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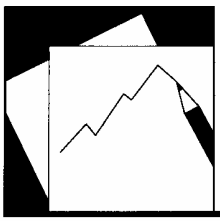

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To Peg or Not to Peg: A Template for Assessing the Nobler

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To Peg or Not to Peg: A Template for Assessing the Nobler

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Abstract

This paper proposes a template for assessing whether or not a country's economic and financial characteristics make it an appropriate candidate for a pegged exchange rate regime. The template employs quantifiable measures of attributes—trade orientation, financial integration, economic diversification, macroeconomic stabilization, credibility, and "fear-of-floating" type effects—that have been identified in the literature as key potential determinants of regime choice. To illustrate, the template is applied to Kazakhstan and Pakistan. The results indicate a fairly strong case against a pegged regime in Pakistan. The implications for Kazakhstan are mixed, although changes in that economy in recent years strengthen the case against a peg.

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Contents Page

I. INTRODUCTION

Since the collapse of the Bretton Woods exchange rate system, a vast literature has developed on the virtues and pitfalls of fixed versus flexible arrangements.[2] While a variety of theoretical criteria for choosing the right regime have been proposed, there is still no consensus on how precisely these should be quantified and, to the extent they bear conflicting implications, how they should be prioritized. Following the disorderly exits from pegged regimes by a number of emerging market economies over the past decade, regime choice has drawn increased attention and a more systematic approach to assessing the implications of the various criteria appears warranted.

This paper proposes a broad set of quantitative indicators based on analytical factors that have been identified in the literature as having important effects on the performance—and hence the choice—of exchange rate regimes.[3] The selection of the key factors—trade orientation; financial integration; economic diversification; macroeconomic stabilization; credibility; and "fear-of-floating" type effects[4]—is guided by quantifiability and cross-country comparability, and techniques to measure each factor empirically are specified in the form of a template.[5]

Comparisons with other countries are used to assess whether a particular country is a "natural" candidate for a fixed regime on the basis of a particular criterion. For example, countries that have a high degree of trade orientation will benefit from a regime that pegs the currency to that of its major trading partner. Since it is unclear a priori what constitutes "high" trade orientation, the analysis takes trade orientation to be high (relatively high) if a country ranks among the top 10 percent (next 20 percent) of the distribution generated by all the countries in the sample. The sample comprises 51 economies and includes a wide range of countries, of various sizes and levels of development, spanning all major regions (Table 1).

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[2] A series of IMF Occasional Papers has focused on exchange rate regimes, including Aghevli, Khan, and Montiel (1991), Eichengreen, Masson, and others (1998), Mussa, Masson, Swoboda, Jadresic, Mauro, and Berg (2000), and Rogoff, Husain, Mody, Brooks, and Oomes (2004).

[3] See Edwards and Savastano (1999) for a discussion of issues in assessing the relationship between regime choice and performance. Husain, Mody, and Rogoff (2005) present recent evidence regarding the durability and performance of alternative regimes.

[4] "Fear of floating" is analyzed in Calvo and Reinhart (2002).

[5] Husain (2006) contains a condensed version of the template outlined below, with application only to the case of Pakistan.

Application of the template to two countries—Kazakhstan and Pakistan—helps illustrate its potential operational use for exchange rate policy assessments. For Pakistan, the results indicate a fairly strong case against a pegged regime. Cross-country comparisons of quantitative indicators for most of the analytical factors show Pakistan to be among the least likely to benefit, and most likely to be hurt, by a pegged regime. In particular, Pakistan's relatively low trade orientation, high international financial integration, exposure to volatile commodity prices, and susceptibility to real rather than nominal shocks all point to the value of not pegging its exchange rate. This stands in sharp contrast to the de facto peg that has actually been in place for much of the past 15 years and suggests that increased exchange rate flexibility would be advantageous.

For Kazakhstan, the results from the template based on historical data comparisons with other countries are more mixed. However, if recent changes in Kazakhstan's economic and financial characteristics are incorporated, the case against a pegged regime becomes quite strong. In particular, Kazakhstan's rapid integration into global financial markets has likely increased the risks associated with a peg, while the decline in inflation has weakened the nominal anchor benefit of a pegged regime. Possibly reflecting these factors, the de facto regime has become somewhat more flexible in recent years.

A few qualifications to the analysis should be noted. First, the literature generally considers the relative advantages of fixed and flexible regimes without explicitly dealing with "nearly-fixed" regimes. Some of the conclusions about fixed regimes may or may not be valid for nearly-fixed regimes and should therefore be interpreted with caution. Second, the analysis for the most part takes as given that macroeconomic policies needed to support the chosen regime are in place, and methods to assess the sustainability of a particular regime are not covered.[6] Regime choice would clearly be of limited importance in improving economic performance if policies are not sustainable. Third, the assessment of the efficacy of a fixed regime under a particular criterion may well depend on the sample period over which the relevant indicator is measured. To the extent possible, alternative sample periods were used to check the robustness of the results. Fourth, different analytical considerations could well point in different directions in terms of whether or not a given country should peg.[7] Weighing the importance of each consideration will depend on country-specific circumstances, which invariably introduces some subjectivity to the analysis.

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[6] In many respects, similar policies are needed to sustain any regime, especially if freely falling currencies are regarded as a non-regime.

[7] The fact that some factors may suggest that a fixed exchange rate regime is advantageous in a particular country, while other factors may suggest that a fixed regime is inappropriate, is in line with the empirical finding that no single factor consistently explains actual regime choice across a wide group of countries. See, for example, Juhn and Mauro (2002) and Rogoff, Husain, Mody, Brooks, and Oomes (2004).

The remainder of the paper is organized as follows. The next section uses Reinhart and Rogoff's (2004) methodology to assess the degree of "fixity" of the *de facto* (as opposed to the announced or *de jure*) exchange rate regime in Kazakhstan and Pakistan at present and in the recent past. Section III summarizes the analytical arguments underpinning selected considerations for regime choice, proposes alternative quantitative measures—a "template"—of the various considerations, and assesses the implications of the measures for both countries' exchange rate regime choice. Section IV presents a summary scorecard of the template for Kazakhstan and Pakistan, and contrasts it with scorecards for selected other developing and emerging market economies. Section V concludes with an assessment of the implications of the scorecard for the "right" regime for both countries and of how the right regime may change in the future.

II. DE FACTO REGIMES IN KAZAKHSTAN AND PAKISTAN

The de facto—as opposed to the de jure—rigidity of exchange rate regimes may be assessed by employing a methodology used by Reinhart and Rogoff (2004). According to this technique, a regime may be considered a de facto peg if its exchange rate (against the main partner currency, measured at a monthly frequency) fluctuates by one percent or less at least 80 percent of the time. Reinhart and Rogoff use both 5-year and 2-year intervals to measure the frequency of "significant" fluctuations.

By the Reinhart and Rogoff measure, Pakistan has maintained a de facto peg for much of the time since the early 1990s (Figure 1). With the exception of the period following the balance of payments crisis and the freeze of foreign currency accounts in mid-1998, the value of the rupee against the dollar has fluctuated very little, whether seen from a 2-year or 5-year window. That said, the parity of the rupee has been adjusted, sometimes in large steps. But these adjustments, especially the larger ones, were sufficiently infrequent that the exchange rate regime of the rupee may be considered a de facto peg to the dollar.

The tenge, by contrast, was subject to downward pressure during the 1990s, although the Reinhart-Rogoff measure indicates the emergence of a de facto peg—against both the U.S. dollar and the ruble—early this decade. Following its introduction in late 1993, the tenge depreciated steadily against the dollar (while appreciating against the ruble). After stabilizing against the dollar in 1997–98, its exchange rate corrected sharply against both currencies in early 1999, following the Russian crisis. During 2001–2002, there was very little month-to-month fluctuation of the tenge against the dollar or the ruble, resulting in a de facto peg against both currencies, even though an appreciating trend for the tenge emerged during this period. In 2003–2004, the pace of appreciation picked up, especially against the dollar. Consequently, the degree of actual exchange rate flexibility exceeded the Reinhart-Rogoff threshold for a de facto peg.

Were the choice of de facto pegs for the rupee and tenge, and the relatively recent move away from a peg for the tenge, consistent with economic considerations? The analysis in subsequent sections attempts to address this question.

III. TEMPLATE

This section summarizes the template for assessing the implications of a selected set of analytical considerations on the choice of whether or not a country should peg its exchange rate. An assessment for Kazakhstan and Pakistan based on each consideration is also presented.

A. Economic Integration/Optimal Currency Areas

The higher the degree of integration of an economy's trade with its partners, the greater the benefits of a fixed exchange rate or common currency. An argument that has often been advanced in favor of fixed exchange rates is that exchange rate variability discourages trade and investment. By eliminating this variability and the associated transactions costs via a peg—or in extreme a currency union—a country can, in principle, promote trade. Although time series studies have generally found a small or negligible effect of exchange rate variability on trade and investment,[8] gravity models such as those in Rose (2000) and Frankel and Rose (2002) find larger effects and conclude that countries that trade a lot will tend to benefit from entering into a currency union with their principal trading partner(s).

The simplest measure of a country's trade orientation, and hence the magnitude of its potential gains from nominal exchange rate stability, is the ratio of its exports plus its imports to GDP. The larger is this ratio, the larger might be the transaction costs saving associated with a stable exchange rate.

However, even if a country's trade ratio is relatively large, its trading patterns may well be spread across different partners that have different currencies. Since a country can eliminate the volatility of its exchange rate against only a single currency via a peg, the potential transaction cost saving is limited to trade with the largest partner (or partners using a common currency). This may be measured by the weight of the top currency in total exports, where the top currency captures the share of exports destined for countries that either use the top currency or peg their exchange rates against the top currency.

Despite the potential trade gains, a peg may lead to difficulties if the country's business cycle is not synchronized with the cycle of the main trading partner (against whose currency the exchange rate has been fixed). Thus, the degree of cyclical synchronicity may be important in determining the efficacy of a peg. Given data limitations for the large sample of countries used here, each country's cycle is measured as the annual growth rate of GDP and the correlation of cycles is taken as a rough measure of cyclical synchronicity.

Cross-country comparisons are used to assess the implication of each indicator for the appropriate regime in a given country. If a country ranks among the bottom 5 or next 10 (roughly corresponding to the bottom 10 percentile or the next 20 percentile, respectively, in

[8] See Edison and Melvin (1990) for an early survey of this literature.

the sample of 47–51 countries) for a particular indicator, this is taken to imply a strong case or a somewhat less strong case, respectively, for a peg in that country. Conversely, if the country ranks in the top 5 or next 10 within the full sample, that is taken as a strong or somewhat less strong case against a peg.[9]

The quantitative measures of trade orientation and optimal currency area effects suggest that Pakistan should not peg its exchange rate. Pakistan's trade orientation is among the lowest in the sample, and the share of its exports to its main trade partner currency area is relatively low. Moreover, the synchronicity of its economic cycle with that of its main trading partner is towards the lower end of the sample (Figure 2). For Kazakhstan, the trade orientation and trade pattern concentration measures rank it in the middle of the sample, thereby presenting neither a case for, nor against, a peg. However, the strong cyclical synchronicity with its main trading partner (Russia) indicates possible advantages to a stable tenge-ruble exchange rate.

B. Financial Integration

Other factors being equal, the disadvantages of exchange rate inflexibility rise as economies' integration into global markets increases. As noted by Rogoff and others (2004) and Husain, Mody, and Rogoff (2005), in developing countries with limited access to private external capital, pegs and other exchange arrangements with limited flexibility have been associated with lower inflation, without incurring an apparent cost in terms of lower growth or higher growth volatility. In emerging market economies, where exposure to international financial flows is greater, less flexible regimes have had a higher propensity to experience banking and/or currency crises. In advanced economies, free floats have, on average, registered faster growth than other regimes without incurring higher inflation.

The method used by Rogoff and others (2004) to assess whether an economy has access to private external capital is whether or not it is included in the Morgan Stanley Capital International (MSCI) emerging markets index. This index is based on a number of qualitative and quantitative indicators of each economy, including GDP per capita, local government regulations, perceived investment risk, foreign ownership limits, and capital controls. Other (similar) indices include JP Morgan's Emerging Market Bond Index Plus (EMBI+) and the International Finance Corporation's (IFC) various emerging market indices (which are now maintained by Standard and Poors). Among the IFC's indices, the IFCI Composite covers the emerging market economies whose stock markets are considered the most liquid (based on market capitalization and turnover); the IFCG Composite includes the IFCI Composite group plus a number of other countries where stock markets are somewhat less liquid; and the IFCG Frontier Composite comprises countries that have less extensive information availability and are thus not included in the other indices. Clearly, countries that are not in any of these indices

[9] The number of countries in the sample for each indicator varies slightly because of data availability. Scales are inverted for some indicators so that a low ranking points to a peg, and a high ranking to a flexible regime, for all indicators.

would appear not to be integrated into global financial markets; countries that are only in the IFCG Frontier Composite would also appear to be relatively less integrated.

Some countries may have been excluded from the major emerging market indices because of their small size, even if foreign investor participation in their financial markets was significant relative to the size of their economies. The IFC indices, for example, initially had indicative thresholds of $2 billion for stock market capitalization and $1 billion for annual stock market turnover.[10] Hence, a quantitative measure of the ratio of the countries' stock market capitalization and/or annual stock market turnover to GDP may be a useful supplement to the previous measure. In principle, this measure could facilitate identification of small economies that are relatively well integrated into global financial markets but have not been included in the major emerging market indices.

Another proxy for international financial integration may be the level of financial development. If so, countries that are at a relatively early stage of financial development—as indicated by a low money-to-GDP ratio—may also have less access to private global capital and therefore be less susceptible to financial risks under a pegged regime.

International financial integration considerations, taken by themselves, also suggest a case against a peg in Pakistan. Pakistan is included in most emerging market indices, suggesting that it is relatively well integrated into global markets and, therefore, relatively more exposed to the volatility of private international capital flows. In addition, its stock market turnover ranks Pakistan among the countries in the sample with relatively developed capital markets, although its broad money-to-GDP ratio places Pakistan in the middle of the sample (Figure 3). For Kazakhstan, these considerations point in the opposite direction. Despite a stock market turnover ratio that ranks in the middle of the sample, Kazakhstan is not included in any of the major indices and its monetization ratio has been relatively low. Hence, the low degree of international financial integration (historically) implied by these measures suggests relatively little exposure to capital flows volatility and, consequently, a modest case for a peg.

C. Diversification/Terms of Trade

A country should avoid a peg if its production and exports are not diversified. Diversified economies are less vulnerable to terms of trade shocks and therefore less likely to require exchange rate flexibility to facilitate adjustment to such shocks.[11] Conversely, countries that

[10] Over time, however, some countries that did not meet the thresholds were added to the indices, if the IFC received queries and expressions of interest from international investors in these countries' stock markets and high-quality stock market data were available. The thresholds did not apply to the Frontier Composite index.

[11] See, for example, Appendix I in Eichengreen, Masson, and others (1998).

are heavily reliant on a single commodity (or group of commodities) will likely require exchange rate flexibility to respond to changes in world commodity prices to mitigate spillovers into other sectors.

In a recent set of papers, Frankel has suggested that countries heavily reliant on a single commodity (or set of commodities) should peg to the international price of their principal export commodity(ies). Such a regime would, of course, give rise to de facto flexibility against the currency of any single trading partner and therefore not be considered a "fixed" regime.[12]

A country's vulnerability to terms of trade shocks can be measured by simply calculating the historical volatility of its terms of trade (export unit value divided by import unit value).[13] It may be noted, however, that such data are available for a large sample of countries at only an annual frequency, which may understate true volatility. Moreover, the quality of the data may well be uneven across countries, especially as the structure of trade has changed significantly in some countries over the past two decades.

An alternative measure of production and export diversification is the share of primary commodities in a country's exports and GDP. The higher are these ratios, the more reliant is the country on it main commodity(ies), the less diversified its economy, and the weaker the case for a peg.

A direct measure of an economy's reliance on a particular commodity is the correlation of the country's economic cycle with the world price cycle of the commodity. This may be assessed by correlating the country's annual GDP growth rate with the corresponding change in the world price of its key commodity(ies). Since commodity price changes may affect activity with a lag, the relevant correlation may well be that of activity with lagged commodity prices.[14] It should be noted, however, that world commodity prices are synchronous with global activity, and a high correlation could be due to strong links with the global economy rather than heavy dependence on the commodity itself.

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[12] For example, Frankel's argument would suggest that oil producers consider pegging their currencies to the international price of crude oil.

[13] As the terms of trade reflect both export and import prices, high volatility of the former need not necessarily reflect a lack of export (and production) diversification and may arise on account of sharp movements on the import side (e.g., from heavy reliance on oil imports). Even so, however, greater terms of trade volatility would indicate higher costs associated with foregoing adjustment via exchange rate changes and, hence, a case against a peg.

[14] The empirical analysis suggests that a one-period lag tends to yield the highest correlations. Hence, the correlations reported below are for activity with one-period-lagged commodity prices.

Diversification considerations point to a moderate case against a peg for both Kazakhstan and Pakistan, although the implications of the alternative quantitative measures are somewhat mixed for the latter (Figure 4). On the one hand, Pakistan's terms of trade volatility and the share of primary commodities in its exports are relatively low, suggesting that Pakistan's need to adjust to commodity price shocks is not especially high. However, as the bulk of Pakistan's exports are cotton-related products rather than raw cotton, these measures (especially the latter) probably do not capture Pakistan's true dependence on cotton and, consequently, its need to adjust to cotton-related shocks. Indeed, the more direct measure—the correlation of world cotton prices with Pakistan's economic cycle—indicates a relatively low degree of diversification for Pakistan and therefore a moderate case against a peg since one could complicate the necessary adjustment to cotton-related shocks.[15] For Kazakhstan, the share of primary commodity exports in GDP is among the highest in the sample, while the correlation of its economic cycle with world prices of its commodity exports is also quite high. These factors point to substantial costs of foregoing economic adjustment via a flexible exchange rate and, therefore, a case against a peg for the tenge.

D. Stabilization

Whether or not fixed rates provide better insulation against shocks depends on the degree of capital mobility and on the relative importance of real and nominal shocks. Although there is a large literature examining various aspects of this broad topic, much of it may be summarized in the following three cases, as outlined in Ghosh, Gulde, and Wolf (2003):

If capital is relatively immobile, a positive aggregate demand shock in a country with a fixed exchange rate leads to higher imports and a loss of reserves. Unless sterilized, this leads to a contraction in the money supply and thereby partly offsets the initial shock. Under a floating regime, the shock results in a depreciation, which exacerbates the effects of the initial shock. Hence, a fixed regime provides better insulation of output against shocks to aggregate demand when capital mobility is low.

Under high capital mobility, however, a fixed regime is disadvantageous. In this situation, the same demand shock (incipiently) raises domestic interest rates and induces a capital inflow that more than offsets the loss of reserves. This results in an increase in the money supply, which exacerbates the demand shock. Under a floating regime, by contrast, the shock leads to an appreciation of the exchange rate, partly offsetting the initial shock.

Fixed rates better insulate against monetary shocks, regardless of the degree of capital mobility. A positive money demand shock raises interest rates, thereby curbing aggregate demand and imports. Under a fixed regime, reserves increase, either because of lower imports

[15] Since Pakistan's economic cycle is calculated on the basis of fiscal year data (which start July 1) while the commodity price cycle is based on calendar years (for all countries), the contemporaneous correlation is calculated for Pakistan.

(under low capital mobility) or larger capital inflows in response to the incipient increase in interest rates (under high capital mobility). Either way, the money supply expands to match the higher money demand, and output is unaffected. Under a floating regime, however, the increase in domestic interest rates causes the exchange rate to appreciate, thereby curbing exports and amplifying the initial shock.

Thus, economies where monetary shocks are relatively more important than real shocks may be candidates for a fixed exchange rate. A fixed regime may also be preferable in economies where real shocks are relatively more important but international capital mobility is low (especially in relation to international trade flows).

A natural quantitative measure relates to capital mobility. As the degree of capital mobility is intended to measure the relative importance of capital versus trade flows, a simple measure is the ratio of the sum of all (gross) capital flows to the sum of all trade flows. While the degree of "netting out" of inflows and outflows in individual line items in the Fund's *Balance of Payments Statistics* may differ across countries, the sum of the flows recorded under the principal headings should provide a reasonable approximation of the relative magnitude of gross capital flows in different countries.[16] To minimize the impact of cyclical fluctuations in capital flows, the time period should cover several years, ideally a full cycle. To assess the importance of capital *versus* trade flows, the magnitude of gross capital flows needs to be scaled by trade flows.

The Mundell-Fleming framework also highlights the relative importance of real versus nominal shocks. The latter may be approximated by the mean-adjusted standard deviation (the coefficient of variation) of (the inverse of) money velocity over a given sample period. A relatively high value would suggest that nominal shocks are relatively large and money demand is relatively volatile.

It is possible, however, that a country facing highly volatile money demand is also subject to large and frequent real shocks, suggesting the desirability of scaling this measure of nominal volatility by a measure of real volatility. A simple measure of an economy's exposure to real shocks is the variability of its terms of trade. However, an economy that is highly trade oriented will be affected more by a given terms of trade shock than an economy that trades relatively little. For this reason, it is useful to consider both the ratio of velocity variability to terms of trade variability as well as the variability of money velocity by itself.

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[16] The absolute values of the following line items were summed to yield estimated gross capital flows: capital account credits; capital account debits; direct investment abroad; direct investment in reporting economy; portfolio investment assets; portfolio investment liabilities; financial derivates assets; financial derivatives liabilities; other investment assets; other investment liabilities; and net errors and omissions.

On balance, considerations emanating from the Mundell-Fleming framework point to a case against a peg in Pakistan and a neutral case for Kazakhstan. The capital mobility measure ranks Pakistan near the middle of the sample and, therefore, does not indicate a strong case either for or against a peg (Figure 5). However, monetary shocks have been relatively small in Pakistan, as has the ratio of monetary to real shocks, thereby suggesting that a peg would not be advantageous. In Kazakhstan, monetary shocks—especially during the first decade of transition to a market economy—have been large. However, real shocks have also been large, and Kazakhstan's ratio of real versus nominal shocks ranks in the middle of the sample. Moreover, Kazakhstan's ratio of gross capital flows to trade flows was already relatively high during 1995–2003, implying significant disadvantage associated with a peg.

E. Credibility/Nominal Anchor

A weak central bank may face difficulties in maintaining low inflation over a sustained period. In such circumstances, a country may be able to "import" monetary policy credibility and lower inflation by pegging the exchange rate (or adopting a foreign currency) and forgoing monetary autonomy. Countries that have a history of high inflation or frequent episodes of high inflation may therefore benefit from a pegged regime.[17]

A country's inflation history can be summarized by a simple indicator such as the proportion of months over the past decade in which inflation exceeded 10 percent on a year-on-year basis. To check the sensitivity of the results, a different time period, say the past five years, can be assessed. To further check sensitivity, an inflation threshold of 8 percent can be used over both ten-year and five-year horizons.

Based on these crude measures alone, the inflation history of Pakistan presents a neutral case in the debate for and against a pegged regime for the rupee, while Kazakhstan's history of relatively high inflation—especially during the early years of transition—suggests that a peg could carry significant nominal anchor benefits. Regardless of whether an inflation threshold of 8 percent or 10 percent is used, Pakistan ranks in the middle of the sample (Figure 6). This indicates that while adopting a peg could carry some nominal anchor/credibility gains, such gains would not be large. Conversely, Kazakhstan ranks among the higher inflation economies under either threshold, implying potentially sizable monetary policy credibility gains via a pegged regime.

F. Fear-of-Floating/Balance-Sheet Effects

The fear-of-floating literature (e.g., Calvo and Reinhart, 2002) points to a number of additional factors that may explain why some countries are reluctant to allow much exchange rate flexibility. For example, a high degree of liability dollarization can result in major

[17] Rogoff and others (2004) find that countries with limited access to external private capital have tended to experience lower inflation under rigid exchange rate regimes than under more flexible regimes.

balance-sheet effects of large exchange rate shocks, thereby imparting strong effects (through the banking and/or corporate sectors, or even the public sector finances) which may be partly permanent. Similarly, a high degree of pass through of exchange rate changes to the domestic price level will result in a serious inflationary impact of large exchange rate shocks without capturing significant gains in adjustment or competitiveness.

While a gradual and eventual move to flexibility may help stem dollarization—and, hence, the prospect of balance-sheet effects and high exchange rate pass through—the presence of these types of effects means that exchange rate changes may be highly disruptive in the near term. To the extent that a lack of exchange rate flexibility over time contributes to a buildup of dollarization and fear-of-floating type effects, countries that do not have such effects at present may be well advised not to maintain a peg and thereby avoid having the effects develop.

In terms of quantitative measures, Reinhart, Rogoff, and Savastano (2003) assess the degree of dollarization in a large sample of countries. In addition to presenting a summary composite measure for most countries (comprising information on the share of bank deposits in foreign currencies, the share of domestic debt denominated in or indexed to a foreign currency, and the share of private external debt in total debt), they group countries into what effectively amounts to high, medium, and low dollarization categories.[18]

The correlation of exchange rate changes with (the cyclical component of) economic activity may provide an alternative, and possibly more direct, measure of the presence of possible balance-sheet effects. Although balance-sheet mismatches may well be prevalent but not affect activity over a given sample period if the exchange rate remains relatively stable, an observed positive correlation between exchange rate changes (where an increase in the exchange rate is an appreciation) and activity would suggest that depreciation tends to be associated with a slowdown or contraction in economic activity. Such contractionary effects, whether they arise for balance-sheet-type reasons or other factors, would, in turn, indicate that large exchange rate changes following a misalignment would be especially disruptive. Hence, economies where the evidence suggests depreciation is likely to be contractionary will likely be reluctant to allow exchange rate flexibility. As regards measurement of the relation between changes in the exchange rate and activity, the relevant correlation will be one which allows for a lagged impact of the exchange rate on the subsequent pace of economic activity.

Exchange rate pass through may be measured by the correlation of (year-on-year percentage changes) of a country's (quarterly) consumer price index with its nominal effective exchange

[18] Highly dollarized economies are those where at least 10 percent of broad money or domestic public debt is foreign currency-denominated and where private external debt constitutes at least 10 percent of total debt. Economies with a medium degree of dollarization are those where only one of these conditions is met, while economies with low dollarization meet neither condition.

rate. To allow for a possible lagged effect in the transmission to domestic prices, current-period inflation could be correlated with last period's depreciation.

In contrast to the other analytical considerations, apparent evidence of potential balance sheet-type effects seems to suggest a case for a peg for the rupee. However, Pakistan's degree of dollarization ranks in the middle of the sample and, in contrast to occasional assertions in the Pakistani press, there is little evidence of significantly higher pass through of exchange rate changes into domestic inflation in Pakistan than in other countries (Figure 7).[19] Hence, there appears to be a modest case for a peg on the basis of fear-of-floating-type effects in Pakistan. For Kazakhstan, the Reinhart-Rogoff-Savastano measure indicates a relatively low degree of dollarization, and there does not appear to be any evidence of sizable balance-sheet-type effects. While the degree of exchange rate pass through to inflation has been somewhat high in comparison with the sample, on balance fear-of-floating-type effects seem to present a neutral case for a pegged regime for the tenge.

IV. SCORECARD

Taken together, the measures capturing the various regime choice considerations indicate a fairly strong case against pegging the rupee (Table 2). The following features stand out:

- Pakistan's relatively high degree of integration in global financial markets subjects it to the volatility of private capital flows and raises risks associated with operating a peg (such as a disruptive exit, possibly accompanied by a banking/currency crisis).

- Its relatively high dependence on cotton, which implies that Pakistan has a greater need for adjustment to commodity price shocks than more diversified economies.

- Real shocks have been far more important in Pakistan than nominal shocks, implying that a pegged regime would not be advantageous from a macroeconomic stabilization perspective.

- Since Pakistan's external trade orientation remains relatively low by international standards, the trade gains that could be achieved via a peg are also low. Hence, economic integration factors also weigh against a peg.

- By contrast, evidence of contractionary effects of rupee depreciation may be a good reason to "fear floating" and adopt a peg. However, factors specific to Pakistan weaken, if not reverse, this argument. Since dollar borrowing by the corporate sector in Pakistan remains very limited, balance-sheet effects normally associated with

[19] As the dollarization index is truncated at zero and a number of countries with low dollarization are not indexed, the reported distribution for this indicator has been adjusted in the figure.

"contractionary devaluation" are not likely to be present. Rather, causality more likely has been in the reverse direction—the de facto peg of the rupee was likely adjusted *in response* to the emergence of balance of payments pressures (reserves depletion), which often were the result of adverse supply shocks (e.g., weaker exports).

The scorecard based on historical data points to a mixed case for a pegged regime for the tenge. The following points are noteworthy:

- Kazakhstan's high degree of economic integration with Russia, limited integration with global financial markets, and relatively high inflation history suggest that an exchange rate peg may carry benefits. However, even if these factors are accorded high priority in determining the appropriate regime, the choice of the partner currency against which the tenge could be pegged is far from clear. Economic integration considerations point to the ruble, but on credibility grounds the ruble would not be the best choice as it has undergone considerable volatility itself and Russia has had a higher inflation history than Kazakhstan.

- On the other side, the economic diversification indicators offer a case against a peg. Kazakhstan's dependence on oil and other primary commodities subject it to considerable volatility. Closing off an important channel of adjustment by pegging the tenge would carry significant costs.

Adjustments to the scorecard to take account of the major changes in Kazakhstan's economic and financial landscape over the past half decade strengthen the case against pegging the tenge. In particular:

- While Kazakhstan's economic cycle is highly synchronous with that of Russia, its main trading partner, this likely reflects the importance of the oil sector—and the importance of the international oil price cycle—in both economies. Thus, the gains from pegging to the ruble that this measure seems to suggest may not hold. Moreover, Russia's share in Kazakhstan's trade has been declining, indicating a weaker correlation in the future than in the past. On balance, then, economic integration considerations point to a neutral assessment of the efficacy of a peg for the tenge.

- External borrowing by Kazakhstan's private sector, especially banks, has surged in recent years. Indeed, overseas debt placements by private entities in Kazakhstan in 2004–05 has exceeded that from many of the economies included in the major emerging market indices. Moreover, the monetization ratio in Kazakhstan has risen rapidly, and now ranks in the middle of the sample. Hence, Kazakhstan may be considered among the more financially integrated economies in the sample and, consequently, among those that are vulnerable to the volatility of international capital flows. This factor, too, weighs against a peg for the tenge.

- Kazakhstan has succeeded in bringing down inflation to the single digit level on a sustained basis since late 2000. Thus, the modest nominal anchor/credibility benefits that were evident from the historical data have likely diminished in recent years.

- On the other side, however, dollarization rose sharply in the period following the Russian crisis and the subsequent rapid depreciation of the tenge. While the shares of bank deposits and loans denominated in foreign currency (mainly dollars) has declined markedly during the last few years, they remain substantial. Moreover, as noted above, borrowing abroad (also mainly in dollars) by the private sector has picked up. Thus, dollarization is likely not to be "low" in Kazakhstan any longer, and fear-of-floating-type effects may be more evident in the period ahead. On this consideration, then, the case for a tenge peg may be somewhat stronger.

An interesting feature of the scorecard is that the various considerations for regime choice offer a relatively clear cut case against a peg for the rupee and for the tenge looking forward. By contrast, the scorecard indicates a reasonably strong case for a peg in Estonia, Georgia, and Kyrgyz Republic during the period covered by the data, although some of the factors may well point in the opposite direction now. Lastly, for some countries, such as Morocco and Russia, some factors point to a peg while others suggest flexibility. In these cases, subjective judgment about prioritizing the factors is needed to conclude whether or not a peg is useful.

V. CONCLUSIONS

The template outlined in this paper provides a framework for assessing—at an operational level—the de facto exchange rate regime choice of individual countries. In particular, the scorecard approach helps analysts to assess whether the actual regime has been consistent with that implied by economic and financial considerations highlighted in the literature.

A "fear of floating" appears to have characterized Pakistan's exchange rate regime over the past 15 years. This fear was reflected in the maintenance of a de facto peg of the rupee against the dollar—albeit with repeated devaluations—without an accompanying declaration of a de jure peg. The scorecard suggests, however, that this fear may have been misplaced and that a peg is not advantageous for an economy with Pakistan's features. Thus, increased exchange rate flexibility is likely to improve Pakistan's economic performance.

For Kazakhstan, macroeconomic instability during the transition process in the 1990s likely precluded the maintenance of a peg, even if it had been desirable for economic and financial reasons. As stability was restored, a de facto peg against both the dollar and the ruble emerged, consistent with the need to build monetary policy credibility and, for the most part, an absence of factors that would imply sizable economic costs of maintaining a peg. More recently, as credibility has been enhanced, economic integration with Russia has started to diminish, and the financial risks associated with a peg have risen, the de facto flexibility of the tenge has increased. Nevertheless, this flexibility remains relatively limited, and a more decisive move toward increased flexibility would help contain financial risks and facilitate economic adjustment to external shocks in the future.

Table 1. List of Countries in Sample

Australia	Lebanon
Bolivia	Malaysia
Botswana	Mexico
Brazil	Morocco
Canada	Nepal
Chile	Netherlands
China	Nigeria
Czech Republic	Oman
Djibouti	Pakistan
Egypt	Peru
Estonia	Philippines
France	Poland
Georgia	Qatar
Ghana	Russia
Greece	Saudi Arabia
Hong Kong SAR	Senegal
Hungary	Singapore
India	Spain
Indonesia	Sri Lanka
Ireland	Thailand
Italy	Tunisia
Kazakhstan	Turkey
Kenya	Uganda
Korea, Rep. of	Ukraine
Kyrgyz Republic	Venezuela, Rep. Bolivariana de
Latvia	

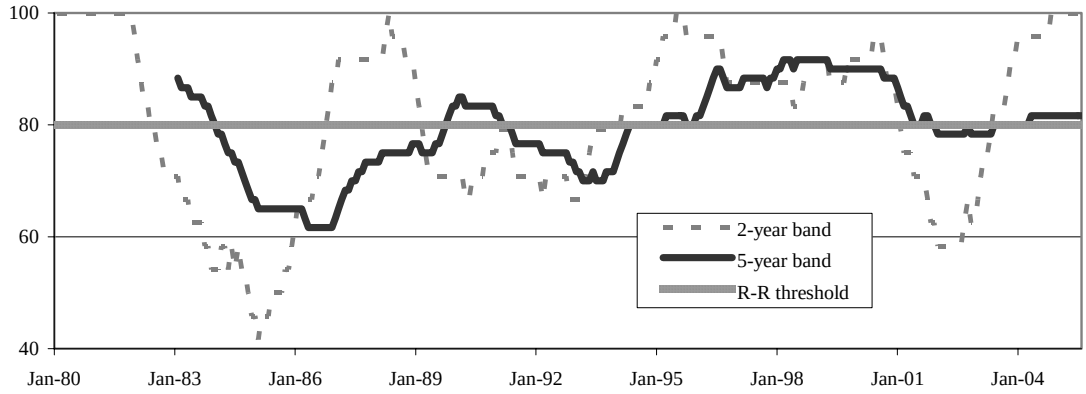
Table 2. Scorecard

	Kazakhstan	Kazakhstan *(adjusted)*	Pakistan	Egypt	Estonia	Georgia	Kyrgyz Republic	India	Morocco	Philippines	Russia	Thailand
Economic integration	**2**	**3**	**4**	**3**	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**3**
Trade orientation	3	3	4	5	2	3	2	5	3	2	3	2
Trade pattern concentration	3	3	3	2	3	5	4	3	1	4	3	4
Cylical synchronicity with trade partner	1	3	4	3	3	2	3	2	3	3	2	4
Financial integration	**2**	**4**	**4**	**4**	**3**	**1**	**1**	**3**	**4**	**4**	**4**	**5**
Inclusion in major indices	1	5	5	5	3	1	1	4	5	5	5	5
Stock market capitalization/turnover	3	3	4	3	3	1	1	3	3	2	3	4
Financial development	1	3	3	4	3	1	1	3	4	3	2	4
Economic diversification	**4**	**4**	**4**	**3**	**2**	**2**	**3**	**2**	**2**	**4**	**3**	**4**
Terms of trade volatility	3	3	3	3	2	1	2	2	2	3	3	3
Commodities dependence—GDP	5	5	2	3	3	1	3	2	3	3	4	3
Commodities dependence—activity	4	4	4	3	2	3	4	...	1	5	3	5
Macroeconomic stabilization	**3**	**3**	**4**	**4**	**2**	**2**	**3**	**3**	**2**	**3**	**4**	**3**
Capital versus trade flows	4	4	3	3	3	3	3	3	1	4	4	3
Monetary volatility	1	1	4	5	2	2	3	3	3	3	3	3
Real versus nominal shocks	3	3	4	5	2	1	3	3	3	2	4	3
Credibility	**2**	**3**	**3**	**3**	**2**	**3**	**2**	**3**	**5**	**3**	**1**	**3**
Inflation history—8 percent	2	3	3	3	3	3	2	3	5	3	1	3
Inflation history—10 percent	2	3	3	3	2	3	2	3	5	3	1	3
Fear-of-floating type effects	**3**	**2**	**2**	**3**	**4**	**3**	**2**	**4**	**4**	**2**	**2**	**2**
Dollarization	3	2	3	3	3	3	2	5	5	2	2	3
Balance sheet effects	3	3	1	2	5	3	2	4	3	2	3	2
Exchange rate pass through	2	2	3	3	4	3	3	3	4	3	2	2

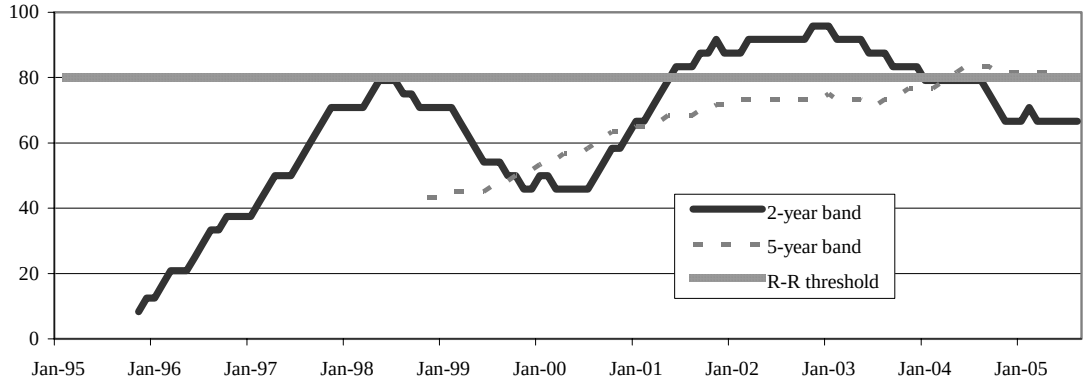
Legend:
1=strong case for peg
2=case for peg
3=neutral
4=case against peg
5=strong case against peg

Figure 1. Degree of Flexibility of Rupee and Tenge
(Proportion of monthly exchange rate changes less than +/- 1 percent; in percent)

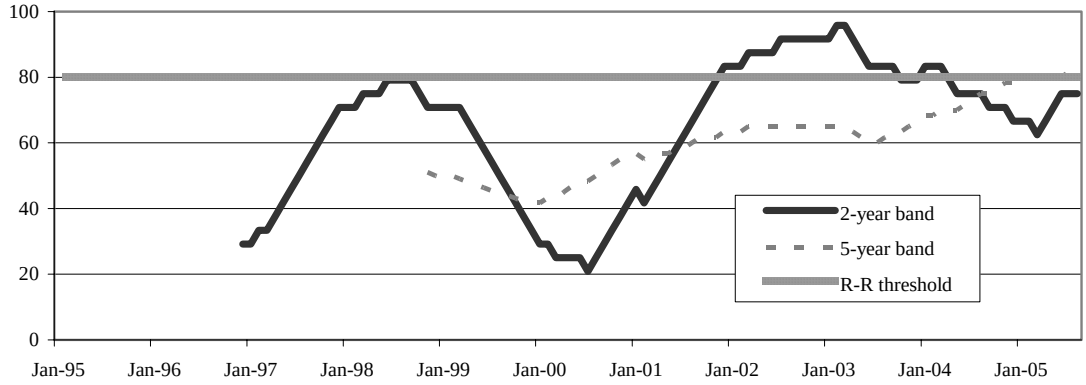
Pakistan: Rupee Flexibility Against U.S. Dollar



Kazakhstan: Tenge Flexibility Against U.S. Dollar



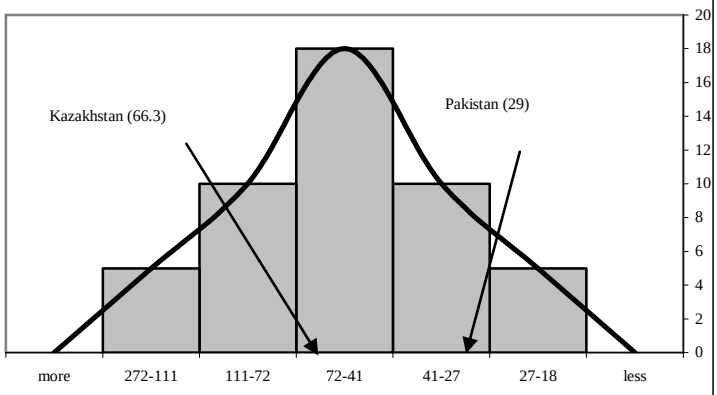
Kazakhstan: Tenge Flexibility Against Ruble



Note: R-R threshold is 80 percent; see Reinhart and Rogoff (2004).

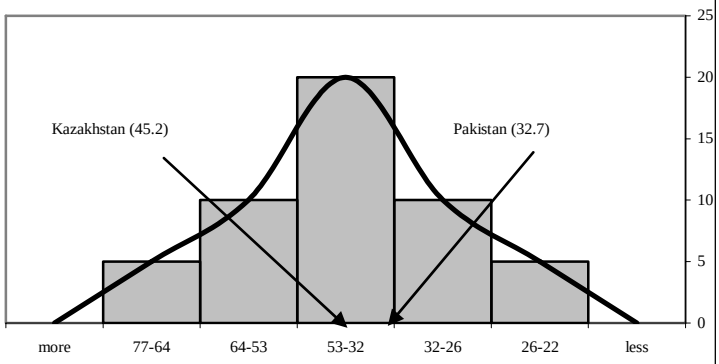
Source: IMF: International Financial Statistics database.

Figure 2a. Trade Orientation: Trade to GDP Ratio 1/



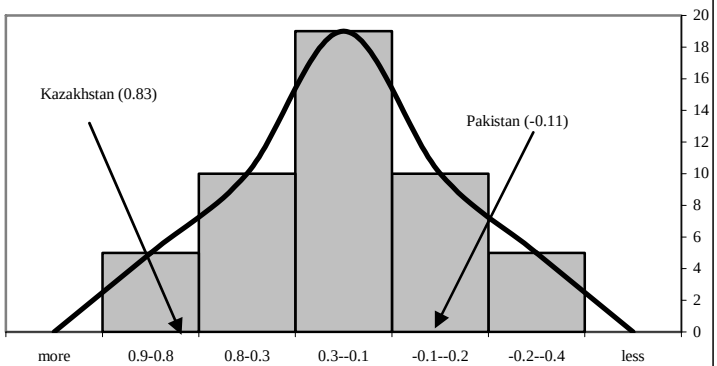
1/ Exports and imports of goods and services in percent of GDP; 1999-2002.

Figure 2b. Trade Orientation: Diversity of Trade 1/



1/ Share of exports to main partner currency area, in percent; 2001-03.

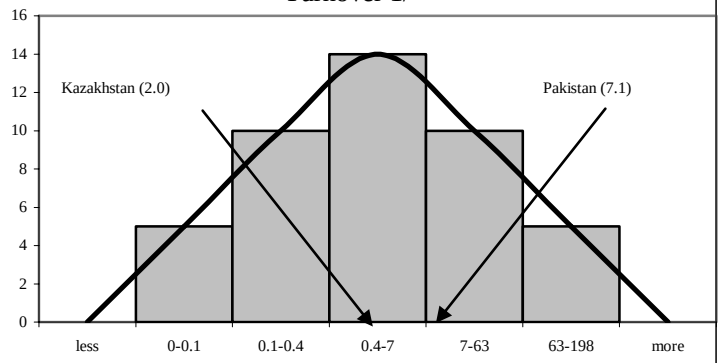
Figure 2c. Trade Orientation: Economic Cycle Synchronicity 1/



1/ Real GDP growth correlation with key export partner; 1985-2003.

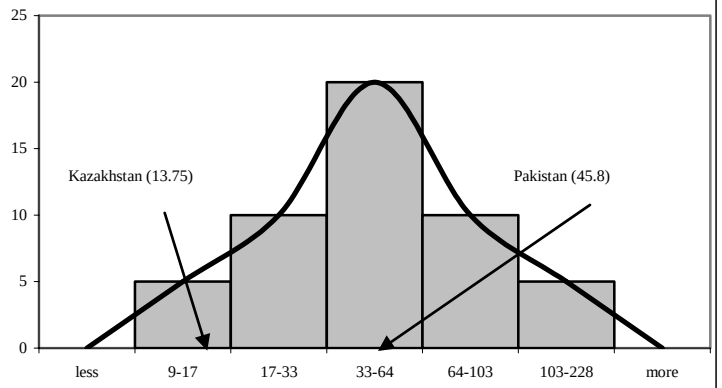
Sources: IMF: International Financial Statistics, Direction of Trade Statistics, World Economic Outlook, Information Notice System, and Middle East and Central Asia Department databases.

Figure 3a. Financial Integration: Stock Market Turnover 1/



1/ Annual turnover in percent of GDP; 2003.

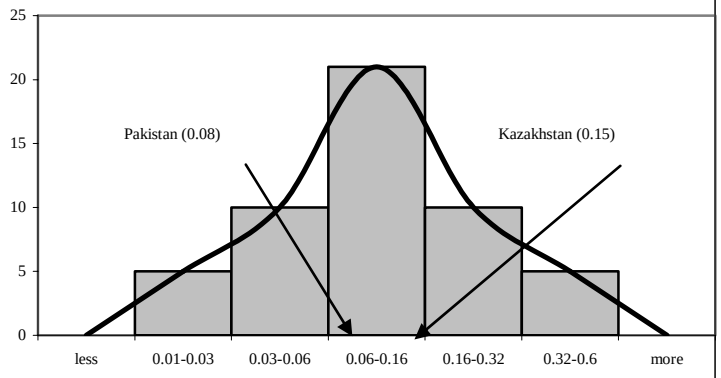
Figure 3b. Financial Integration: Monetization 1/



1/ Broad Money to GDP Ratio; 1992-2002.

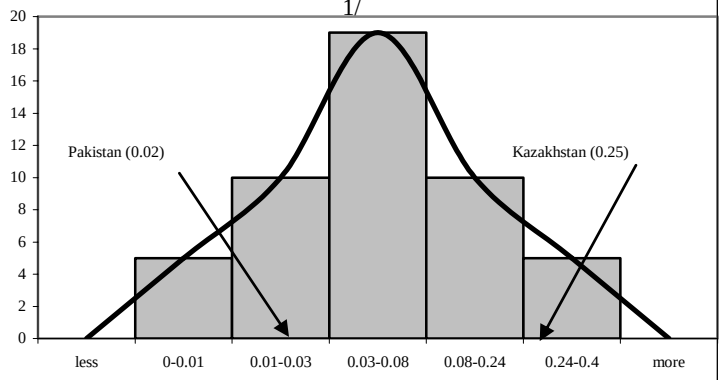
Sources: Bloomberg, World Bank World Development Indicators, and IMF Global Data Source database.

Figure 4a. Diversification: Terms of Trade Volatility 1/



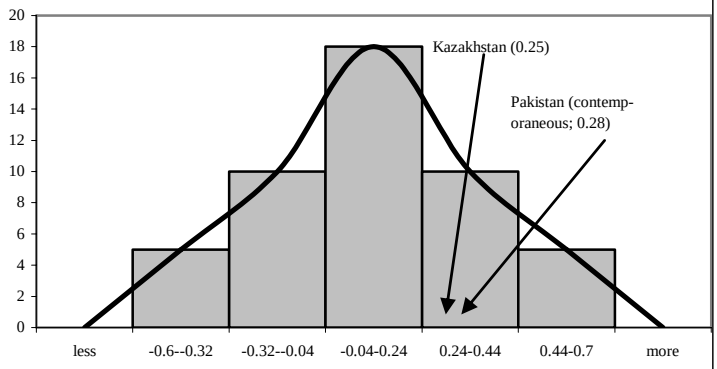
1/ Coefficient of variation of terms of trade; 1985-2003.

Figure 4b. Diversification: Primary Commodities Exports 1/



1/ Ratio to GDP; 1990-99.

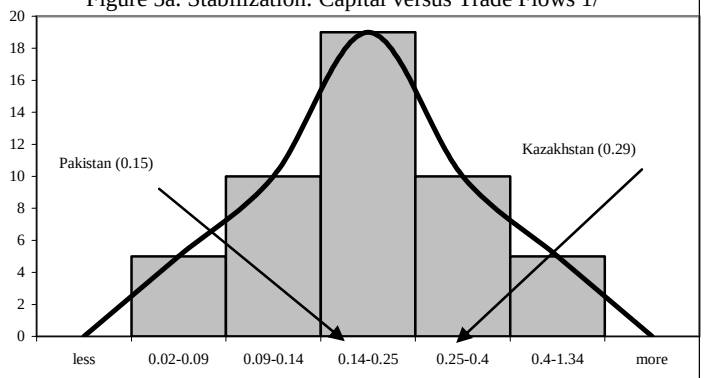
Figure 4c. Diversification: Commodity Prices and Activity 1/



1/ Correlation of annual percent changes in country's key commodities prices (lagged) and real GDP; 1985-2003.

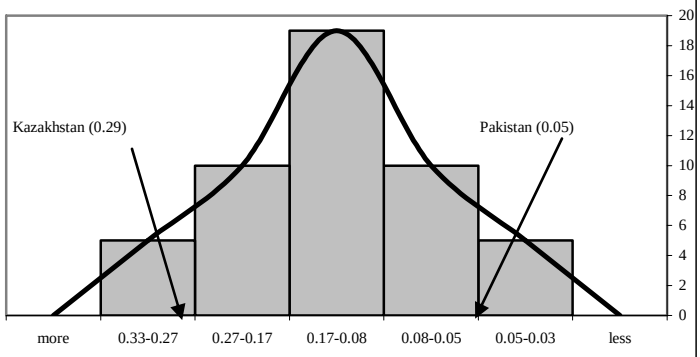
Sources: IMF: Commodities Unit, World Economic Outlook, and International Financial Statistics databases.

Figure 5a. Stabilization: Capital versus Trade Flows 1/



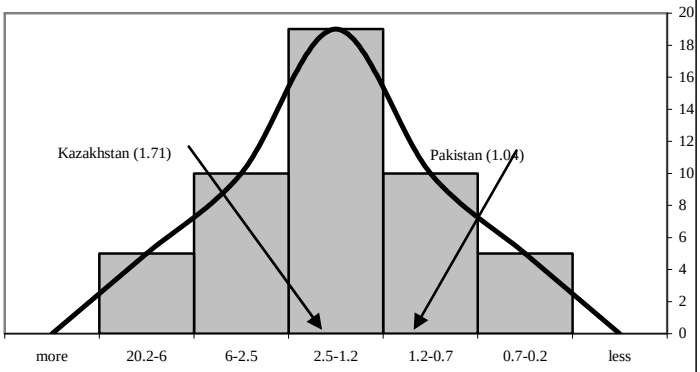
1/ Ratio of cumulative gross capital flows to trade flows, 1995-2003.

Figure 5b. Stabilization: Monetary Shocks 1/



1/ Coefficient of variation of broad money to GDP ratio; 1993-2002.

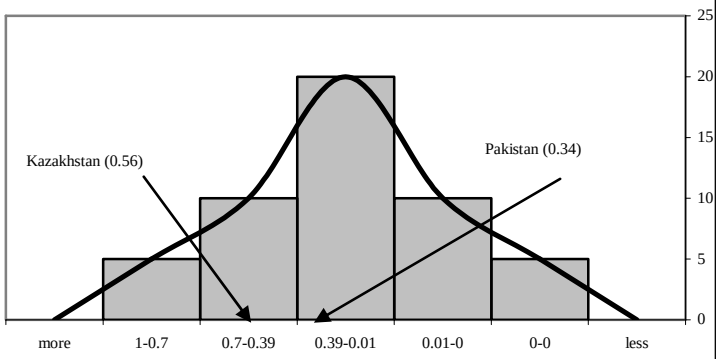
Figure 5c. Stabilization: Real v. Monetary Shocks 1/



1/ Ratio of coefficient of variation (COV) of monetization (broad money to GDP ratio) to COV of terms of trade; 1993-2002.

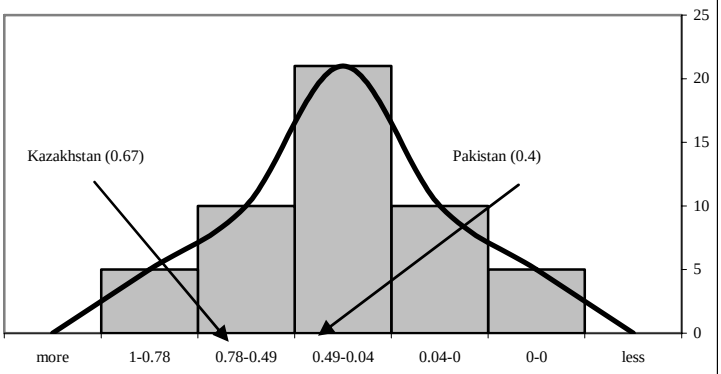
Sources: World Bank World Development Indicators; IMF: Global Data Source, World Economic Outlook, and Balance of Payments Statistics databases.

Figure 6a. Credibility: Inflation History 1/



1/ Proportion of months in which y-o-y CPI inflation exceeded 10 percent; 1994-2003.

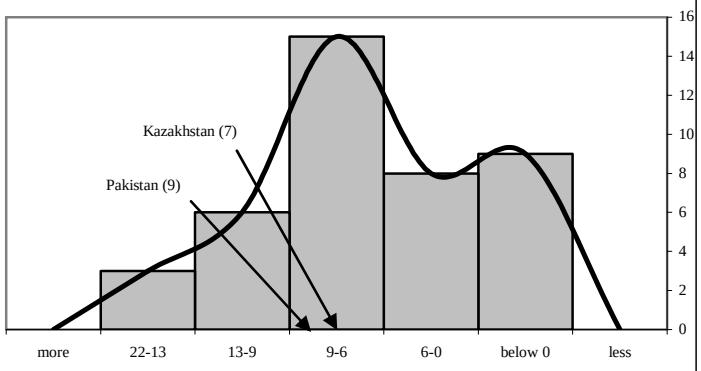
Figure 6b. Credibility: Inflation History 1/



1/ Proportion of months in which y-o-y CPI inflation exceeded 8 percent; 1994-2003.

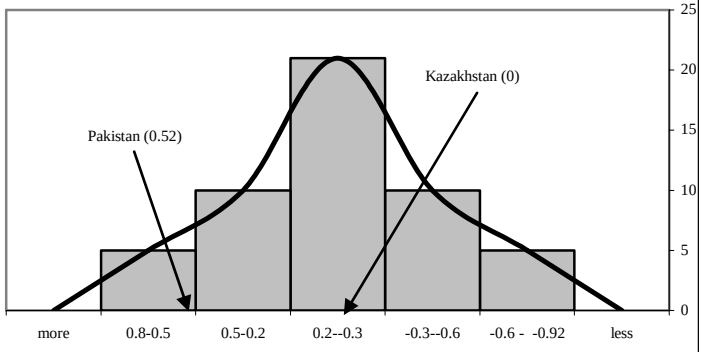
Sources: IMF: International Financial Statistics and Global Data Source databases.

Figure 7a. Fear of Floating Effects: Dollarization 1/



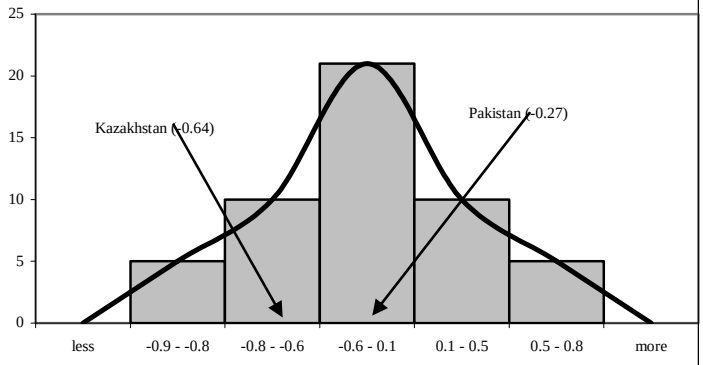
1/ Reinhart-Rogoff-Savastano dollarization index.

Figure 7b. Fear of Floating Effects: Exchange Rates and Activity 1/



1/ Correlation of annual percent changes of real GDP and NEER; 1993-2003.

Chart 7c. Fear of Floating Effects – Exchange Rates and Inflation 1/



1/ Correlation of y-o-y percent changes of NEER and CPI; 1993-2003.

Sources: Reinhart, Rogoff, and Savastano (2003); IMF: International Financial Statistics, Information Notice System, Global Data Source, and Middle East and Central Asia Department databases.

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