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Does the Nominal Exchange Rate Regime Matter?

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Abstract

The effect of the exchange rate regime on inflation and growth is examined. The 30-year data set includes over 100 countries and nine regime types. Pegged regimes are associated with lower inflation than intermediate or flexible regimes. This anti-inflationary benefit reflects lower money supply growth (a discipline effect) and higher money demand growth (a credibility effect). Output growth does not vary significantly across regimes: Countries with pegged regimes invest more and are more open to international trade than those with flexible rates, but they experience lower residual productivity growth. Output and employment are more variable under pegged rates than under flexible rates.

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Summary

Does the choice of the nominal exchange rate regime systematically influence the behavior of key macroeconomic variables, nominal or real? Economic theory has yet to yield unambiguous conclusions: increased nominal exchange rate flexibility has been argued both to aggravate and to reduce output variability, to enhance and to suppress trade, to raise and to lower investment, and to raise and to lower inflation. Revealed preference, moreover, does not suggest a clear ranking among exchange rate regimes. Eighty-six of the 136 countries sampled in this paper pursued some form of exchange rate peg, while the remaining 50 allowed their currencies to float.

Deriving clear rankings is made difficult by the plethora of partly offsetting and partly reinforcing linkages between the exchange rate regime and a number of macroeconomic variables. Without evidence on which of these channels matters empirically, few general conclusions are possible. This paper presents stylized facts on the link between the exchange rate regime and two key macroeconomic variables--inflation and growth.

A general, positive association is found between the degree of nominal exchange rate regime flexibility and inflation, a link deriving both from lower money supply growth (a discipline effect) and higher money demand growth (a credibility effect) under fixed rates. In contrast, overall growth performance is not found to differ across exchange rate regimes, though growth tends to be more variable under fixed exchange rate regimes. The sources of growth, however, do vary significantly across regimes. Countries operating under fixed rates invest more and are more open, while countries under flexible rates enjoy faster residual productivity growth.



I. Introduction

Does the choice of the nominal exchange rate regime matter for macroeconomic performance? A lively theoretical debate has yet to yield unambiguous answers: increased nominal exchange rate flexibility has been argued both to aggravate and to reduce output variability, to enhance and to suppress trade, to raise and to lower investment, to foster and to reduce fiscal discipline, to increase and to decrease inflation. ^{1/} The quest for general results is impeded by the multitude of partly offsetting and partly reinforcing potential linkages between the regime and the key variables. A resolution of the theoretical debate will be difficult until these linkages can be ranked in terms of their importance--an empirical task we undertake in this paper.

Our results are based on an annual classification of the exchange rate system of up to 136 countries over the period 1960-1990 into nine regimes, covering single currency pegs, secret and published basket pegs, cooperative systems, crawling pegs, target zones, and floats with heavy, light, or no intervention. While--in line with most of the literature--we also report results for the less disaggregated classification of regimes into "pegged," "intermediate" and "floating," this three-way classification--and more so the traditional dichotomy between fixed and floating rates--loses much of the richness of real world regimes captured by our nine-way classification. To take just one example; while we generally find inflation to be positively related to the flexibility of the exchange rate regime, inflation under pure floats turns out to be--for the group of industrialized countries--actually lower than inflation under the dirty float regimes.

Our empirical analysis is divided into three parts. We begin by reporting the unconditional means of inflation and growth across regimes. Next, we evaluate the importance of alternative channels of interaction between the regime and macroeconomic performance by examining the residual effect of the regime on inflation and growth conditional on controlling for a set of other potential determinants. In a third stage, we explicitly allow for the possibility of reverse causation: a positive correlation between the flexibility of the exchange rate regime and average inflation could be a reflection of reduced monetary discipline in the absence of a peg, but it could also simply be the result of countries experiencing higher average inflation rates--for whatever reason--being more likely to choose flexible exchange rate regimes. In either case, we would observe a link between fixed exchange rate regimes and low inflation. Yet in the first

^{1/} See Nurkse (1944), Friedman (1953) and Johnson (1969) for some of the classic discussions. The size of the literature has since grown beyond comprehensively quotable size. Recent studies include Argy (1990), Barth and Wong (1994), Dornbusch and Giovannini (1990), Edwards (1989), Flood and Rose (1993), Frenkel et al. (1991), Froot and Stein (1989), Guitián (1994), Helpman (1981), Krugman (1989), Marston (1988), Mills and Wood (1993), Obstfeld (1985), and Williamson (1982).

case, the choice of regime is *instrumental* in determining macroeconomic performance, in the latter it is merely *incidental*. We address this problem by allowing for endogenous regime choice in a simultaneous equation framework.

Our main results on inflation, growth, and the business cycle may be summarized briefly. While there are important differences among the various forms of pegged exchange rate regimes, we find--with only a few exceptions--that inflation has generally been lower under pegged regimes than under more flexible arrangements. This result stems from two factors. First, a *monetary discipline* effect: fixed exchange rate regimes are associated with slower rates of monetary growth. Second, a *confidence* effect: fixed exchange rate regimes are associated with slower velocity growth (and hence higher money demand growth), thus yielding a lower inflation rate for a given rate of monetary expansion.

As regards growth, we find little systematic difference in performance across regimes. The factors driving growth are, however, quite different. Simple growth accounting suggests two ways in which the exchange rate regime could be related to observed differences in GDP growth: factor accumulation and productivity growth. We find that *investment* indeed differs systematically across nominal exchange rate regimes, being significantly higher under fixed than under intermediate regimes; and also higher under intermediate regimes than under floating exchange rate regimes. We split productivity growth differences into a part due to differences in trade performance--often argued to be affected by the exchange rate regime--and a residual component. *Trade growth* is found to have been significantly faster under fixed exchange rate regimes, while residual productivity growth is very much larger under flexible rates, and indeed sufficiently so to offset the growth effects of higher trade growth and higher investment under fixed rates.

Finally, we turn from the average growth rates of prices and output to their volatility, finding modest evidence that GDP growth is more volatile under pegged exchange rate regimes, and considerable evidence that employment volatility is increasing in the degree of exchange rate rigidity.

The paper is divided into four parts. Section II describes the data set. Our results on the link between the exchange rate regime and inflation and growth are reported in sections III and IV. Section V concludes.

II. Data

The customary distinction between "fixed" and "flexible" exchange rates does little justice to the rich variety of real world exchange rate systems, which span a continuum from the classic single-currency peg to basket pegs, cooperative agreements, target zones, crawling pegs and dirty floats all the way to pure floats. We opt for a fairly disaggregated classification. In classifying countries, two approaches are available. The first classifies exchange rate regimes according to the *actual* volatility of the nominal

exchange rate. The approach has obvious appeal in being based on observable behavior, but it fails to capture the degree of *commitment* of the central bank to intervening in, and subordinating its monetary policy to, the foreign exchange market. The drawback can, in principle, be partly overcome by including both the exchange rate and policy variables, notably intervention, in the classification scheme. Yet even if augmented in this way, this performance-based approach is unable to distinguish between low volatility of the exchange rate due to an activist policy and low volatility due to lower volatility in the underlying disturbances.

The alternative approach--which we adopt in this paper--classifies regimes according to the stated intention of the central bank regarding its intervention policy, as summarized by the International Monetary Fund's Annual Report on Exchange Arrangements and Exchange Restrictions. This approach is not without drawbacks, either. In particular, a country officially on a fixed exchange rate standard may adjust the peg so frequently as to transform a *de jure* peg into a *de facto* float. In our empirical work we address this problem by checking the robustness of our results against a secondary classification dividing the nonfloating regimes into frequent and infrequent adjusters. 1/

The optimal degree of disaggregation involves a trade-off between balanced statistical design and the risk of obscuring results by combining dissimilar categories. Our first classification, to which much of the analysis in the text will refer, divides exchange rate regimes into three broad categories. The first consists of *pegged* exchange rate regimes: single currency or basket pegs. The second comprises *intermediate* exchange rate regimes that fall between pegging and floating; this category includes crawling pegs and target zones. The third category consists of *floating* regimes.

Where relevant, we expand this three way taxonomy into nine categories distinguishing between types of exchange rate peg (single or multiple currency, published or secret basket), cooperative systems, and varieties of floating regimes. We use this broader classification to examine within category effects, for example, whether the "credibility" effect of pegging differs between a published and a secret basket peg. Also, when relevant to the results, we differentiate between the *de jure* nature of the regime and its *de facto* implementation by dividing the pegged and intermediate regimes into frequent and infrequent adjusters of the peg. This last classification is based on a survey of IMF desk officers.

The macroeconomic data are from the International Monetary Fund's International Financial Statistics and World Economic Outlook databases. The original data set covers 136 countries over the period 1960-1990, yielding 3685 nonmissing observations for inflation, and 3732 observations

1/ Appendix I gives the detailed exchange rate classification underlying the calculations in Table 1. As discussed below, the econometric work required additional variables leading to smaller samples.

on GDP growth. For the econometric analysis, a number of additional variables were added, including broad money growth rates, interest rates, the terms of trade, a variety of national accounts data (government consumption, investment, exports and imports) and measures of central bank independence, used mainly as instruments for the nominal exchange rate regime. The latter are taken from Cukierman (1992) who provides a detailed explanation of them. We use his measure of the turnover rate of the central bank governor, and three variables intended to measure the legal aspects of central bank independence, relating to the appointment of the governor; monetary policy formulation, and lending limits of the central bank. While the inclusion of the explanatory variables narrows the available sample significantly, most of the eliminated observations date from the 1960s. ^{1/} As the overwhelming preponderance of the single currency peg in the 1960s, in any case limits the scope for comparisons across regimes in this period, the loss of information is more modest than the loss of data would suggest.

Finally, for most of the tables we report results disaggregated by the income level of the country, according to the World Bank classification of countries into an industrialized and upper-middle income and a lower-middle income and low-income group. In addition, we group countries by the degree of capital controls, based on the International Monetary Fund's Exchange Arrangements and Exchange Restrictions.

III. Inflation

A substantial body of literature predicts a positive correlation between exchange rate flexibility and inflation. ^{2/} Two reasons are typically cited. First, by providing a highly visible commitment, the adoption of a pegged exchange rate regime may raise the political costs of excessive monetary growth and the attendant collapse of the peg. Second, to the degree that the peg is credible, the growth of money demand may be more robust, thus reducing the inflationary consequences of a given monetary growth rate.

We examine the link between the exchange rate regime and inflation in three steps. First, we report the average inflation rate for the various regime classifications and country groupings. Second, we examine whether the regime exerts an effect controlling for other determinants of inflation. Finally, we allow for endogeneity of the exchange rate regime.

^{1/} The precise number of observations varies across regressions and is reported in the tables.

^{2/} Crockett and Goldstein (1976), Romer (1993), Quirk (1994), Svensson (1993), and Tornell and Velasco (1994) provide some counter-arguments, however.

1. Unconditional means

Over our entire sample of 3685 observations, inflation (π) has averaged 13.7 percent per year: 11.5 percent in countries that had some form of exchange rate peg, 21.5 percent in countries that followed one of the intermediate exchange rate regimes, and 24.2 percent in countries that allowed their currency to float. Separating the nonfloating regimes by the frequency of adjustments of the peg reveals the importance of *de facto* behavior: the frequent adjusters experienced an average inflation rate of 25.2 percent as compared to 11.1 percent for regimes that entailed no or infrequent changes in the parity.

To some degree, these differences may reflect the fact that fixed regime observations are heavily concentrated in the 1960s, while the flexible regime observations are bunched in the 1970s and 1980s. Without judging whether the incidence of shocks and the trend increase in inflation over the sample is exogenous--or itself a function of exchange rate regime choice (an issue taken up below)--we control for this possibility by computing for each regime type, the average of the *deviation* of the inflation rates from the annual average of all observations. ^{1/} Table 1 reports the results, both for the entire group of countries and separately for countries in the high/upper-middle income and low/lower-middle income grouping used by the World Bank, and for countries without capital controls (using the IMF classification). To control for possible distortions from outliers, Table 1 also reports the means of $\pi/(1+\pi)$, which is normalized between 0 and 1.

The first three rows contain the means for our first classification, revealing that controlling for the annual global average inflation does not materially affect the ranking: countries operating under pegged rates experienced below average inflation rates while countries under floating rates suffered inflation 7 percent above the average of all countries. The second three rows, containing the results for our third, performance-based, classification, again strongly suggests that what matters is the *de facto*, not the *de jure* regime: pegged regimes with frequent adjustments suffered above average inflation rates. The last nine rows report the results for the disaggregated classification, revealing the first instance of an interesting and--as we will see below--quite robust non-linearity: while increasing flexibility is generally associated with higher inflation rates, upper-income countries adopting the least restrictive system, the pure float, enjoy below average inflation, while low-income countries under pure floats suffer the highest average inflation of any regime. As neither of these rankings is affected by using the normalized inflation instead, the results are not driven by outliers. We hence proceed in the remainder of the paper using the simple inflation rates.

^{1/} Although the annual average is removed in Table 1, the untransformed data is used in the regressions with annual dummies included among the regression.

Table 1: Average Inflation Rate (Deviation From Annual Global Mean)

All countries				Low and lower middle income countries			
Regime type	Mean <u>1</u> /	Mean <u>2</u> /	No. of Observ.	Regime type	Mean <u>1</u> /	Mean <u>2</u> /	No. of Observ.
Pegged	-0.006	-0.003	2976	Pegged	0.002	-0.000	1921
Intermediate	0.055	0.028	353	Intermediate	0.040	0.024	205
Floating	0.072	0.04	356	Floating	0.066	0.050	186
Infrequently adjusted peg	-0.011	-0.005	2713	Infrequently adjusted peg	-0.004	-0.002	1727
Frequently adjusted peg	0.033	0.014	401	Frequently adjusted peg	0.052	0.020	270
Not pegged	0.077	0.039	571	Not pegged	0.050	0.039	315
Single currency peg	-0.006	-0.003	2402	Single currency peg	0.001	-0.001	1525
SDR peg	0.055	0.025	150	SDR peg	0.066	0.030	105
Other published peg	-0.025	0.016	127	Other published peg	0.025	0.008	72
Secret basket peg	-0.030	0.007	297	Secret basket peg	-0.034	-0.009	219
Cooperative system	0.009	-0.000	138	Cooperative system	0.064	0.025	76
Unclassified float	0.099	0.044	115	Unclassified float	0.012	0.009	66
Float-determinate range	0.069	0.049	100	Float-determinate range	0.041	0.035	63
Float-indeterminate range	0.121	0.053	223	Float-indeterminate rang	0.057	0.045	134
Pure float	-0.009	0.007	133	Pure float	0.088	0.065	52

High and upper-middle income countries				Countries without capital controls			
Regime Type	Mean <u>1</u> /	Mean <u>2</u> /	No. of Observ.	Regime type	Mean <u>1</u> /	Mean <u>2</u> /	No. of Observ.
Pegged	-0.019	-0.008	1055	Pegged	-0.018	-0.008	423
Intermediate	0.076	0.035	148	Intermediate	-0.030	-0.012	79
Floating	0.080	0.019	170	Floating	-0.038	-0.010	113
Infrequently adjusted peg	-0.023	-0.010	986	Infrequently adjusted peg	-0.021	-0.009	415
Frequently adjusted peg	-0.006	0.001	131	Frequently adjusted peg	-0.031	-0.014	47
Not pegged	0.111	0.040	256	Not pegged	-0.027	-0.005	153
Single currency peg	-0.017	-0.007	877	Single currency peg	-0.018	-0.007	344
SDR peg	0.029	0.014	45	SDR peg	-0.065	-0.032	22
Other published peg	-0.091	-0.046	55	Other published peg	-0.082	-0.031	17
Secret basket peg	-0.017	-0.001	78	Secret basket peg	0.031	0.009	40
Cooperative system	-0.058	-0.032	62	Cooperative system	-0.065	-0.033	39
Unclassified float	0.217	0.092	49	Unclassified float	-0.031	-0.016	18
Float-determinate range	0.116	0.071	37	Float-determinate range	0.034	0.027	22
Float-indeterminate range	0.217	0.064	89	Float-indeterminate range	0.021	0.027	47
Pure float	-0.071	-0.030	81	Pure float	-0.080	-0.036	66

1/ Unconstrained mean

2/ Normalized $\langle \pi/1+\pi \rangle$

2. Conditional means

We next turn to examining the alternative channels linking inflation performance to the exchange rate regime, using the money market equilibrium condition as a reference point for choosing the conditioning variables:

$$\frac{M_t}{P_t} = \frac{Y_t^\alpha I_t^{-\beta}}{V_t} \quad (1)$$

where M and P denote money and the price level and V measures residual velocity controlling for income Y and interest rate I effects. It bears emphasizing that this money demand function is used simply to provide an interpretative framework; none of the results depend on the dozen money demand function itself. Taking logs (denoted by lower case letters), time-differentiating and re-arranging yields:

$$\Pi = \Delta p_c = \Delta m_c - \alpha \Delta y_c + \beta \Delta i_c + \Delta v_c \quad (2)$$

Equation (2) suggests four potential sources of differences in inflation across regimes: differences in monetary growth rates, differences in interest rate growth, differences in output growth and, residually, differences in velocity growth not accounted for by output and interest rate differentials. As our results in the next section suggest that aggregate output growth, in fact, does not differ significantly across regimes, we focus here on the remaining three potential causes of differences in inflation, beginning with OLS regressions for the full dataset before allowing for endogeneity of regime choice in a smaller data set. ^{1/}

a. OLS results

Monetary growth rates differed significantly across regimes, averaging 16 percent under pegged regimes, 22 percent under intermediate regime, and 25 percent under flexible rate regimes. Again, these differences may partly reflect an accident of timing. The middle column of Table 2 reports the average of the difference between the monetary growth rates under a particular regime and the annual average for all countries. As before, removing world means does not materially affect the result: monetary growth under pegged rates was 7.5 percentage points lower than under floating rates. Turning to the more detailed decomposition reveals that while the negative association between monetary growth rates and exchange rate rigidity is common across groups, countries with open capital markets were characterized almost uniformly by lower monetary growth rates. Furthermore, the dichotomy of the pure floaters again resurfaces: while developing countries on pure floats experienced above average monetary growth rates, industrialized pure floaters experienced a significantly below-average monetary growth rate.

To assess the effect of the exchange rate regime, we include an exchange rate regime dummy Peg , equal to one if the exchange rate is pegged and zero otherwise, in a regression of the inflation rate on a constant, annual dummies, output growth (Δy), the turnover of the central bank

^{1/} We do, however, control for GDP growth in the regressions.

governor (*Turn*) and openness (*Open*). 1/ The turnover variable was found by Cukierman (1992) to be the single most important determinant of inflation in his study of various central bank independence proxies. The openness variable is included to proxy a variety of effects including the higher costs of monetary expansion in open economies [Romer (1993), Lane (1994)] and the strength of international arbitrage constraints. Notice that this regression does not control for either the monetary growth rate nor the interest rate growth, so that, to the extent that these variables are connected with the regime, the effect will be captured by the exchange rate dummy, *peg*. The estimated coefficients are reported under the heading "Regression (1)" in Table 2.

For the whole sample, the coefficient on *Peg* is -0.059, so that inflation is on average almost 6 percentage points lower under pegged rates than under other regimes.

Conceptually, this 6 percentage point difference reflects three factors: a monetary discipline effect; a money demand effect which would be manifest through a faster decline in interest rates; and a residual confidence of the pegged exchange rate regime. Moving beyond the regression reported in column (1), therefore, it is instructive to examine whether there is any residual confidence effect after controlling for growth rates for money, (Δm), and of interest rates, (Δi). 2/ The regression becomes: 3/

$$\pi = -0.748 \Delta y + 0.089 \text{Turn} - 0.003 \text{Open} + 0.852 \Delta m + 0.015 \Delta i - 0.014 \text{Peg} \quad R^2 = 0.86$$

(6.84^{***}) (2.62^{**}) (4.48^{***}) (20.19^{***}) (0.82) (2.00^{*})

interest rate growth, so that, to the extent that these variables are connected with the regime, the effect will be captured by the exchange rate dummy, *peg*. The estimated coefficients are reported under the heading "Regression (1)" in Table 2.

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1/ Measured as the ratio of exports plus imports to GDP.

2/ One can further decompose the inflation differential by including only Δm to control for the discipline effect or only Δi , to control for the interest rate effect. Empirically, though, including only Δi makes little difference to the results reported in column (1) of Table 2, and are therefore not reported here; the results are available separately.

3/ The coefficients on the annual time dummies included in this and all subsequent regressions are not reported.

Table 2: Inflation Regressions

Regime type	Regression (1) not controlling for monetary growth or interest rates			Monetary growth		Regression (2) controlling for money and interest rates		
	Coef.	t-Stat.	R ²	Mean	Nobs	Coef.	t-Stat	R ²
All countries								
Pegged	-0.059	3.71 ***	0.25	-0.021	618	-0.014	2.00 **	0.86
Intermediate	0.023	1.00	0.24	0.023	121	0.008	0.86	0.86
Floating	0.064	2.89 ***	0.25	0.055	187	0.013	1.45	0.86
Infrequently adjusted peg	-0.037	2.38 **	0.24	-0.018	577	-0.013	1.81 *	0.86
Frequently adjusted peg	-0.034	2.09 **	0.24	-0.038	103	-0.003	0.28	0.86
Not pegged	0.062	3.63 ***	0.25	0.057	246	0.017	2.17 **	0.86
Single currency peg	-0.036	2.22 **	0.24	-0.015	449	-0.008	1.18	0.86
SDR peg	0.010	0.36	0.24	-0.010	41	-0.001	0.10	0.86
Other published peg	-0.087	3.61 ***	0.24	-0.126	35	0.015	0.81	0.86
Secret basket peg	-0.022	1.16	0.24	-0.013	93	-0.018	1.66 *	0.86
Cooperative system	0.017	0.59	0.24	-0.017	62	-0.002	0.20	0.86
Unclassified float	0.018	0.43	0.24	0.004	24	0.014	0.62	0.86
Float-determinate range	0.030	0.60	0.24	0.107	35	0.020	1.01	0.86
Float-indeterminate range	0.096	3.18 ***	0.25	0.126	105	0.019	1.49	0.86
Pure float	0.008	0.49	0.24	-0.037	82	0.002	0.22	0.86
High and upper middle income countries								
Pegged	-0.033	1.63	0.37	-0.024	399	-0.002	0.35	0.92
Intermediate	0.015	0.49	0.36	0.012	74	0.001	0.13	0.92
Floating	0.034	1.31	0.37	0.054	122	0.002	0.25	0.92
Infrequently adjusted peg	-0.008	0.40	0.36	-0.019	393	-0.015	2.05 **	0.92
Frequently adjusted peg	-0.040	1.60	0.37	-0.059	52	0.026	1.96 **	0.92
Not pegged	0.029	1.31	0.37	0.056	150	0.005	0.64	0.92
Single currency peg	-0.013	0.63	0.36	-0.012	313	-0.018	2.89 ***	0.92
SDR peg	-0.016	0.42	0.36	-0.043	27	0.023	1.62	0.92
Other published peg	-0.065	2.25 **	0.37	-0.147	21	0.025	0.86	0.92
Secret basket peg	-0.015	0.39	0.36	-0.038	38	0.019	1.51	0.92
Cooperative system	0.024	0.62	0.36	-0.020	46	0.005	0.40	0.92
Unclassified float	-0.015	0.30	0.36	-0.041	15	0.034	2.26 **	0.92
Float-determinate range	0.015	0.19	0.36	0.188	13	-0.017	0.81	0.92
Float-indeterminate range	0.110	2.45 **	0.37	0.201	55	0.021	1.51	0.92
Pure float	-0.035	2.13 **	0.36	-0.067	67	-0.013	1.51	0.92

* (**, ***) denotes significance at the 10 (5,1) percent level.

Table 2: Inflation Regressions

(Continued)

Regime type	Regression (1) not controlling for monetary growth or interest rates			Monetary growth		Regression (2) controlling for money and interest rates		
	Coef.	t-Stat.	R ²	Mean	Nobs	Coef.	t-Stat	R ²
Lower-middle income and low-income countries								
Pegged	-0.084	3.69 ***	0.18	-0.016	219	-0.035	2.36 **	0.72
Intermediate	0.061	1.76 *	0.16	0.040	47	0.028	1.41	0.71
Floating	0.074	2.89 ***	0.17	0.056	65	0.028	1.62	0.71
Infrequently adjusted peg	-0.050	2.27 **	0.16	-0.015	184	-0.018	1.37	0.71
Frequently adjusted peg	-0.055	2.41 **	0.15	-0.017	51	-0.029	1.70 *	0.71
Not pegged	0.093	3.75 ***	0.19	0.059	96	0.040	2.52 **	0.72
Single currency peg	-0.040	1.84 *	0.15	-0.023	136	0.005	0.38	0.71
SDR peg	-0.006	0.12	0.15	0.054	14	-0.043	1.76 *	0.71
Other published peg	-0.067	1.97 **	0.15	-0.095	14	-0.002	0.11	0.71
Secret basket peg	-0.047	2.22 **	0.15	0.003	55	-0.053	3.46 ***	0.72
Cooperative system	-0.004	0.11	0.15	-0.009	16	-0.008	0.34	0.71
Unclassified float	0.054	0.75	0.15	0.079	9	0.004	0.08	0.71
Float-determinate range	0.095	1.68 *	0.16	0.060	22	0.057	2.02 **	0.72
Float-indeterminate range	0.039	1.49	0.15	0.044	50	0.016	0.82	0.71
Pure float	0.153	2.89 ***	0.17	0.099	15	0.055	2.01 **	0.71
Countries without capital controls								
Pegged	-0.037	2.30 **	0.46	-0.030	95	-0.003	0.27	0.79
Intermediate	0.023	0.90	0.45	-0.034	34	-0.001	0.07	0.79
Floating	0.030	1.58	0.45	-0.041	68	0.004	0.34	0.79
Infrequently adjusted peg	-0.035	2.05 **	0.46	-0.029	110	-0.015	1.45	0.79
Frequently adjusted peg	-0.026	0.63	0.44	-0.094	13	0.020	0.57	0.79
Not pegged	0.046	2.56 **	0.46	-0.032	74	0.009	0.89	0.79
Single currency peg	-0.017	0.89	0.44	-0.005	72	-0.009	0.74	0.79
SDR peg	-0.075	3.09 **	0.45	-0.087	8	-0.024	1.22	0.79
Other published peg	-0.079	1.66 *	0.45	-0.234	7	0.030	0.69	0.79
Secret basket peg	0.018	0.32	0.44	-0.014	8	0.020	0.74	0.79
Cooperative system	-0.006	0.32	0.44	-0.056	28	-0.011	0.92	0.79
Unclassified float	0.077	0.86	0.45	0.057	3	0.008	0.25	0.79
Float-determinate range	0.122	1.12	0.46	0.080	3	0.054	1.36	0.79
Float-indeterminate range	0.078	1.79 *	0.47	0.068	17	0.030	1.33	0.79
Pure float	-0.002	0.15	0.44	-0.077	51	-0.010	1.08	.79

there is any residual confidence effect after controlling for growth rates for money, (Δm), and of interest rates, (Δi). 1/ The regression becomes: 2/

$$\pi = -0.748 \Delta y + 0.089 \text{Turn} - 0.003 \text{Open} + 0.852 \Delta m + 0.015 \Delta i - 0.014 \text{Peg} \quad R^2 = 0.86$$

(6.84^{***}) (2.62^{**}) (4.48^{***}) (20.19^{***}) (0.82) (2.00^{*})

where numbers in brackets are t-statistics based on White standard errors and one, two and three stars denote significance at the 10, 5 and 1 percent level. The regression was replicated for each of the detailed classifications of the regime and separately by income group and by the degree of capital mobility. The estimated coefficient on the Peg indicator variable; together with the associated t-statistic and the R^2 of the regression, is reported under the heading "Regression (2)" in Table 2.

Higher output growth and higher openness reduces inflation, while a higher turnover of the central bank governor increases inflation *ceteris paribus*. Monetary growth enters highly significant, e.g., with a coefficient near unity. Interest rate growth enters with the expected sign but is insignificant.

The coefficient on peg now falls to -0.014; that is the residual confidence effect of a pegged exchange rate regime lowers inflation by 1.4 percentage points, even controlling for the greater monetary discipline and the faster decline of interest rates associated with pegged regimes. This residual confidence effect, which is both economically and statistically significant, means that pegging the exchange rate brings additional anti inflationary benefits beyond discipline and the standard determinants of velocity.

The detailed results suggest that this confidence effect is strongest for the single currency peg and, surprisingly, the secret rather than the published basket pegs. 3/ As before, the distinction between frequently and infrequently adjusted pegs suggests that it is the *de facto* rather than the *de jure* regime which matters [Svensson (1993)]: while the infrequent adjusters had inflation that was 13 percentage points below the average in the sample, the inflation benefit for frequent adjusters drops to 3 percent. The asymmetry of the pure float mentioned above is again present: for the high-income countries inflation under the pure float was below average, while low-income countries on pure floats experienced an inflation rate almost 5 percentage points above the average.

1/ One can further decompose the inflation differential by including only Δm to control for the discipline effect or only Δi , to control for only the interest rate effect. Empirically, though, including only Δi makes little difference to the results reported in column (1) of Table 2, and are therefore not reported here; the results are available separately.

2/ The coefficients on the annual time dummies included in this and all subsequent regressions are not reported.

3/ The latter result, however, solely reflects the experience of the developing country sub-sample.

b. Endogeneity of the exchange rate regime

The results presented above--a significant positive correlation between exchange rate flexibility and inflation--permit two (nonexclusive) interpretations: a causal link from an exogenous exchange rate regime to macroeconomic performance, or an endogenous regime choice of countries conditional on their macroeconomic performance. The distinction is of prime importance: in the first case, the choice of regime has important implications for macroeconomic performance, in the second, it is incidental. To be specific, suppose that the choice whether or not to peg depends on some set of variables X_2 as well as on the inflation rate Π :

$$Peg^* = X_2 \beta_2 + \gamma_2 \Pi + \eta_2 \quad (3)$$

where Peg^* is an unobserved "desire" to peg the exchange rate and η captures non-systematic factors. Let Peg denote the observed indicator variable designating whether the country in fact has a pegged exchange rate, with $Peg=1$ if Peg^* is above some critical value and 0 otherwise. A natural assumption might be $\gamma_2 < 0$: low inflation countries are best able to maintain a pegged exchange rate regime and perhaps are more likely to want to do so. The structural equation determining inflation is given by:

$$\Pi = X_1 \beta_1 + \gamma_1 Peg^* + \eta_1 \quad (4)$$

where X_1 and η denote a vector of exogenous variables and an error term, and $\gamma_1 < 0$. The simultaneity implies that the anti-inflationary benefit of pegged exchange rates identified in the previous section may be spurious: we may find a statistically significant negative estimate for γ_1 even though its true value is zero. In order to address the possibility of this bias, we use a simultaneous equation framework. Finding adequate instruments for the exchange rate regime is, of course, no mean task. Here we use the variables defining the legal independence of the central bank, taken from Cukierman [1992]. It seems reasonable to assume that the factors that lead a country to adopt a particular stance in regard to the independence of its central bank might also influence its choice of an exchange rate (underline) regime. Cukierman finds that these variables tend not to be correlated with the inflation rate, and they are assumed not to enter the inflation equation (4).^{1/}

As the endogenous variable is dichotomous, standard two stage estimation is not feasible. We, therefore, use a modification of Amemiya's [1979] 2SLS method for truncated endogenous variables. The modification, proposed by Maddala [1983], explicitly allows for dichotomous variables. The reduced forms of the structural model are given by:

$$\Pi = X\lambda_1 + v_1 \quad (5)$$

$$Peg^* = X\lambda_2 + v_2 \quad (6)$$

^{1/} This exclusion restriction is not necessary for identification because of the non-linearity of the probate equation for the exchange rate regime.

where X includes both X_1 and X_2 . Since Peg^* is only observed as a dichotomous variable, we can only estimate $\lambda_2^* = \frac{\lambda_2}{\sigma^2(v_2)}$.

Defining $Peg^{**} = X\lambda_2^* + \frac{v_2}{\sigma^2(v_2)}$, the structural inflation equation can then be rewritten as:

$$\Pi = X_1\beta_1 + \gamma_1\sigma_{v_2}^2 Peg^{**} + \epsilon \quad (7)$$

where ϵ is an error term. The two-stage procedure then involves estimating λ_2^* by probate maximum likelihood, calculating Peg^{**} and substituting it into equation 7 which can then be estimated by OLS. If the adoption of a pegged exchange rate regime, in fact, exerts a negative effect on inflation, the estimated coefficient $\gamma_1\sigma_{v_2}^2$ is expected to be negative. 1/

For the second stage probate regression we use the three legal definitions of central bank independence developed by Cukierman [1992], 2/ the openness measure and the fitted value of inflation. 3/ Of these, the independence variable measuring the legal status of the central bank governor is significantly negative (that is, lowers the likelihood of a pegged exchange rate regime being chosen), while openness has a positive, and inflation the expected negative significant effect. Sixty-eight percent of all observations were correctly predicted. Allowing for regime choice endogeneity yields the following corrected OLS regression:

$$\begin{array}{cccccc} \Pi = & -0.0054 \text{ Open} & -0.624\Delta y & +0.0285 \text{ Turn} & +0.828\Delta m & +0.017\Delta i & -0.028 \text{ Peg} & & \\ & (5.91^{***}) & (7.56^{***}) & (0.83) & (39.77^{***}) & (1.44) & (2.06^{**}) & R^2=0.84 & \end{array}$$

The corresponding estimates for the intermediate and flexible regimes are 0.022 ($t=0.69$), and 0.018 ($t=-1.58$). 4/ The results are comparable to those obtained above for the OLS regressions: the residual effect on velocity growth is again both economically and statistically significant. Allowing for endogenous regime choice, thus, does not materially affect the

1/ An adjustment to the standard errors is also required. Corrected standard errors were calculated from

$$v = \sigma_1^2 (H'X'XH)^{-1} + (\gamma_1\sigma_2)^2 (H'X'XH)^{-1} H'X'X\Sigma X'XH (H'X'XH)^{-1}$$

where Σ denotes the variance-covariance matrix of the first stage probate maximum likelihood parameter estimates, and $H = (\lambda_2 | J)$ where J is a matrix of 1s and 0s defined by $XJ = X_1$.

2/ Consistent with Cukierman's findings, the three measures were assumed not to enter X_1 .

3/ Optimal regime choice, as a function of country characteristics, is the subject of a substantial separate literature: see Flood and Marion (1991), Heller (1978), Klein and Marion (1994), Klein (1987), Lane (1994), Melvin (1985), Savvides (1990) and Wickham (1985), *inter alia*.

4/ Similar results were obtained by controlling for the potential endogeneity of Δy , Δi and Δm (using lagged values of these variables as instruments); including Δm and Δi the coefficient on *peg* becomes -0.04 ($t=2.11^{**}$.)

results for this small dataset, enhancing our confidence in the robustness of the OLS results reported in the previous section.

3. Volatility

We next examine how the *volatility* of inflation differs across alternative exchange rate regimes. To capture the notion that welfare costs primarily arise from *unanticipated* inflation, we use a three-year centered moving standard deviation of the residual from a regression of the inflation rate on its own lag as our inflation volatility measure. ^{1/} The first column of Table 3 reports average volatility across exchange rate regimes. As before, the entries refer to the *deviation* from the annual world average. The rankings are comparable with those obtained for the mean inflation rates, conforming to the familiar positive correlation between the level and volatility of inflation (Ball (1992)).

Turning to the subsamples, the developing countries exhibited the greatest volatility of inflation rates regardless of the exchange rate regime, though the positive correlation between exchange rate flexibility and inflation volatility holds within each subgroup. The sharp split of results for the pure float between the upper and lower half of the income distribution is seen to extend to the volatility measure.

Again, however, the exchange rate regime is likely to be only one of many determinants of inflation volatility. To assess the *conditional* effect of the regime, we regress the measure of inflation volatility on output volatility, the central banker turnover rate, openness, and the volatility of money supply growth and interest rates, yielding:

$$\sigma(\pi) = 0.242\sigma(\Delta y) + 0.274 \text{ Turn} - 0.0002 \text{ Open} + 0.345\sigma(\Delta m) - 0.00003\sigma(\Delta i) - 0.0199 \text{ Peg}$$

(1.04)	(3.88***)	(3.01**)	(2.84**)	(3.32***)	(1.53)
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with an R^2 of 0.18. Volatility of GDP growth contributes to inflation volatility, as does a high central bank governor turnover rate while more open economies have more predictable inflation rates. Increased volatility of monetary growth rates and interest rates goes hand in hand with increased volatility of inflation. Controlling for these conditioning variables, pegged exchange rate regimes exert a negative but insignificant effect on inflation volatility. If the volatility of monetary growth is excluded from the regression, the coefficient on the regime dummy increases and becomes significant, which can be interpreted as evidence that pegged regimes exert a disciplinary effect not only on the mean but also on the volatility of monetary growth rates.

The negative coefficient on interest rate volatility presumably reflects a "transfer" effect: by ruling out adjustments in nominal exchange rates in response to shocks, pegged regimes transfer the pressure to other variables, including interest rates and reserves. The effect on the latter is examined in the last columns of Table 3, revealing a substantially larger

^{1/} However, a check revealed that the distinction is of little importance, as the results using the standard deviation are similar.

volatility of reserves under pegged rates, a feature which remains robust to controlling for terms of trade and GDP volatility.

IV. Growth

We next turn to the comparative growth performance under alternative nominal exchange rate regimes. In contrast to the expansive literature on inflation, economic theory offers relatively few sharp predictions about the link between the nominal exchange rate regime and economic growth. To discuss the potential linkages, it is conceptually useful to first distinguish between variations in output (GDP) that arise from changes in the use of unemployed resources (that is, variations around the "full employment" level of output) and growth of full employment output itself.

In a world with other nominal rigidities, flexibility of the nominal exchange rate may be expected to facilitate adjustment and to restore full employment following adverse shocks. One might, thus, expect the variability of output and employment to be lower under flexible exchange rate regimes. The flexibility of prices, however, is itself likely to be a function of the exchange rate regime. Thus, it has been argued that the adoption of pegged exchange rates will reduce wage and price stickiness precisely because it sharply limits the ability of the government to counteract the adverse effects of stickiness in the presence of shocks.

Moving beyond business-cycle variations, pegged exchange rate regimes have been argued to foster faster economic growth [Aizenman (1991), Ghosh and Pesenti (1994)]. From simple growth accounting, any such effects must either influence the rate of factor accumulation, that is, investment and employment growth, or the growth in total factor productivity. Growth effects from increased rates of *factor accumulation* have been argued to arise mainly through higher investment under pegged rates, a result of a reduced real risk premium reflecting the higher policy credibility we identified above. An impact of the exchange rate regime on *total factor productivity growth* may arise either through an effect on the speed of sectoral adjustment to shocks or through a link between the regime and trade growth or economic openness in general, which in turn have long been argued to stimulate productivity growth through a variety of channels. Both channels, and in particular the link between exchange rate flexibility and the growth of trade remain, however, quite controversial. 1/

Accordingly, we turn again to empirics to throw some light on the importance of alternative channels. The remainder of this section is organized much as section 3, above. Subsection 1 reports basic results on growth performance across various regimes. Subsection 2 turns to regression analysis to examine whether differences in growth rates across regimes may be attributed to different investment rates, different productivity growth

1/ See Friedman (1953), Hooper and Kohlhagen (1978), Cushman (1983), IMF (1984), Bailey et al. (1986), DeGrauwe and Bellefroid (1987), Dixit (1989) *inter alia*.

Table 3. Inflation and Reserve Volatility Regression

Regime type	Regression (3) Volatility of inflation controlling for monetary & interest rate volatility					Regression (4) Volatility of reserves controlling for ToI and GDP volatility				
	Mean	Nobs	Coef	t-Stat.	R ²	Mean	Nobs	Coef.	t-Stat	R ²
All countries										
Pegged	-0.009	680	-0.020	1.53	0.19	0.008	722	0.027	1.32	0.13
Intermediate	0.026	127	0.025	1.09	0.19	-0.013	137	-0.011	0.42	0.13
Floating	0.014	184	0.009	0.51	0.18	-0.021	192	-0.029	1.18	0.13
Infrequently adjusted peg	-0.015	631	-0.033	2.61***	0.19	0.005	668	0.027	1.35	0.13
Frequently adjusted peg	0.002	111	0.003	0.20	0.18	0.012	120	0.007	0.24	0.13
Not pegged	0.036	249	0.036	2.35**	0.19	-0.018	263	-0.035	1.65*	0.13
Single currency peg	-0.006	506	-0.014	1.19	0.18	0.011	534	0.019	0.92	0.13
SDR peg	0.023	43	0.034	1.27	0.19	0.013	48	0.022	0.51	0.13
Other published peg	-0.053	35	-0.030	2.27**	0.18	0.015	38	0.042	0.78	0.13
Secret basket peg	-0.021	96	-0.018	1.29	0.18	-0.012	102	-0.012	0.45	0.13
Cooperative system	-0.051	62	-0.040	4.02***	0.19	-0.017	66	0.015	0.41	0.13
Unclassified float	0.034	28	0.026	0.65	0.18	-0.015	32	-0.001	0.02	0.13
Float-determinate range	0.148	37	0.122	1.91*	0.20	-0.005	39	-0.056	1.24	0.13
Float-indeterminate range	0.033	100	-0.001	0.06	0.18	0.003	108	-0.027	0.81	0.13
Pure float	-0.008	84	0.018	0.77	0.18	-0.051	84	-0.024	0.79	0.13
High and upper-middle income countries										
Pegged	-0.023	443	0.003	0.27	0.32	-0.045	465	0.008	0.36	0.18
Intermediate	0.012	74	0.023	0.90	0.32	-0.083	80	0.019	0.72	0.18
Floating	-0.012	124	-0.020	1.29	0.32	-0.049	124	-0.025	0.96	0.18
Infrequently adjusted peg	-0.031	437	-0.026	2.08**	0.33	-0.048	459	0.018	0.81	0.18
Frequently adjusted peg	0.006	51	0.033	1.46	0.32	-0.071	53	-0.018	0.57	0.18
Not pegged	0.014	153	0.014	1.02	0.32	-0.050	157	-0.012	0.54	0.18
Single currency peg	-0.024	357	-0.004	0.30	0.32	-0.045	375	-0.019	0.85	0.18
SDR peg	0.025	29	0.054	1.45	0.33	-0.055	30	0.012	0.27	0.18
Other published peg	-0.067	21	-0.023	1.86*	0.32	0.053	21	0.151	1.87*	0.19
Secret basket peg	-0.028	36	-0.008	0.39	0.32	-0.083	39	-0.010	0.31	0.18
Cooperative system	-0.061	45	-0.045	2.67***	0.33	-0.105	47	0.009	0.24	0.18
Unclassified float	0.016	15	0.035	0.75	0.32	-0.072	19	0.045	1.03	0.18
Float-determinate range	0.242	14	0.199	1.87*	0.35	-0.026	14	0.004	0.10	0.18
Float-indeterminate range	0.038	57	-0.019	0.77	0.32	-0.013	57	0.017	0.54	0.18
Pure float	-0.055	67	-0.016	1.72*	0.32	-0.080	67	-0.052	1.63	0.18

Table 3. Inflation and Reserve Volatility Regression

Regime type	Volatility of inflation		Regression (3) inflation volatility controlling for monetary & interest rate volatility			Volatility of reserves		Regression (4) reserve volatility controlling for ToF and GDP volatility		
	Mean	Nobs	Coef	t-Stat.	R ²	Mean	Nobs	Coef.	t-Stat	R ²
Low and lower middle income countries										
Pegged	0.019	237	-0.061	2.04**	0.17	0.103	257	0.038	1.00	0.09
Intermediate	0.044	53	0.055	1.32	0.16	0.086	57	-0.027	0.59	0.09
Floating	0.068	60	0.045	1.22	0.16	0.031	68	-0.034	0.66	0.09
Infrequently adjusted peg	0.022	194	-0.039	1.55	0.16	0.120	209	0.050	1.41	0.09
Frequently adjusted peg	-0.001	60	-0.038	1.88*	0.16	0.078	67	-0.001	0.02	0.09
Not pegged	0.071	96	0.073	2.22**	0.18	0.030	106	-0.060	1.48	0.09
Single currency peg	0.039	149	-0.023	1.07	0.16	0.143	159	0.074	2.08**	0.10
SDR peg	0.017	14	-0.012	0.41	0.15	0.126	18	0.074	1.03	0.09
Other published peg	-0.033	14	-0.021	0.69	0.15	-0.031	17	-0.147	2.89***	0.09
Secret basket peg	-0.016	60	-0.047	2.44**	0.16	0.032	63	-0.046	1.15	0.09
Cooperative system	-0.025	17	-0.029	1.83*	0.15	0.201	19	0.076	0.91	0.09
Unclassified float	0.053	13	0.064	0.92	0.16	0.068	13	-0.052	0.74	0.09
Float-determinate range	0.091	23	0.095	1.29	0.17	0.007	25	-0.086	1.37	0.09
Float-indeterminate range	0.025	43	-0.005	0.14	0.15	0.021	51	-0.050	0.81	0.09
Pure float	0.174	17	0.151	1.53	0.18	0.064	17	0.019	0.24	0.09
Countries without capital controls										
Pegged	-0.030	100	0.011	0.82	0.37	-0.057	105	-0.007	0.25	0.32
Intermediate	-0.000	39	0.052	1.57	0.39	-0.087	39	0.034	0.87	0.32
Floating	-0.060	69	-0.053	2.77***	0.40	-0.123	69	-0.017	0.59	0.32
Infrequently adjusted peg	-0.041	115	-0.009	0.93	0.37	-0.072	120	-0.011	0.33	0.32
Frequently adjusted peg	0.001	14	0.048	1.42	0.38	-0.067	14	0.040	0.84	0.32
Not pegged	-0.031	79	-0.007	0.54	0.37	-0.105	79	-0.002	0.07	0.32
Single currency peg	-0.029	77	-0.005	0.38	0.37	-0.047	81	-0.017	0.45	0.32
SDR peg	-0.047	8	0.032	1.20	0.37	-0.047	8	0.066	1.02	0.32
Other published peg	-0.058	6	0.023	1.82*	0.37	-0.095	7	0.013	0.39	0.32
Secret basket peg	-0.008	9	0.027	0.64	0.37	-0.127	9	-0.041	0.71	0.32
Cooperative system	-0.057	29	-0.009	0.66	0.37	-0.123	29	0.019	0.42	0.32
Unclassified float	0.149	5	0.158	1.43	0.41	0.028	5	0.080	0.86	0.32
Float-determinate range	0.177	5	0.162	1.33	0.42	0.007	5	0.024	0.20	0.32
Float-indeterminate range	-0.054	17	-0.057	2.27**	0.38	-0.051	17	-0.016	0.35	0.32
Pure float	-0.061	52	-0.037	2.22**	0.38	-0.146	52	-0.012	0.40	0.32

related to growth of international trade, or different residual productivity growth. Subsection 3 presents a simultaneous equation model, in order to check the robustness of the results when the regime is endogenous. Subsection 4 turns to the business cycle dimension and studies the volatility of growth and employment under alternative exchange rate regimes.

1. Unconditional means

Over our full sample of 3732 observations, GDP growth averaged 3.7 percent per year; almost 4 percent in the industrialized and upper-middle income countries and 3.6 percent in the lower-middle income and low-income countries. The fastest growth rates were experienced under the pegged exchange rate regimes, which averaged 4 percent growth per year, compared to 2.7 percent for the intermediate regimes, and 2.6 percent under flexible exchange rate regimes. Controlling for time factors by subtracting the annual means (see Table 4) reveals that most of these differences can be attributed to the higher global growth rates in the 1960s. Taking out the annual means reduces the difference between fixed and floating rates to less than 1/4 percent per year. The asymmetry of the pure float regime again emerges: while high-income countries under pure floats experienced (marginally) above-average growth rates, low-income economies with floating rates experienced the lowest growth rate of all regimes.

2. Conditional means

We next examine the partial effect of the nominal exchange rate regime on growth controlling for other growth determinants, including time dummies, the variability of the terms of trade $\sigma(\Delta(TT))$ (calculated as a three year centered moving standard deviation of the terms of trade), lagged growth in government consumption as a readily available fiscal stimulus proxy (Δg), the investment to GDP ratio (i/y), the growth rate of trade ($\Delta Trade$), measured as the growth rate of exports plus imports, and the World Bank's index of development (\bar{y}). The latter is coded in decreasing order of development, hence conditional convergence would be reflected by a positive coefficient. ^{1/}

a. OLS results

To begin with, we only include those controls which are likely to be fairly exogenous to the exchange rate regime: the annual dummies, terms of trade variability, and the lagged government consumption variable. The results for the exchange rate regime dummy are given in Table 5 under the heading "Regression 5," revealing a moderate positive association between economic growth and the flexibility of the exchange rate regime, with an average growth difference of 0.3 percent per annum between countries on flexible and fixed rates.

^{1/} The low income countries are coded as 4, the lower and upper middle income countries by 3 and 2, and the high income countries by 1.

Table 4: Average GDP Growth (Deviation From Annual Global Mean)

Regime type	Mean	Observ.	Regime type	Mean	Observ.
All countries			Low and lower middle income countries		
Pegged	0.00077	3028	Pegged	-0.00115	978
Intermediate	-0.00175	353	Intermediate	-0.00013	205
Floating	-0.00149	351	Floating	-0.00033	181
Infrequently adjusted peg	0.00029	2767	Infrequently adjusted peg	-0.00144	786
Frequently adjusted peg	0.00234	399	Frequently adjusted peg	0.00176	268
Not pegged	-0.00095	566	Not pegged	-0.00085	310
Single currency peg	0.00042	2454	Single currency peg	-0.00202	582
SDR peg	0.00176	150	SDR peg	0.00263	105
Other published peg	-0.00231	127	Other published peg	-0.01527	72
Secret basket peg	0.00449	297	Secret basket peg	0.00796	219
Cooperative system	-0.00436	138	Cooperative system	0.00233	76
Unclassified float	0.00066	115	Unclassified float	-0.00344	66
Float-determinate range	-0.00093	100	Float-determinate range	0.00036	63
Float-indeterminate range	0.00057	218	Float-indeterminate range	0.00589	129
Pure float	-0.00489	133	Pure float	-0.01580	52
High and upper middle income countries			Countries without capital controls		
Pegged	0.00441	1050	Pegged	0.00890	423
Intermediate	-0.00400	148	Intermediate	0.00795	79
Floating	-0.00273	170	Floating	-0.00553	108
Infrequently adjusted peg	0.00345	981	Infrequently adjusted peg	0.00635	415
Frequently adjusted peg	0.00351	131	Frequently adjusted peg	0.02361	47
Not pegged	-0.00108	256	Not pegged	0.00034	148
Single currency peg	0.00486	872	Single currency peg	0.00836	344
SDR peg	-0.00024	45	SDR peg	0.03076	22
Other published peg	0.01465	55	Other published peg	-0.01693	17
Secret basket peg	-0.00522	78	Secret basket peg	0.01245	40
Cooperative system	-0.01258	62	Cooperative system	-0.00051	39
Unclassified float	0.00621	49	Unclassified float	0.02904	18
Float-determinate range	-0.00315	37	Float-determinate range	0.00573	22
Float-indeterminate range	-0.00713	89	Float-indeterminate range	0.00058	42
Pure float	0.00210	81	Pure float	-0.00943	66

We next control for the two determinants which have been argued to be endogenous to the exchange rate regime, the investment to GDP ratio and average trade growth. Investment rates average 22.5 percent in countries with pegged exchange rate regimes as compared to 21.3 percent in the intermediate regimes and 19.6 percent in the flexible regimes. International trade grew at 9.4 percent in countries with pegged versus 8.5 percent under floating exchange rate systems, with most of the difference occurring in the lower-middle income and low-income country group. Again, the preponderance of the fixed regime observations in the 1960s might induce some time bias. The center columns of Table 5 report the means of the investment ratio and trade growth after subtracting the annual global averages. The stylized fact remains: the investment ratio was on average 1.5 percentage points higher in countries with fixed compared to flexible rates while trade growth was on average 0.2 percentage points higher. Controlling for trade growth and the investment rate in the growth regression yields:

$$\Delta \ln(y) = -0.062\sigma(\Delta TT) + 0.048\Delta g + 0.005 \bar{y} + 0.136 \Delta Trade + 0.094 (i/y) + 0.0089 Flex \quad R^2=0.21$$

(2.40**) (1.73*) (3.36***) (6.42***) (2.39**) (3.03**)

The regression reveals a significant negative effect of terms of trade shocks and a weakly significant positive effect of government consumption. The income variable enters positively, suggesting a conditional convergence trend. 1/ Both trade growth and the investment to GDP ratio enter positively and significantly. Based solely on these two growth determinants --the average investment ratios and trade growth rates--countries under fixed rates thus grow faster. Yet the inclusion of investment and trade does not eliminate the coefficient on the exchange rate regime dummy: *ceteris paribus*, countries operating under flexible rates on average enjoyed a 0.9 percentage point higher residual productivity growth rate per year. In combination, the residual productivity growth differential cancels the growth differential brought about by investment and trade growth, reducing the difference in the aggregate growth rate to negligible dimensions (as noted above). Comparing the effect across country groups (reported under the heading "Regression (6)" in Table 5), we find the positive residual growth effect to be particularly pronounced for the lower income countries, perhaps a reflection of a more frequent occurrence of seriously misaligned fixed exchange rates in this group.

b. Endogeneity of the exchange rate regime

Although endogeneity of the exchange rate regime to the growth performance of the country has not been a major theme in the literature, it is not unreasonable to suppose that economic growth may also be an important factor in the selection of the regime, potentially biasing the results reported above. As before, we use a two-stage estimation procedure--prostate maximum likelihood for the equation determining the choice of exchange rate

1/ Recall that \bar{y} is decreasing in the level of per capita income.

Table 5: Growth Regressions

Regime type	Regression (5) not controlling for investment and trade			Investment ratio		Trade growth		Regression (6) controlling money and interest rates		
	Coef.	t-Stat.	R ²	Mean	Nobs	Mean.	Nobs	Coef.	t-stat	R ²
All countries										
Pegged	0.002	1.23	0.11	0.015	769	-0.000	769	-0.003	1.12	0.21
Intermediate	-0.005	0.75	0.11	0.016	154	0.005	154	-0.005	0.78	0.21
Floating	0.005	1.82*	0.11	-0.001	215	-0.002	215	0.009	3.03***	0.22
Infrequently adjusted peg	-0.004	0.97	0.11	0.012	686	-0.002	686	-0.003	0.98	0.21
Frequently adjusted peg	0.002	0.47	0.11	0.035	160	0.012	160	-0.002	0.67	0.21
Not pegged	0.003	1.23	0.11	0.001	292	-0.002	292	0.006	2.34**	0.21
Single currency peg	-0.003	0.90	0.11	0.006	534	-0.004	534	-0.003	0.89	0.21
SDR peg	0.003	0.41	0.11	0.040	47	-0.007	47	0.003	0.60	0.21
Other published peg.	-0.007	1.26	0.11	0.016	59	0.006	59	-0.007	1.23	0.21
Secret basket peg	0.006	1.30	0.11	0.041	129	0.013	129	0.000	0.09	0.21
Cooperative system	-0.006	0.53	0.11	0.026	77	0.013	77	-0.006	0.58	0.21
Unclassified float	-0.005	0.69	0.11	0.011	37	0.002	37	-0.004	0.72	0.21
Float-determinate range	-0.001	0.20	0.11	0.001	40	-0.005	40	-0.001	0.16	0.21
Float-indeterminate range	0.006	1.63	0.11	0.013	122	-0.002	122	0.007	2.03 **	0.21
Pure float	0.003	0.76	0.11	-0.020	93	-0.002	93	0.008	2.03 **	0.21
High and upper-middle income countries										
Pegged	-0.003	0.95	0.17	0.021	496	0.003	496	-0.002	0.51	0.29
Intermediate	-0.005	0.63	0.17	0.021	98	0.016	98	-0.009	1.10	0.29
Floating	0.003	1.03	0.17	-0.009	139	0.010	139	0.005	1.03	0.29
Infrequently adjusted peg	-0.006	1.18	0.17	0.012	686	-0.002	686	-0.006	1.45	0.29
Frequently adjusted peg	-0.003	0.58	0.16	0.035	160	0.012	160	-0.003	0.66	0.29
Not pegged	0.004	1.39	0.17	0.001	292	-0.002	292	0.004	1.04	0.29
Single currency peg	-0.002	0.67	0.16	0.011	376	-0.002	376	-0.001	0.16	0.29
SDR peg	-0.002	0.32	0.16	0.063	34	0.033	34	-0.007	1.15	0.29
Other published peg	-0.003	0.43	0.16	0.033	33	0.011	33	-0.001	0.16	0.29
Secret basket peg	0.000	0.05	0.16	0.050	53	0.016	53	0.001	0.20	0.29
Cooperative system	-0.013	0.96	0.17	0.019	53	0.025	53	-0.017	1.23	0.30
Unclassified float	0.000	0.05	0.16	0.014	28	0.012	28	-0.008	1.08	0.29
Float-determinate range	0.010	1.33	0.17	0.038	17	-0.005	17	0.014	2.26 **	0.29
Float-indeterminate range	0.003	0.64	0.16	0.009	67	0.011	67	0.002	0.45	0.29
Pure float	0.003	0.66	0.16	-0.027	72	0.010	72	0.006	0.95	0.29

Table 5: Growth Regressions

Regime type	Regression (5) not controlling for investment and trade			Investment ratio		Trade growth		Regression (6) controlling money and interest rates		
	Coef.	t-Stat.	R ²	Mean	Nobs	Mean.	Nobs	Coef.	t-stat	R ²
Low and lower middle income countries										
Pegged	-0.001	0.11	0.15	0.005	273	-0.007	273	-0.001	0.25	0.26
Intermediate	-0.003	0.42	0.15	0.007	56	-0.013	56	-0.002	0.21	0.26
Floating	0.010	1.83*	0.15	0.014	76	-0.025	76	0.012	2.31 **	0.27
Infrequently adjusted peg	-0.003	0.74	0.15	0.002	217	-0.015	217	-0.001	0.13	0.26
Frequently adjusted peg	0.007	1.37	0.15	0.022	80	0.011	80	0.002	0.38	0.26
Not pegged	0.004	0.84	0.15	0.004	108	-0.021	108	0.007	1.38	0.26
Single currency peg	-0.004	0.78	0.15	-0.005	158	-0.009	158	-0.003	0.56	0.26
SDR peg	0.009	1.03	0.15	-0.023	13	-0.113	13	0.023	2.50 **	0.27
Other published peg	-0.014	1.38	0.15	-0.007	26	0.021	41	-0.013	1.33	0.26
Secret basket peg	0.009	1.49	0.15	0.035	76	0.000	26	0.003	0.55	0.26
Cooperative system	0.006	0.44	0.15	0.041	24	0.010	76	0.007	0.56	0.26
Unclassified float	0.002	0.18	0.15	0.002	9	-0.014	24	-0.008	0.64	0.26
Float-determinate range	-0.014	1.53	0.15	-0.027	23	-0.028	9	-0.009	0.97	0.26
Float-indeterminate range	0.011	1.68*	0.15	0.018	55	-0.005	23	0.012	1.98 **	0.27
Pure float	0.006	0.73	0.15	0.002	21	-0.018	55	0.010	1.16	0.26
Countries without capital controls										
Pegged	0.007	1.33	0.20	0.032	119	-0.044	21	-0.002	0.38	0.50
Intermediate	-0.004	0.60	0.20	0.015	41	0.035	119	0.000	0.01	0.50
Floating	0.002	0.45	0.20	-0.013	82	0.030	82	0.007	2.36 **	0.51
Infrequently adjusted peg	0.002	0.33	0.20	0.010	127	0.029	127	-0.002	0.43	0.50
Frequently adjusted peg	0.010	0.81	0.20	0.104	23	0.055	23	0.000	0.06	0.50
Not pegged	0.001	0.30	0.20	-0.003	92	0.028	92	0.007	1.92 *	0.51
Single currency peg	0.007	0.99	0.20	0.009	83	0.025	83	0.003	0.51	0.50
SDR peg	0.029	2.39**	0.22	0.103	12	0.079	12	0.007	0.86	0.51
Other published peg	-0.026	1.65*	0.22	0.041	12	0.037	12	-0.021	2.04 **	0.52
Secret basket peg	0.011	1.03	0.20	0.112	12	0.058	12	-0.001	0.06	0.50
Cooperative system	-0.005	0.74	0.20	-0.005	31	0.024	31	-0.000	0.08	0.50
Unclassified float	0.009	0.53	0.20	0.068	4	-0.023	4	0.017	1.68 *	0.51
Float-determinate range	-0.008	0.29	0.20	0.085	6	0.039	6	-0.008	0.36	0.50
Float-indeterminate range	-0.000	0.04	0.20	0.011	27	0.034	27	0.007	1.18	0.51
Pure float	0.002	0.61	0.20	-0.025	55	0.027	55	0.005	1.52	0.51

regime and OLS for the growth equation--to assess the importance of simultaneity. Including both trade growth and the investment ratio as controls, we obtain:

$$\Delta y = 0.0034 \bar{y} + 0.0228 \Delta g - 0.0427 \sigma(\Delta(TT)) + 0.1282 \Delta \text{Trade} + 0.1594 (i/y) + 0.0071 \text{Flex}$$

(2.61**) (1.26) (2.28**) (8.74***) (6.86***) (1.79*) R²=0.18

The results are fairly similar to those found in the previous subsection. Controlling for trade growth and the investment to GDP ratio, countries operating on flexible exchange rates experienced a higher rate of residual growth. 1/ Again, we are thus reasonably confident that our findings using the OLS regressions were not significantly influenced by simultaneity bias.

3. Volatility

Does the nominal exchange rate regime affect the variability of output or the employment rate (EMR) (the share of employed persons in the labor force)? 2/ Table 6 reports the three-year centered moving standard deviation of the GDP growth rate and the employment ratio (*EMP*) under the various regimes, again taking out the annual global means. Both are found to be substantially lower under floating compared to fixed rates. While low-income countries exhibit higher overall volatility, the ranking within groups is the same and extends to the high capital mobility countries as well. Controlling for the variability of the terms of trade and of government consumption diminishes the effect of the regime on the variability of GDP growth (Regression (7) in Table 6), but enhances the effect on the variability of the employment ratio (Regression (8) in Table 6). The higher volatility of nominal exchange rates and of inflation under floating rate regimes is thus accompanied by a significantly lower variability of employment, a result which is quite robust across the different sub-groups.

V. Conclusion

We examined the link between the choice of a nominal exchange rate regime and two key macroeconomic variables: the inflation rate and the growth rate of output. Our results on inflation performance under alternative exchange rate regimes are strong, and appear to be robust. Countries operating under pegged exchange rate regimes experienced (both economically and statistically) significantly lower and less variable inflation rates. This anti-inflationary benefit of pegged rates derives both from lower growth rates of money supply (a *discipline effect*), and from faster growth of money demand (a *credibility effect*). These findings are generally consistent across a variety of country subgroups as well as--with

1/ Defining the regime dummy instead as peg produces an estimated coefficient of -0.0277 with a t-statistic of 1.67.

2/ While the former is the key variable, its interpretation is fraught with statistical difficulties, depending on the presence of deterministic versus stochastic trends. The employment rate--by virtue of its stationarity--avoids these problems and thus serves as a useful complement.

Table 6: Business Cycle Regressions

Regime type	Regression (7) Volatility of GDP growth controlling for ToT and government consumption					Regression (8) Volatility of employment controlling for ToT and government consumption				
	Mean	Nobs	Coef	t-Stat.	R ²	Mean	Nobs	Coef.	t-Stat	R ²
All countries										
Pegged	0.0010	2129	0.0018	1.11	0.17	0.0008	2109	0.0041	4.88***	0.16
Intermediate	0.0033	262	0.0044	1.52	0.17	0.0004	257	0.0005	0.58	0.15
Floating	-0.0021	276	0.0021	1.12	0.17	-0.0006	271	-0.0001	0.15	0.15
Infrequently adjusted peg	0.0009	1984	0.0024	1.41	0.17	0.0007	1962	0.0033	4.22***	0.16
Frequently adjusted peg	0.0015	253	0.0002	0.13	0.17	0.0015	253	0.0015	1.74 *	0.15
Not pegged	0.0005	430	0.0035	2.06**	0.17	-0.0003	422	-0.0001	0.12	0.15
Single currency peg	0.0013	1759	0.0023	1.36	0.17	0.0005	1739	0.0019	2.36**	0.15
SDR peg	0.0010	88	0.0001	0.02	0.17	0.0027	88	0.0026	1.79 *	0.15
Other published peg	0.0002	83	0.0010	0.39	0.17	0.0031	83	0.0032	1.21	0.15
Secret basket peg	-0.0014	199	-0.0016	0.82	0.17	0.0016	199	0.0019	1.96**	0.15
Cooperative system	0.0008	108	0.0033	0.62	0.17	0.0008	106	0.0011	0.90	0.15
Unclassified float	0.0050	80	0.0046	1.49	0.17	0.0007	78	0.0004	0.27	0.15
Float-determinate range	0.0052	74	0.0041	0.87	0.17	-0.0003	73	-0.0004	0.30	0.15
Float-indeterminate range	-0.0001	169	0.0022	1.18	0.17	-0.0006	165	-0.0003	0.24	0.15
Pure float	-0.0054	107	0.0014	0.42	0.17	-0.0007	106	0.0001	0.07	0.15
High and upper-middle income countries										
Pegged	-0.0052	868	0.0033	1.36	0.35	-0.0007	858	0.0050	3.33***	0.06
Intermediate	-0.0023	126	0.0018	0.43	0.35	-0.0014	124	-0.0007	0.60	0.04
Floating	-0.0069	155	0.0030	1.25	0.35	-0.0025	153	-0.0008	0.64	0.04
Infrequently adjusted peg	0.0009	1984	0.0044	1.65*	0.35	0.0007	1962	0.0033	2.32**	0.05
Frequently adjusted peg	0.0015	253	0.0038	1.20	0.35	0.0015	253	0.0025	1.76 *	0.04
Not pegged	0.0005	430	0.0002	0.07	0.34	-0.0003	422	-0.0007	0.57	0.04
Single currency peg	-0.0051	730	0.0008	0.31	0.34	-0.0013	720	0.0024	1.58	0.05
SDR peg	-0.0013	37	0.0056	0.99	0.35	0.0008	37	0.0018	0.81	0.04
Other published peg	-0.0103	36	0.0049	1.66 *	0.35	0.0039	36	0.0069	1.29	0.05
Secret basket peg	-0.0053	65	0.0010	0.29	0.34	0.0019	65	0.0028	1.67 *	0.04
Cooperative system	-0.0009	57	0.0097	1.30	0.35	-0.0023	56	-0.0013	1.05	0.04
Unclassified float	-0.0067	38	-0.0092	2.43**	0.35	0.0004	37	-0.0002	0.09	0.04
Float-determinate range	0.0007	31	0.0005	0.05	0.34	-0.0019	31	0.0000	0.00	0.04
Float-indeterminate range	-0.0056	80	-0.0023	0.73	0.35	-0.0023	78	-0.0010	0.61	0.04
Pure float	-0.0084	75	0.0075	2.34**	0.35	-0.0026	75	-0.0004	0.30	0.04

Table 6: Business Cycle Regressions

(continued)

Regime type	Volatility GDP growth		Regression (7) volatility of GDP growth controlling for ToT and government consumption			Volatility employment rate		Regression (8) volatility of employment controlling for ToT and government consumption		
	Mean	Nobs	Coef	t-Stat.	R ²	Mean	Nobs	Coef.	t-Stat	R ²
Low and lower middle income countries										
Pegged	0.0052	1261	0.0015	0.71	0.09	0.0018	1251	0.0037	3.91***	0.39
Intermediate	0.0085	136	0.0054	1.83 *	0.10	0.0022	133	0.0015	1.19	0.38
Floating	0.0040	121	0.0020	0.74	0.09	0.0017	118	0.0005	0.35	0.38
Infrequently adjusted peg	0.0052	1156	0.0013	0.65	0.09	0.0020	1145	0.0036	4.41***	0.39
Frequently adjusted peg	0.0042	156	-0.0005	0.22	0.09	0.0015	156	0.0005	0.54	0.38
Not pegged	0.0073	206	0.0056	2.37**	0.10	0.0014	201	0.0003	0.28	0.38
Single currency peg	0.0058	1029	0.0029	1.46	0.09	0.0017	1019	0.0018	2.30**	0.38
SDR peg	0.0027	51	-0.0038	0.98	0.09	0.0042	51	0.0033	2.01**	0.38
Other published peg	0.0083	47	0.0039	0.99	0.09	0.0026	47	0.0017	0.75	0.38
Secret basket peg	0.0005	134	-0.0029	1.30	0.09	0.0015	134	0.0007	0.64	0.38
Cooperative system	0.0027	51	-0.0015	0.39	0.09	0.0042	50	0.0035	1.83 *	0.38
Unclassified float	0.0156	42	0.0113	2.12**	0.10	0.0010	41	0.0004	0.18	0.38
Float-determinate range	0.0085	43	0.0060	1.15	0.09	0.0008	42	-0.0004	0.21	0.38
Float-indeterminate range	0.0049	89	0.0036	1.39	0.09	0.0010	87	0.0002	0.11	0.38
Pure float	0.0015	32	-0.0026	0.41	0.09	0.0039	31	0.0014	0.47	0.38
Countries without capital controls										
Pegged	-0.0072	271	0.0023	0.98	0.27	0.0013	271	0.0068	2.01**	0.10
Intermediate	-0.0065	64	0.0004	0.14	0.27	-0.0011	64	-0.0009	0.47	0.08
Floating	-0.0109	92	0.0033	1.60	0.27	-0.0036	92	-0.0010	0.41	0.08
Infrequently adjusted peg	-0.0081	279	0.0041	1.46	0.27	0.0012	279	0.0071	2.21**	0.10
Frequently adjusted peg	-0.0053	29	-0.0036	0.90	0.27	-0.0018	29	-0.0012	0.39	0.08
Not pegged	-0.0080	119	0.0024	1.08	0.27	-0.0027	119	-0.0012	0.57	0.08
Single currency peg	-0.0067	217	0.0071	2.07**	0.27	0.0010	217	0.0049	1.26	0.09
SDR peg	-0.0119	16	-0.0054	0.99	0.27	-0.0059	16	-0.0048	2.64***	0.08
Other published peg	-0.0079	14	-0.0036	0.93	0.27	0.0220	14	0.0255	2.17 **	0.14
Secret basket peg	-0.0080	24	-0.0052	1.28	0.27	-0.0029	24	-0.0026	1.30	0.08
Cooperative system	-0.0127	37	0.0009	0.28	0.27	-0.0021	37	-0.0005	0.25	0.08
Unclassified float	0.0011	13	0.0022	0.39	0.27	0.0026	13	0.0019	0.37	0.08
Float-determinate range	0.0030	14	-0.0029	0.53	0.27	-0.0018	14	-0.0039	1.39	0.08
Float-indeterminate range	-0.0054	34	0.0054	1.71 *	0.27	-0.0048	34	-0.0026	1.08	0.08
Pure float	-0.0142	58	0.0006	0.27	0.27	-0.0029	58	0.0005	0.20	0.08

some exceptions--across more disaggregated regime types. Moreover, they are robust to econometric specifications in which the choice of the exchange rate regime itself is endogenous. Importantly, however, we find that no anti-inflationary benefit accrues to regimes which, though pegged *de jure*, were characterized by frequent changes in the parity *de facto*. Thus, simply fixing the nominal exchange rate does not, *deus ex machina*, deliver low inflation: credibility must be earned through appropriate macroeconomic policies that enable the peg to be maintained.

In contrast to inflation, output growth does *not* differ significantly across regimes, though both output levels and the employment rate are more variable under pegged than under floating rates. The sources driving growth are, however, quite distinct: significantly higher *investment* rates and growth rates of *international trade* in countries that pegged their exchange rate, but faster growth of *residual productivity* in countries that maintained flexible exchange rate regimes.

Ultimately, the nominal exchange rate regime is but one facet of the overall policy framework determining inflation performance and output growth. Yet, as our results suggest, a judicious regime choice may enable governments to better attain their policy goals.

Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
United States	A	A	A	A	A	A	A	A	A	A	A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
United Kingdom	-	A	A	A	A	A	A	A	A	A	A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Austria	-	-	-	-	-	A	A	A	A	A	A	I	I	I	I	I	I	I	I	I	B	B	B	B	B	B	B	B	B
Belgium	A	A	A	A	A	A	A	A	A	A	A	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
Denmark	-	-	-	-	-	A	A	A	A	A	A	A	V	M	K	B	B	B	B	C	A	A	A	A	Q	O	B	X	B
France	A	A	A	A	A	A	A	A	A	A	A	C	B	-	W	A	B	A	X	A	Q	A	B	Q	K	K	B	B	
Germany	A	A	A	A	A	A	A	A	A	A	A	Q	M	B	B	B	A	W	A	B	A	X	U	Q	A	B	Q	K	
Italy	A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	Y	A	O	A	E	G	Y	U	Q	N	Q	A	E	
Luxembourg	A	A	A	A	A	A	A	A	A	A	A	B	A	E	A	I	S	-	Y	B	A	E	I	Q	A	A	B	V	
Netherlands	A	A	A	A	A	A	A	A	A	A	A	A	B	-	B	A	B	K	R	B	C	N	B	Q	I	F	X	X	
Norway	A	A	A	A	A	A	A	A	A	A	A	B	-	M	E	R	V	T	B	M	B	-	B	K	X	B	C	Y	
Sweden	-	-	-	-	-	A	A	A	A	A	A	A	-	-	B	C	M	B	-	B	I	I	D	K	A	A	A	X	
Canada	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Japan	-	-	-	-	-	A	A	A	A	A	A	A	B	Q	A	A	B	Y	A	O	X	E	G	Y	U	Q	K	Q	
Finland	A	A	A	A	A	A	A	A	A	A	A	B	-	W	A	B	A	X	A	Q	A	B	Q	K	K	B	B	B	
Greece	A	A	A	A	A	A	A	A	A	A	A	-	-	Q	M	B	B	B	A	W	R	B	A	X	U	Q	Y	B	
Iceland	-	-	-	-	-	-	-	-	-	A	A	A	A	A	A	R	B	X	V	Q	A	E	R	X	S	O	X	B	A
Ireland	-	-	-	-	-	A	A	A	A	A	A	A	A	Y	A	O	A	E	G	R	B	Q	V	Q	A	E	X	X	
Malta	-	-	-	A	A	A	A	A	A	A	A	A	B	B	I	B	Q	A	F	R	R	G	O	O	B	M	M	R	
Portugal	-	-	-	A	A	A	A	A	A	A	A	Q	A	F	M	R	G	O	O	B	A	M	R	T	Y	B	C	O	

A Unclassified single currency peg
 B Single currency peg, no changes in parity
 C Single currency peg, infrequent changes in parity
 D Single currency peg, frequent changes in parity
 E Unclassified SDR peg
 F SDR peg, no changes in parity
 G SDR peg, infrequent changes in parity

H SDR peg, frequent changes in parity
 I Unclassified other official basket peg
 J Other official basket peg, no changes in parity
 K Other official basket peg, infrequent changes in parity
 L Other official basket peg, frequent changes in parity
 M Unclassified basket peg (unknown weights)

N Basket peg (unknown weights) no change in parity
 O Basket peg (unknown weights), infrequent changes in parity
 P Basket peg (unknown weights), frequent changes in parity
 Q Cooperative system
 R Unclassified float
 S Rule based system, crawling peg

T Rule based system, target zone
 U Flexible, indeterminate range, heavy intervention
 V Flexible, indeterminate range, light intervention
 W Unclassified, rule based
 X Unclassified, Flexible with indeterminate range
 Y Pure float

Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	
Spain	-	-	-	-	-	A	A	A	A	A	A	A	A	B	-	B	A	E	D	K	A	A	A	X	V	Y	R	P	U	
Turkey	-	-	-	A	A	A	A	A	A	A	A	A	B	B	U	U	U	U	U	U	U	U	U	U	U	U	U	V	V	
Yugoslavia	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	M	R	A	A	N	M	R	E	T	B	W	A	A	
Australia	A	A	A	A	A	A	A	A	A	A	A	A	A	N	N	N	P	P	P	P	P	P	P	P	V	V	V	V	V	
New Zealand	A	A	A	A	A	A	A	A	A	A	A	A	A	V	B	B	A	B	A	B	K	R	B	C	N	B	Q	I	F	
South Africa	-	-	-	A	A	A	A	A	A	A	A	A	A	-	B	A	E	D	K	A	A	A	X	V	Y	R	P	U	A	
Argentina	-	-	-	A	A	A	A	A	A	A	A	A	B	C	D	D	D	U	T	T	T	U	U	U	U	T	U	U	U	
Bolivia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	D	V	V	V	V
Brazil	-	-	-	A	A	A	A	A	A	A	A	A	R	A	D	D	D	R	R	R	R	R	R	R	R	R	R	R	R	R
Chile	-	-	-	A	A	A	A	A	A	A	A	A	R	A	D	D	D	R	A	A	A	A	S	S	S	S	S	S	S	
Colombia	-	-	-	A	A	A	A	A	A	A	A	A	A	C	A	A	-	-	Q	O	B	R	B	A	W	I	B	A	X	
Costa Rica	-	-	-	A	A	A	A	A	A	A	A	A	A	B	B	B	C	A	A	A	A	Q	O	B	X	B	A	W	A	
Dominican Rep.	-	-	-	A	A	A	A	A	A	A	A	A	A	Q	A	B	V	K	K	B	C	B	C	D	A	A	A	Q	O	
Ecuador	-	-	-	A	A	A	A	A	A	A	A	A	A	B	Q	A	B	V	K	K	B	B	B	C	D	T	A	A	Q	
El Salvador	-	-	-	A	A	A	A	A	A	A	A	A	A	-	A	B	Q	A	B	Q	K	K	B	B	B	C	X	T	A	
Guatemala	-	-	-	A	A	A	A	A	A	A	A	A	A	A	-	-	Q	O	B	B	B	A	W	R	B	A	X	V	Q	
Haiti	-	-	-	A	A	A	A	A	A	A	A	A	A	Q	C	B	A	E	R	R	S	O	Y	B	A	M	I	Q	E	
Honduras	-	-	-	A	A	A	A	A	A	A	A	A	A	B	X	D	B	A	W	R	R	S	O	Y	B	A	M	R	Q	
Mexico	-	-	-	A	A	A	A	A	A	A	A	A	A	B	Q	R	B	B	I	B	Q	A	F	X	X	P	O	O	B	
Nicaragua	-	-	-	A	A	A	A	A	A	A	A	A	A	R	V	C	B	R	B	A	B	K	R	B	C	Y	B	Q	I	

A Unclassified single currency peg
 B Single currency peg, no changes in parity
 C Single currency peg, infrequent changes in parity
 D Single currency peg, frequent changes in parity
 E Unclassified SDR peg
 F SDR peg, no changes in parity
 G SDR peg, infrequent changes in parity

H SDR peg, frequent changes in parity
 I Unclassified other official basket peg
 J Other official basket peg, no changes in parity
 K Other official basket peg, infrequent changes in parity
 L Other official basket peg, frequent changes in parity
 M Unclassified basket peg (unknown weights)

N Basket peg (unknown weights) no change in parity
 O Basket peg (unknown weights), infrequent changes in parity
 P Basket peg (unknown weights), frequent changes in parity
 Q Cooperative system
 R Unclassified float
 S Rule based system, crawling peg

T Rule based system, target zone
 U Flexible, indeterminate range, heavy intervention
 V Flexible, indeterminate range, light intervention
 W Unclassified, rule based
 X Unclassified, Flexible with indeterminate range
 Y Pure float

Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	
Panama	-	-	-	A	A	A	A	A	A	A	A	A	B	O	O	B	-	M	R	T	Y	T	B	M	B	-	B	K	Y	
Paraguay	-	-	-	A	A	A	A	A	A	A	A	A	M	A	B	O	O	B	-	M	R	T	Y	V	C	O	B	-	B	
Uruguay	-	-	-	A	A	A	A	A	A	A	A	A	S	S	S	S	Y	S	S	S	S	S	U	U	U	U	X	X	X	
Venezuela	-	-	-	A	A	A	A	A	A	A	A	A	B	B	B	C	B	B	B	B	B	B	D	D	D	D	D	D	D	Y
Antigua	-	-	-	A	A	A	A	A	A	A	A	A	-	-	-	-	-	-	-	-	A	A	A	A	A	A	A	A	A	A
The Bahamas	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Barbados	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Dominica	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	Q	M	K	B	B	B	C	A	A	A	A	Q	O	B	
Grenada	-	-	-	A	A	A	A	A	A	A	A	A	A	-	-	Q	O	B	B	B	A	W	R	B	A	X	V	Q	Y	
Belize	-	-	-	A	A	A	A	A	A	A	A	A	-	-	-	-	-	-	-	-	A	A	A	A	A	A	A	A	A	A
Jamaica	-	-	-	A	A	A	A	A	A	A	A	A	A	Q	A	A	B	Y	A	O	X	E	G	Y	V	Q	J	Q	A	
Nether. Ant.	-	-	-	A	A	A	A	A	A	A	A	A	A	B	B	A	B	A	B	K	R	B	C	N	B	Q	I	F	X	
St. Lucia	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	-	M	E	E	P	B	W	A	A	G	P	X	B	
St. Vincent	-	-	-	A	A	A	A	A	A	A	A	A	A	A	M	A	A	-	M	E	E	P	B	W	A	A	G	O	X	
Suriname	-	-	-	A	A	A	A	A	A	A	A	A	-	B	C	M	B	-	B	I	I	D	K	A	A	A	X	U	Y	
Trin. & Toba.	-	-	-	A	A	A	A	A	A	A	A	A	-	M	A	M	P	B	W	A	A	B	P	M	B	A	B	M	U	
Bahrain	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cyprus	-	-	-	A	A	A	A	A	A	A	A	A	A	M	A	B	B	B	C	A	A	A	A	Q	O	B	X	B	A	
Iran	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	A	E	G	R	B	Q	V	Q	A	E	X	X	O	O	
Israel	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	Y	-	O	A	E	O	R	B	Q	V	Q	A	E	X	

A Unclassified single currency peg
 B Single currency peg, no changes in parity
 C Single currency peg, infrequent changes in parity
 D Single currency peg, frequent changes in parity
 E Unclassified SDR peg
 F SDR peg, no changes in parity
 G SDR peg, infrequent changes in parity

H SDR peg, frequent changes in parity
 I Unclassified other official basket peg
 J Other official basket peg, no changes in parity
 K Other official basket peg, infrequent changes in parity
 L Other official basket peg, frequent changes in parity
 M Unclassified basketed peg (unknown weights)

N Basket peg (unknown weights) no change in parity
 O Basket peg (unknown weights), infrequent changes in parity
 P Basket peg (unknown weights), frequent changes in parity
 Q Cooperative system
 R Unclassified float
 S Rule based system, crawling peg

T Rule based system, target zone
 U Flexible, indeterminate range, heavy intervention
 V Flexible, indeterminate range, light intervention
 W Unclassified, rule based
 X Unclassified, Flexible with indeterminate range
 Y Pure float

Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	
Jordan	-	-	-	A	A	A	A	A	A	A	A	A	A	M	B	Q	A	A	B	Y	A'	O	X	E	G	Y	U	Q	K	
Kuwait	-	-	-	A	A	A	A	A	A	A	A	A	-	A	B	A	E	B	Q	A	A	B	Y	A	O	X	E	H	Y	
Lebanon	-	-	A	A	A	A	A	A	A	A	A	A	A	S	-	Y	B	A	E	B	Q	A	A	B	V	A	O	X	M	
Oman	-	-	-	A	A	A	A	A	A	A	A	A	O	B	-	M	R	T	V	U	B	M	B	-	B	K	Y	B	D	
Syria	-	-	-	A	A	A	A	A	A	A	A	A	B	A	-	-	B	C	M	B	-	B	R	I	D	K	A	A	A	
U.A.R.	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Egypt	-	-	-	A	A	A	A	A	A	A	A	A	A	R	B	Q	A	B	V	K	K	B	B	B	C	X	U	A	A	
Afghanistan	-	-	-	A	A	A	A	A	A	A	A	A	A	A	R	R	R	R	R	R	R	A	A	A	A	A	A	A	A	A
Bangladesh	-	-	-	A	A	A	A	A	A	A	A	A	B	B	C	C	D	D	N	P	P	P	O	O	P	P	P	P	N	
Myanmar	-	-	-	A	A	A	A	A	A	A	A	A	A	B	A	B	Q	A	B	B	P	B	Q	I	F	X	X	P	O	
Sri Lanka	-	-	-	A	A	A	A	A	A	A	A	A	C	A	B	-	B	A	E	D	K	A	A	A	X	V	Y	A	P	
Hong Kong	-	-	-	A	A	A	A	A	A	A	A	A	A	R	B	X	L	B	A	W	R	R	S	O	X	B	A	M	R	
India	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	G	R	B	X	V	Q	A	E	X	X	S	O	X	B	
Indonesia	-	-	-	A	A	A	A	A	A	A	A	A	A	B	A	E	G	R	S	Q	V	Q	A	E	X	X	S	O	X	
Korea	-	-	-	A	A	A	A	A	A	A	A	A	A	B	A	E	B	Q	A	A	B	Y	A	O	X	E	H	Y	U	
Laos	-	-	-	A	A	A	A	A	A	A	A	A	S	-	Y	B	A	E	B	Q	A	A	B	V	A	O	X	M	H	
Malaysia	-	-	-	A	A	A	A	A	A	A	A	A	A	B	Q	A	F	M	R	G	O	O	B	A	M	R	T	Y	D	
Maldives	-	-	-	A	A	A	A	A	A	A	A	A	A	I	B	Q	A	G	R	R	G	O	O	B	A	M	R	T	Y	
Nepal	-	-	-	A	A	A	A	A	A	A	A	A	A	-	B	A	B	Q	R	B	C	P	B	Q	I	F	X	X	P	
Pakistan	-	-	-	A	A	A	A	A	A	A	A	A	B	O	B	-	M	R	T	Y	T	B	M	B	-	C	K	Y	B	

A Unclassified single currency peg
 B Single currency peg, no changes in parity
 C Single currency peg, infrequent changes in parity
 D Single currency peg, frequent changes in parity
 E Unclassified SDR peg
 F SDR peg, no changes in parity
 G SDR peg, infrequent changes in parity

H SDR peg, frequent changes in parity
 I Unclassified other official basket peg
 J Other official basket peg, no changes in parity
 K Other official basket peg, infrequent changes in parity
 L Other official basket peg, frequent changes in parity
 M Unclassified basket peg (unknown weights)

N Basket peg (unknown weights) no change in parity
 O Basket peg (unknown weights), infrequent changes in parity
 P Basket peg (unknown weights), frequent changes in parity
 Q Cooperative system
 R Unclassified float
 S Rule based system, crawling peg

T Rule based system, target zone
 U Flexible, indeterminate range, heavy intervention
 V Flexible, indeterminate range, light intervention
 W Unclassified, rule based
 X Unclassified, Flexible with indeterminate range
 Y Pure float

Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	
Philippines	-	-	-	A	A	A	A	A	A	A	A	A	-	B	M	R	G	O	O	B	A	M	R	T	Y	C	C	O	B	
Singapore	-	-	-	A	A	A	A	A	A	A	A	A	A	A	D	Q	A	-	A	R	R	R	E	P	M	E	E	T	B	
Thailand	-	-	-	A	A	A	A	A	A	A	A	A	-	P	B	W	-	-	B	C	M	B	-	B	M	I	D	K	A	
Viet Nam	-	-	-	A	A	A	A	A	A	A	A	A	-	-	E	E	E	E	E	E	E	E	E	E	E	E	D	D	D	U
Djibouti	-	-	-	A	A	A	A	A	A	A	A	A	A	B	V	M	K	B	N	B	C	A	A	A	A	Q	O	B	X	
Algeria	-	-	-	A	A	A	A	A	A	A	A	A	A	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Botswana	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	I	I	I	I	I	I	I	I	I	I	I
Burundi	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	C	A	A	A	A	A	A	A	G	G	G	O	G	G	G
Cameroon	-	-	-	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Cape Verde	-	-	-	A	A	A	A	A	A	A	A	A	D	D	D	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
C.A.R.	-	-	-	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Chad	-	-	-	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Comoros	-	-	A	A	A	A	A	A	A	A	A	A	A	B	C	A	A	-	A	Q	O	B	R	B	A	W	I	C	A	
Congo	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	C	A	A	A	Q	O	B	X	B	A	W	I	C		
Zaire	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	G	F	G	F	F	F	F	F	T	Y	Y	Y	Y	Y	
Benin	-	-	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
Equat. Guinea	-	-	-	A	A	A	A	A	A	A	A	A	A	B	-	X	B	Q	A	B	Q	K	K	B	B	U	C	D	U	
Ethiopia	-	-	-	A	A	A	A	A	A	A	A	A	-	A	B	-	X	B	Q	A	B	Q	K	K	B	B	B	D	D	
Gabon	-	-	-	A	A	A	A	A	A	A	A	A	B	C	B	A	W	A	B	A	X	A	Q	A	B	Q	K	K	B	
The Gambia	-	-	-	A	A	A	A	A	A	A	A	A	M	B	B	B	A	W	A	B	A	X	A	Q	A	B	Q	K	K	

A Unclassified single currency peg
 B Single currency peg, no changes in parity
 C Single currency peg, infrequent changes in parity
 D Single currency peg, frequent changes in parity
 E Unclassified SDR peg
 F SDR peg, no changes in parity
 G SDR peg, infrequent changes in parity

H SDR peg, frequent changes in parity
 I Unclassified other official basket peg
 J Other official basket peg, no changes in parity
 K Other official basket peg, infrequent changes in parity
 L Other official basket peg, frequent changes in parity
 M Unclassified basketed peg (unknown weights)

N Basket peg (unknown weights) no change in parity
 O Basket peg (unknown weights), infrequent changes in parity
 P Basket peg (unknown weights), frequent changes in parity
 Q Cooperative system
 R Unclassified float
 S Rule based system, crawling peg

T Rule based system, target zone
 U Flexible, indeterminate range, heavy intervention
 V Flexible, indeterminate range, light intervention
 W Unclassified, rule based
 X Unclassified, Flexible with Indeterminate range
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Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
Ghana	-	-	-	A	A	A	A	A	A	A	A	A	-	Q	M	B	B	B	A	W	R	B	A	X	U	Q	Y	B	Q
Cote d'Ivoire	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	B	B	C	A	A	A	A	Q	O	B	X	B	A	W
Kenya	-	-	-	A	A	A	A	A	A	A	A	A	B	A	M	B	Q	A	A	B	Y	A	O	X	E	H	Y	U	Q
Lesotho	-	-	-	A	A	A	A	A	A	A	A	A	A	A	S	-	Y	B	A	E	B	Q	A	A	B	V	A	O	X
Liberia	-	-	-	A	A	A	A	A	A	A	A	A	A	A	I	S	-	Y	B	A	E	B	Q	A	A	B	V	A	O
Libya	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	I	S	-	Y	B	A	E	I	Q	A	A	B	V	A
Madagascar	-	-	-	A	A	A	A	A	A	A	A	A	B	B	A	E	A	I	S	-	Y	B	A	E	I	Q	E	A	B
Mali	-	-	A	A	A	A	A	A	A	A	A	A	A	B	I	B	Q	A	F	M	R	Q	O	O	B	M	M	R	T
Mauritania	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	B	I	B	Q	A	F	R	R	P	O	O	B	X	M
Mauritius	-	-	-	A	A	A	A	A	A	A	A	A	A	Q	R	B	B	I	B	Q	A	F	R	X	P	O	O	B	X
Morocco	-	-	-	A	A	A	A	A	A	A	A	A	A	A	B	Q	R	B	B	P	B	Q	A	F	X	X	P	O	O
Niger	-	-	-	A	A	A	A	A	A	A	A	A	R	A	R	V	D	B	A	B	A	B	K	X	B	C	Y	B	Q
Nigeria	A	A	A	A	A	A	A	A	A	A	A	A	-	R	A	R	V	T	B	M	B	A	B	K	X	B	C	Y	B
Zimbabwe	-	-	-	A	A	A	A	A	A	A	A	A	-	-	-	-	-	-	-	M	M	M	M	M	M	M	M	M	M
Rwanda	-	-	-	A	A	A	A	A	A	A	A	A	A	-	A	-	M	A	E	P	B	W	A	A	G	O	M	B	A
Seychelles	-	-	-	A	A	A	A	A	A	A	A	A	A	Q	A	-	A	R	R	R	A	O	M	B	E	T	B	W	A
Senegal	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	M	A	A	N	M	E	E	T	B	W	A	A	G
Sierra Leone	A	A	A	A	A	A	A	A	A	A	A	A	A	D	Q	A	-	A	R	R	R	A	P	M	A	E	T	B	W
Somalia	-	-	-	A	A	A	A	A	A	A	A	A	A	B	A	E	D	Q	A	A	A	R	V	Y	R	P	M	A	E
Sudan	-	-	-	A	A	A	A	A	A	A	A	A	E	C	M	B	-	B	I	I	D	K	A	A	A	X	U	Y	M

A Unclassified single currency peg
 B Single currency peg, no changes in parity
 C Single currency peg, infrequent changes in parity
 D Single currency peg, frequent changes in parity
 E Unclassified SDR peg
 F SDR peg, no changes in parity
 G SDR peg, infrequent changes in parity

H SDR peg, frequent changes in parity
 I Unclassified other official basket peg
 J Other official basket peg, no changes in parity
 K Other official basket peg, infrequent changes in parity
 L Other official basket peg, frequent changes in parity
 M Unclassified basket peg (unknown weights)

N Basket peg (unknown weights) no change in parity
 O Basket peg (unknown weights), infrequent changes in parity
 P Basket peg (unknown weights), frequent changes in parity
 Q Cooperative system
 R Unclassified float
 S Rule based system, crawling peg

T Rule based system, target zone
 U Flexible, indeterminate range, heavy intervention
 V Flexible, indeterminate range, light intervention
 W Unclassified, rule based
 X Unclassified, Flexible with indeterminate range
 Y Pure float

Exchange Rate Regime Classification

	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	
Swaziland	-	-	-	A	A	A	A	A	A	A	A	A	-	-	B	C	M	B	-	B	I	I	D	K	A	A	A	X	U	
Tanzania	-	-	-	A	A	A	A	A	A	A	A	A	P	B	W	-	-	B	C	M	B	-	B	R	I	D	K	A	A	
Togo	-	-	-	A	A	A	A	A	A	A	A	A	A	-	P	B	W	-	-	B	C	M	B	-	B	M	U	D	K	
Uganda	-	-	-	A	A	A	A	A	A	A	A	A	A	A	E	E	E	E	E	E	R	X	X	X	X	A	A	A	P	
Burkina Faso	-	-	-	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Zambia	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	E	E	E	E	E	E	E	E	I	I	U	U	A	A	W
Solomon Islands	-	-	-	A	A	A	A	A	A	A	A	A	A	A	A	D	Q	A	-	A	R	R	R	R	P	M	Y	E	T	
Fiji	-	-	-	A	A	A	A	A	A	A	A	A	-	-	A	B	-	X	A	Q	A	B	Q	K	K	B	B	B	D	
Vanuatu	-	-	A	A	A	A	A	A	A	A	A	A	-	-	-	-	-	-	-	-	E	E	E	E	E	E	E	E	I	I
Papua New Gui.	-	-	A	A	A	A	A	A	A	A	A	A	A	B	O	O	B	A	M	R	T	Y	T	B	O	B	-	B	K	
Western Samoa	-	-	-	A	A	A	A	A	A	A	A	A	A	A	I	I	I	I	R	R	I	X	X	X	M	M	M	M	M	
Tonga	A	A	A	A	A	A	A	A	A	A	A	A	M	A	-	P	B	W	-	A	B	C	M	B	-	B	M	U	D	
China	-	-	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	-	-	N	N	N	N	N	C	B	B	C	
Hungary	-	-	A	A	A	A	A	A	A	A	A	A	A	A	R	B	X	V	B	A	E	R	R	S	O	X	B	A	M	
Romania	-	-	-	A	A	A	A	A	A	A	A	A	A	A	-	M	A	M	P	B	W	A	A	G	O	M	C	A	B	

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 W Unclassified, rule based
 X Unclassified, Flexible with indeterminate range
 Y Pure float

Classification of Exchange Rate Regime: Combined Groups

For the majority of calculations in the paper the detailed classifications contained in table 7 (Appendix 1) were combined into several more aggregate groups. These classifications are:

a. Pegged rates

A B C D E F G H I J K L M N O P

b. Intermediate systems

Q R S W T

c. Floating systems

X U V Y

d. Pegged -- infrequent adjusters

A B C F G J K N O Q

e. Pegged -- frequent adjusters

D E H I L M P

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