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The Federal Reserve (the Fed) raised its policy rate by 25 basis points on 30 June 2004 and is expected to continue a series of rate hikes in its subsequent monetary policy meetings over the next 18 months or so (US Federal Reserve Board 2004).

Higher interest rates in the United States (US) can adversely affect Asian economies by reducing aggregate demand through various channels. First, higher yields on US assets attract capital, thus reversing international capital flows. Heightened uncertainty combined with declining international liquidity and weakening currency conditions add to volatility in emerging markets, further hiking risk premia and therefore increasing the cost of capital. Second, the transmission of higher US interest rates through international capital markets yields higher domestic rates, exerting a downward pressure on domestic investment and consumption. Global transmission of interest rates is found to be significant for developing countries (Frankel et al. 2002). Empirical evidence shows that local interest rates in Asian developing economies respond to short-term US rates in a strongly positive manner regardless of existing exchange rate regimes. Third, higher interest rates may curb global consumption spending, hence reducing external demand for Asian exports. A long period of very low interest rates created a legacy of increased leverage and inflated asset prices around the world, leaving global consumption particularly vulnerable to rate hikes.

Using the Oxford Economic Forecasting (OEF) model, this brief runs a macroeconomic simulation based on a new scenario of US policy rates to provide insights into what is in store for Asian economies in a rising rate environment.

Risks of Higher Interest Rates

Historically, a turn of US monetary cycle quickly fed into general increases in interest rates around the world, exerting an adverse influence on the global economy.[1] The early stage of the US economic

[1] Upward movements in US interest rates helped trigger a number of high-profile debt crises in the 1980s and 1990s.Tightening of the US monetary policy with its policy rates rising from 11 to 19 percent between 1980 and 1981 precipitated credit crunches in several Latin American countries in the following years, and further sharp tightening in 1994 brought about the Mexico's Tequila crisis.

recovery and substantially large current account deficits make this upturn of the US monetary cycle likely to be measured and thus unlikely to create excessive disruption in emerging markets including Asia. Nevertheless, a hike in interest rates instigates a new dynamics in the global economy, which could derail what appears to be a strong and broad-based recovery. Three risk factors are worthy of note in this regard.

Diminishing Liquidity

As the expansionary US monetary policy is reined in, a reduction in international liquidity poses a threat to emerging Asian markets. The fear of imminent US rate hikes triggered a heavy sell-off in April and May, sharply lowering equity prices and widening credit spreads across Asia. The equity market index for Asia excluding Japan lost 73 points or 10 percent in May alone. Bond prices also fell by 3.4 percent in a month, while credit spreads widened by 10 basis points to 470 basis points. Higher oil prices and the prospect of a slowdown in People's Republic of China (PRC) are further weighing on investors' confidence in Asia. The higher cost of capital reflecting heightened financial volatility and risk premia would have important implications for future economic growth in many Asian economies, which still rely on foreign capital to fund their vital investments.

Indebted Consumers

Very low interest rates together with eased liquidity constraints on households led to dramatic increases in consumer debts in many countries. Consumer indebtedness has intensified particularly in the US. According to the latest release from the Fed, outstanding consumer credits excluding mortgage debts reached $2.0 trillion in April 2004, rising about 10 percent annually for the past five years. Including mortgage, the figure shoots up to estimated $9.5 trillion. Household debt-service burden is also creeping up.[2] The US market accounts for about 20 percent of Asian exports. Under these circumstances, a sharp reduction in US consumption spending could make visible damages on Asian economies.

[2] The estimated ratio of the required debt payments to disposable income was 13.2 in 2003, but a broad measure of household financial obligation hit 18.5.

Albeit to a lesser degree, Asia also faces similar credit problems. Domestic credits have rapidly increased with the support of government policies in many Asian countries including PRC, India, Republic of Korea, and Thailand.[3] Households assumed an increasing share—reaching about 40 percent—of total domestic credits to the private sector. The consumer credit boom in Korea already burst in early 2003 and struggling consumption casts a shadow over its recovering economy. Other countries may follow suit if sharp increases in interest rates further deteriorate household balance sheets, putting strains on consumption spending.

Wealth Effect in Reverse

The increase in interest rates may also indirectly weaken consumption, by eroding asset values and hence household net wealth.[4] Household net wealth has steadily increased in advanced economies, on account of rising residential property prices and asset values.[5] Robust housing markets helped to keep the US economy afloat through the equity price collapse in 2001, by holding up consumption spending. Should declines in housing prices be substantial, the negative wealth effect could have significant macroeconomic consequences for both developed and developing economies.

Simulation: The Impact on Asian Economies —A New Interest Rate Scenario

The US economy has strengthened, registering robust growth of 3.9 percent in the first quarter of 2004 from a year ago and is forecast to grow at 4.5 percent this year. Reflecting strong performance,

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[3] Domestic credits have grown at more than 15 percent on annual average during 1999-2002 in these countries except Thailand where a credit growth surge started a bit later in 2002 (International Monetary Fund 2004).

[4] The life-cycle/permanent income hypothesis has long advocated the significant effect of household net wealth on consumption spending.

[5] Prior to the run-up in equity prices during 1995-1999, the ratios of household net wealth to disposable income averaged about 4.3 in Canada, 4.7 in France, 5.9 in the UK, and 4.8 in the US between 1985 and 1994. In 2002, the figures stood at 5.1, 5.9, 6.8, and 5.1, respectively. The run-up in housing prices has been particularly high in the UK and US, with real house prices rising 42 and 21 percent, respectively, during 1995-2001 (Bank of International Settlements 2004).

the US economy started to show signs of inflation, which provided a basis for the turn of the interest rate cycle. Headline inflation rose more than 3 percent in May from a year ago, owing to much higher oil prices. Core personal consumption expenditure excluding food and energy costs, which is a preferred measure of inflation by the Fed, also increased 1.6 percent over a year.

The future path of Fed fund rates would depend largely on the combination of inflation and unemployment developments, also known as the Taylor rule. Raising rates too fast would jeopardize the nascent economic rebound, by contracting domestic demand and hindering the tentative job recovery. On the other hand, too slow movements in interest rates risk a further build-up in debts and higher inflation, thereby clouding the long-term growth prospect. Keeping the interest rates very low much longer could also fuel inflationary expectation that might send long-term interest rates higher, complicating the sound recovery.[6]

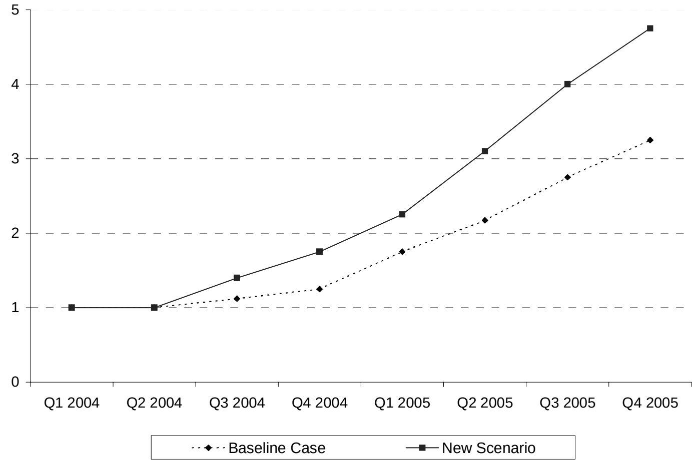
Figure 1 presents an alternative path of future Federal fund rates to the baseline scenario from the third quarter of 2004 until the end of 2005. The baseline assumption is that the Fed fund rates would be 1.1 percent in 2004 and 2.5 in 2005, which remain broadly consistent with *Asian Development Outlook* (ADB 2004) forecasts, where the Fed fund rates average 1.1-1.3 percent in 2004 and 2.5-3.0 in 2005. In comparison with the baseline case, the new rates reach 1.3 percent on average in 2004 or 0.2 percentage point higher in the second half of 2004 and 3.5 percent in 2005, which is 1 percentage point higher throughout 2005.

Simulation Results

The simulation is modeled based on the global transmission of US rates. An increase in US policy rates, *ceteris peribus*, directly feeds into Asian local rates while indirectly affecting risk premia in the

[6] The current market expectation is for the Fed fund rates to reach 2.1 percent by the end of this year and about 4 percent by the end of 2005. However, previously, market expectations have undershot the US policy rate in its upward movements and overshot in its downward movements over 6-month to one-year horizons. The Fed has also acted preemptively on several occasions, when the situation warranted. The Fed tightened its monetary policy in 1994, raising its policy rates from 3 to 6 percent in just over a year. Likewise when the US monetary policy shifted from a tightening to easing stance in 2001, the federal fund rates plummeted from 6.5 to 2 percent in less than a year. Should inflation surge, the Fed could be forced to move more aggressively than currently anticipated.

Figure 1. **A New Scenario: Federal Fund Rates for 2004-2005**



Note: The path of the Fed fund rates is chosen, taking into account inflation, unemployment, capacity utilization ratios, and both short- and long-term interest rate futures based on the OEF model. Under the baseline assumption, inflation reaches 2.9 by the end of 2004, whereas the unemployment rate falls low at 4.6 with capacity utilization at 81 percent. At new policy rates, inflation approaches the consensus inflation target of 2 percent, while unemployment edges downward from 5.6 percent in 2004 to 5.4 in 2005 and capacity utilization reaches 79 percent in 2005.

Source: OEF simulation.

region.[7] The magnitude of the interest rate transmission varies across borders, depending on various national factors such as the degree of integration with international financial markets, productivity or returns on domestic assets, current positions in external accounts, and exchange rate regimes.

The simulation assumes no changes in exchange rates. Under the fixed exchange rate regime, "impossible trinity" dictates there is no independent monetary policy with free capital flows. Higher US rates tend to accompany an appreciation of the dollar. In order to stabilize the exchange rates, Asian governments need to purchase their currencies, driving the domestic interest rates higher. If the dollar

[7] A notable exception is the PRC, where interest rates are fixed. In the rest of Asia, interest rates at all maturities would increase, although proportionately less on the long end, thus flattening the yield curves.

appreciates and thus the local rates rise less, the simulation would yield much less impact on Asian economies. The results remain only indicative and subject to changes in economic conditions as well as variations in assumptions.

Table 1 summarizes the impact of the new interest rates, presented in Figure 1, on 10 Asian economies in 2004-2005. In 2004, rising interest rates have little impact on Asian economies. The moderate increases, following a much anticipated path, leave little room for a surprise in the global economy this year. With a relatively

Table 1. **Impact of Higher US Policy Rates on Selected Asian Economies in 2004-2005**
(deviations in percentage changes from the base case unless otherwise specified)

	2004			2005		
	GDP	Investment	Consumption	GDP	Investment	Consumption
ASIA[a]	**0.0**	**-0.1**	**0.0**	**-0.6**	**-0.9**	**-0.4**
ASIA ex. Japan	**-0.1**	**-0.2**	**-0.1**	**-0.8**	**-1.6**	**-0.4**
PRC	-0.1	-0.1	0.0	-0.9	-1.5	-0.3
Hong Kong,China	-0.1	-0.1	-0.2	-0.8	-0.9	-0.6
India	0.0	-0.2	0.0	-0.5	-1.4	-0.1
Indonesia	-0.2	-0.8	-0.2	-1.6	-3.8	-1.0
Japan	0.0	0.0	0.0	-0.4	-0.4	-0.3
Korea	-0.1	-0.1	-0.1	-0.6	-1.3	-0.5
Malaysia	-0.1	-0.2	0.0	-0.8	-2.0	-0.6
Philippines	-0.2	-0.9	-0.1	-1.1	-2.7	-0.9
Singapore	-0.2	-0.4	-0.1	-0.9	-1.5	-0.6
Taipei,China	0.0	0.0	-0.1	-0.4	-0.5	-0.5
Thailand	-0.1	-0.5	-0.1	-1.2	-3.1	-0.7
Memorandum	*Baseline GDP (in percent)*	*GDP*	*Consumption*	*Baseline GDP (in percent)*	*GDP*	*Consumption*
United States	4.6	0.0	0.0	4.4	-0.9	-0.7
Euro Zone	1.6	0.0	0.0	2.5	-0.2	-0.2

[a] Asia refers to a weighted average of 10 selected Asian economies.
Source: Staff estimates based on OEF model.

unscathed global recovery, the reduction in GDP is limited to 0.1 percent for Asia excluding Japan. Investment is hit the most, but its loss amounts only to 0.2 percent. Consumption declines 0.1 percent mainly due to a reduction in real income.

Higher interest rates start to bite in 2005. The loss of real income in Asia excluding Japan amounts to 0.8 percent or $30.4 billion. Countries with high debt ratios and large external debts, such as

Indonesia, Malaysia, and Philippines, appear to suffer greater losses.[8] The greater exposure to external debts increases risk premia, thus intensifying the overall effect of the rate hikes and diminishing international liquidity on these economies.

A major risk of higher interest rates arises from fallout in the global demand for Asian exports, whereas Asia's recent recovery has yet to prove self-sustainable. Asia's stellar growth in the past year could be ascribed to strong export performance and robust domestic consumption—firmly anchored by supportive macroeconomic policies. Rising interest rates exert substantial pressures on both components while heavily weighing down on the nascent recovery in domestic investment. Although higher rates help stabilize the global recovery, slower growth in advanced economies results in a reduction in consumption and demand for Asian exports, thus affecting GDP growth in the region.

The transmission of US rate hikes to local interest rates also directly affects domestic investment and consumption, by increasing the cost of capital and debt-servicing burden. Investment growth declines by 1.6 percent, while the extent to which investment declines differs from 0.5 percent in Taipei,China to 3.1 in Thailand and 3.8 in Indonesia, depending on the significance of interest rate transmission and degree of investment sensitivity to the rate changes. The decrease in consumption amounts to 0.4 percent for Asia excluding Japan. Reflecting the greater sensitivity of Asian consumers to interest rates, the results show that some countries including Korea and Taipei,China experience proportionately large declines in consumption given the relative small reductions in real income.

Policy Implications

Although risks of higher interest rates remain real, to what extent they will materialize is highly uncertain. There are also some positive factors. First, the US policy rates are unlikely to rise substantially higher in the near term given the large overhang of US fiscal and current account deficits as well as its highly indebted households. Second, even if the rate hikes were greater than expected, they will only have reflected robust domestic demand and thus rising inflation in the US market, in which case the demand for Asian exports would

[8] The ratios of debt to GDP are 0.6 in Indonesia, 0.5 in Malaysia, 0.7 in Philippines, and 0.4 in Thailand. The ratios of external debt to GDP are 0.5, 0.4, 0.7, and 0.3, respectively.

not suffer. Third, Asian economies have generally reduced their reliance on short-term external debts since the 1997 crisis, which makes them less susceptible to rising US interest rates.

Nevertheless, Asia faces considerable challenges, as the global economy exits from the reign of very accommodative macroeconomic policies. A major concern is that Asian economies tend to import the US tightening regardless of their cyclical positions. Despite strong growth, investment recovery has been sluggish in many Asian economies, while a rebound in consumption remains vulnerable to a shifting monetary stance. As such, countries where domestic demand has yet to gain firmer ground may benefit from maintaining an accommodative monetary policy to ensure uninterrupted economic expansion by filling a gap from falling external demand. To this end, allowing greater flexibility in exchange rates would help increase the degrees of freedom in monetary policies of Asian economies to focus more sharply on domestic economy stabilization.

Higher interest rates also raise the borrowing cost of and debt-service burdens on the government and public sector. Many Asian countries are running substantial budget deficits and public debts due to expansionary fiscal policies during the latest slowdown. While expansionary policies provided support for the recovery, countries with large public debts are relatively more exposed to rising interest rates. Prudential fiscal management has proven to be key to safeguarding financial stability in the global tightening cycle. Governments with substantial fiscal deficits and particularly high level of external debts should exercise rigorous fiscal discipline and start consolidating budget deficits.

In a rising rate environment, it is crucial that Asia continues structural reforms to foster a positive investment climate. As investors carefully scrutinize risks and returns in emerging market assets, sustained progress in economic reforms to improve productivity and competitiveness ultimately determines the attractiveness of Asia as an investment destination. Asia faces potentially diminishing market liquidity and increasing financial volatility. Successful completion of corporate and financial sector restructuring that enhances corporate governance and promotes efficient allocation of resources remains a key to ensuring financial stability by limiting unnecessary financial risks and thus minimizing volatile portfolio investment outflows.

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