.
- Barro, Robert J. and Jong-Wha Lee, 2005, IMF-Programs: Who Is Chosen and What are the Effects? *Journal of Monetary Economics* 52: 1245-1269.
- Barrionuevo, José M., 1993, How Accurate Are the World Economic Outlook Projections? *Staff Studies for the World Economic Outlook* (Washington, International Monetary Fund): 28-46.
- Batchelor, Roy, 2000, The IMF and OECD versus Consensus Forecasts. City University Business School, London, August.
- Beach, William W.; Schavey, Aaron B. and Isabel M. Isidro, 1999, How Reliable are IMF Economic Forecasts? Heritage Foundation CDA 99-05.
- Beck, Thorsten; Clarke, George; Groff, Alberto; Keefer, Philip and Patrick Walsh, 1999, New tools and new tests in comparative political economy: The Database of Political Institutions, Development Research Group, The World Bank, Groff: Federal Department of Foreign Affairs (Switzerland).



- Bird, Graham and Dane Rowlands, 2003, Political economy influences within the life-cycle of IMF programmes, *World Economy* 9: 1255–1278.
- Blundell, Richard and Stephen Bond, 1998, Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, *Journal of Econometrics* 87(1): 115-143.
- Broz, J. Lawrence and Michael B. Hawes, 2006, US Domestic Politics and International Monetary Fund Policy, in: Darren Hawkins, David A. Lake, Daniel Nielson, and Michael J. Tierney (eds.), *Delegation and Agency in International Organizations*, Cambridge University Press, 77-196.
- Copelovitch, Mark, 2007, Master or Servant? Agency Slack and the Politics of IMF Lending. Ms. Department of Political Science, University of Wisconsin, Madison.
- Dreher, Axel, 2004, A Public Choice Perspective of IMF and World Bank Lending and Conditionality, *Public Choice* 119(3-4): 445-464.
- Dreher, Axel and Nathan M. Jensen, 2007, Independent Actor or Agent? An Empirical Analysis of the Impact of US Interests on IMF Conditions, *The Journal of Law and Economics* 50(1): 105-124.
- Dreher, Axel and Jan-Egbert Sturm, 2006, Do IMF and World Bank Influence Voting in the UN General Assembly? KOF Working Paper 137, ETH Zurich.
- Dreher, Axel and Roland Vaubel, 2007, Foreign Exchange Intervention and the Political Business Cycle: A Panel Data Analysis, KOF Working Paper 159, ETH Zurich.
- Dreher, Axel; Sturm, Jan-Egbert and James R. Vreeland, 2006, Does membership on the UN Security Council influence IMF decisions? Evidence from panel data, KOF Working Paper 151, ETH Zurich.
- Faini, Riccardo and Enzo Grilli, 2004, Who Runs the IFIs? CEPR Discussion Paper No. 4666.
- Fратиanni, Michele and John Pattison, 2005, Who is Running the IMF: Critical Shareholders or the Staff? In: P. de Gijssel and H. Schenk (eds), *Multidisciplinary Economics: The Birth of a New Economics Faculty in the Netherlands*, Berlin: Springer, 279-292.
- Gisselquist, D., 1981, *The Political Economy of International Bank Lending*, New York, Praeger.

- Goldsbrough, D.; Barnes, K.; Mateos y Lago, I. and T. Tsikata, 2002. Prolonged Use of IMF Loans, *Finance&Development* 39, 1-7.
- Gould, Erica R, 2003, Money Talks: Supplemental Financiers and International Monetary Fund Conditionality, *International Organization* 57(3): 551-586.
- Gould, Erica R, 2006, Money Talks: The International Monetary Fund, Conditionality and Supplemental Financiers. Stanford University Press.
- Hacche, Graham, 2007, A Non-Definitive Guide to the IMF, *World Economics* 8(2): 97-118.
- Holden, Kenneth and David A. Peel, 1990, On Testing for Unbiasedness and Efficiency of Forecasts, *Manchester School of Economic and Social Studies* 58: 120-127.
- Holden, K and D.A. Peel, 1990, On testing for unbiasedness and efficiency of forecast, *The Manchester School* 58: 120-7.
- IMF, 2006, International Financial Statistics, CD-Rom, Washington, DC.
- IMF, 1998, Documentation MULTIMOD Mark III, The Core Dynamic and Steady-State Models, IMF Occasional Paper No. 164.
- Kahler, Miles, 1990, The United States and the International Monetary Fund: Declining Influence or Declining Interest? in: Margaret P. Karns and Karen A. Mingst (eds.), *The United States and Multilateral Institutions*, Unwin Hyman, Boston: 91-114.
- Kenen, Peter B. and Stephen B. Schwartz, 1986, The assessment of Macroeconomic Forecasts in the International Monetary Fund's World Economic Outlook. Working Papers in International Economics, No. G-86-40, Princeton University.
- Lagerspetz, Eerik, 1999, Rationality and politics in long-term decisions, *Biodiversity and Conservation* 8: 149-164.
- Levy-Yeyati, Eduardo and Federico Sturzenegger, 2005, Classifying exchange rate regimes: Deeds vs. words, *European Economic Review* 49(6): 1603-1635.
- Loungani, Prakash, 2000, How Accurate Are Private Sector Forecasts? Cross-Country Evidence from Consensus Forecasts of Output Growth. IMF Working Paper 00/77, International Monetary Fund, Washington D.C.
- Loxley, J., 1986, *Debt and Disorder: External Financing for Development*, Boulder, Westview Press.

- Marchesi, Silvia and Jonathan Thomas, 1999, IMF conditionality as a screening device, *The Economic Journal* 109: 111-125.
- Marchesi, Silvia, 2003, Adoption of an IMF Programme and Debt Rescheduling. An empirical analysis, *Journal of Development Economics*, 70 (2): 403-423.
- Marchesi, Silvia and Laura Sabani, 2007a, Prolonged use and conditionality failure: investigating the IMF responsibility, in G. Mavrotas and A. Shorrocks (eds.), *Advancing Development: Core Themes in Global Economics*, Palgrave-Macmillan: 319-332.
- Marchesi, Silvia and Laura Sabani, 2007b, IMF concern for reputation and conditional lending failure: theory and empirics, *Journal of Development Economics* 84: 640-666.
- Morris, Stephen and Hyun Song Shin, 2006, Catalytic Finance: When Does It Work? *Journal of International Economics* 70: 161-177.
- Nickell, Stephen J., 1981, Biases in Dynamic Models with Fixed Effects, *Econometrica* 49: 802-816.
- Oatley, Thomas and Jason Yackee, 2004, American Interests and IMF Lending, *International Politics* 41(3): 415-429.
- Przeworski, Adam and James Vreeland, 2000, The Effect of IMF Programs on Economic Growth, *Journal of Development Economics* 62: 385-421.
- Pons, Jordi, 2000, The Accuracy of IMF and OECD Forecasts for G7 Countries, *Journal of Forecasting* 19(1): 53-63.
- Ramcharan, Rodney, 2003. Reputation, debt and policy conditionality. IMF Working Paper No. 192.
- Ramcharan, Rodney, 2001. Just say no! (More often) IMF lending and policy reform, mimeo.
- Reinhart, Carmen M.; Rogoff, Kenneth S. and Miguel A. Savastano, 2003, Debt Intolerance, *Brookings Papers on Economic Activity* v2003(1): 1-74.
- Rieffel, Lex, 2003, *Restructuring Sovereign Debt: The Case for ad-hoc Machinery*. Washington, D.C.: Brookings Institution Press.

- Roodman, D., 2005, xtabond2: Stata Module to Extend xtabond Dynamic Panel Data Estimator. Center for Global Development, Washington, D.C. <http://econpapers.repec.org/software/bocbocode/s435901.htm>.
- Russett, Bruce M., 1967, *International Regions and the International System*, Rand McNally & Company, Chicago.
- Stone, Randall W., 2002, *Lending Credibility: The International Monetary Fund and the Post-Communist Transition*, Princeton, NJ: Princeton University Press.
- Stone, Randall W., 2004, The Political Economy of IMF Lending in Africa, *American Political Science Review* 98(4): 577-592.
- The Economist, A host of problems, April 27th 2006.
- Thacker, Strom C., 1999, The High Politics of IMF Lending, *World Politics* 52: 38-75.
- Timmermann, Alan, 2007, An Evaluation of the World Economic Outlook Forecasts, *IMF Staff Papers* 54(1): 1-33.
- Voeten, Erik, 2004, Documenting Votes in the UN General Assembly, Political Science and International Affairs, The George Washington University.
- Vreeland, James Raymond, 2003, *The IMF and Economic Development*. New York: Cambridge University Press.
- Vreeland, James Raymond, 2005, The International and Domestic Politics of IMF Programs, Yale University, mimeo.
- Vreeland, James Raymond, 2007, *The International Monetary Fund: Politics of Conditional Lending*. New York: Routledge.
- Windmeijer, Frank, 2005, A finite sample correction for the variance of linear efficient two-step GMM estimators, *Journal of Econometrics* 126(1): 25-51.
- Wittkopf, Eugene, 1973, Foreign Aid and United Nations Votes: A Comparative Study, *American Political Science Review* 67(3): 868-888.
- Woods, Ngaire, 2003, The United States and the International Financial Institutions: Power and Influence within the World Bank and the IMF, in: Foot, McFarlane and Mastanduno (Eds.), *US Hegemony and International Organizations*, Oxford: 92-114.
- World Bank, 2006a, World Development Indicators, CD-Rom, Washington, DC.
- World Bank, 2006b, Global Development Finance, CD-Rom, Washington, DC.

World Economic Outlook, 2006, Financial Systems and Economic Cycles, International Monetary Fund.

**Appendix:** Descriptive statistics (estimation sample Table 3, column 5)

Variable	Mean	Std. Dev.	Min	Max
Bias, inflation	0.14	11.09	-59.90	157.20
Bias, growth	-0.32	3.14	-22.20	13.50
Forecast, inflation	8.11	32.88	-2.20	522.20
Forecast, growth	4.05	2.53	-4.50	42.70
GDP (log)	24.18	2.27	19.12	30.01
Arrears (relative to GDP)	0.00	0.02	0.00	0.18
UNSC dummy	0.08	0.27	0.00	1.00
Pre-election period	0.12	0.21	0.00	1.00
Voting with USA	0.35	0.15	0.10	0.95
IMF loan share	0.01	0.03	0.00	0.27
Consecutive IMF arrangements	1.68	3.09	0.00	15.00
Fixed exchange rate	3.72	1.41	1.00	5.00
Short-term debt (relative to GDP)	0.05	0.08	0.00	0.56

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