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ASIA

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Asia Macro Views

Measuring Asia's External Vulnerability

Key points

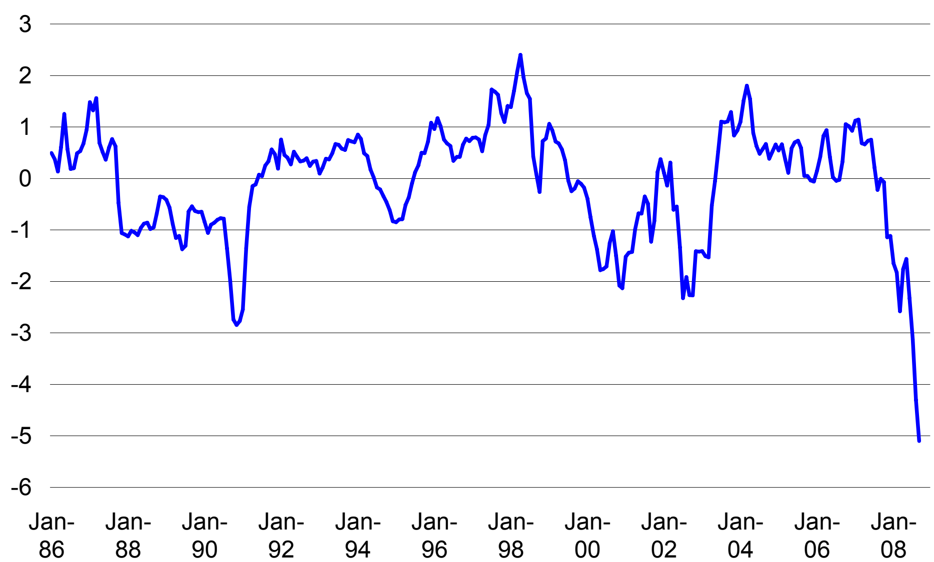
- **Despite repeated policy actions, U.S. financial conditions continue to deteriorate sharply, which now foretells a deep recession. Asia may have to get used to a recessionary environment**
- **The external crisis has already depressed Asian asset prices due to risk aversion and liquidity drainage in the global markets: equity prices have fallen, bond spreads have risen and currencies have weakened**
- **Citi's Vulnerability Index points to China and Taiwan as the most resilient and India and Thailand as the most vulnerable in the face of external uncertainties**
- **At the moment, however, liquidity represents the most important risk for Asian asset markets**
- **The indicator for the risk of a sudden stop of financial flows, measured by external financing needs relative to FX reserves, points to significant vulnerabilities in Korea and Vietnam**
- **And the indicator for the risk of a sudden reversal of financial flows, measured by mobile capital relative to FX reserves, singles out Indonesia and Korea for potential fragility**
- **Taking together, these risk measures suggest particular caution on Korea, Indonesia, India, Vietnam and the Philippines, especially if global liquidity risks intensify**
- **All indicators suggest that China is the most resilient country in the region in the face of external instability**

Getting used to a recessionary environment

The financial crisis that started with subprime problems in the U.S. has evolved into a global vicious cycle among losses at financial institutions, deleveraging and falling asset prices. Despite past policy actions by the Fed and Treasury, U.S. financial markets continue to deteriorate sharply (see Figure 1). **Citi's Financial Conditions Index** now points to -5 standard deviations below the norm. This **is a multi-decade low and probably foretells a deep recession in the U.S.** Adding fuel to the fire, economic and financial conditions are also worsening very rapidly in Europe.

It isn't easy to identify a policy package that can effectively terminate the current crisis. But breaking the vicious cycle in the financial markets should be the most important task, in our view. To achieve that, the financial sector will need to boost aggregate capital, which might, in turn, end deleveraging. During the initial stage of the crisis, financial institutions were able to raise large amounts of capital. That ability declined sharply as the financial crisis developed further. Therefore, a key question now is whether the current policy approach will be able to restore the ability of financial institutions to raise capital on their own, or whether governments will have to use fiscal resources to inject public capital into the financial system on a broad basis.

Figure 1. Citi's Financial Conditions Index of the U.S.



Note: Citi FCI is a weighted composite of corporate credit spreads, equities, mortgage rates, foreign exchange, money growth and retail energy prices. Source: Citi.

During the past days, the market warmed up to the idea of coordinated central bank action around the world, especially after the Reserve Bank of Australia cut the cash rate by 100bps on October 7. Bernanke's talk later that day, however, reduced hope of imminent rate cut by the Fed, although we think a 50bps reduction is still likely at the upcoming policy meeting. The market expects the Bank of England to cut policy rate by 50bps on October 9. This might provide another opportunity for a globally coordinated rate action, although the probability is not high. It is important to recognize that coordinated rate action might temporarily stabilize market sentiment, but would likely not be sufficient to stop market deterioration.

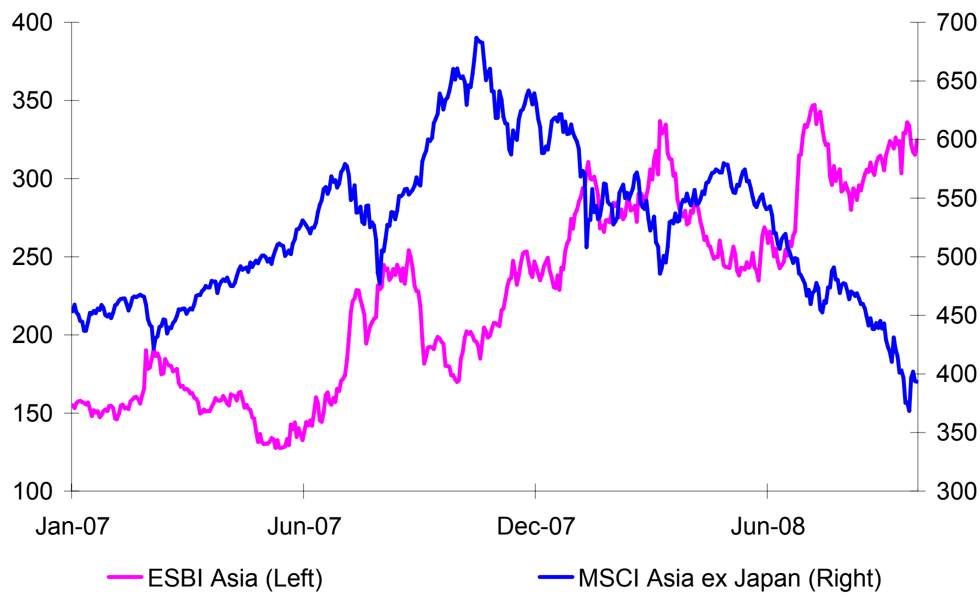
These suggest that underperformance of major industrial economies is likely to drag on for some time. And this is bad news for Asia. **Even though most Asian economies may not fall into negative growth, our current GDP forecasts for these economies now face significant downside risks.**

Asian assets also falling victim to the crisis

In fact, Asian growth has already decelerated quite significantly. Slowdown of the global economy weakened Asian exports. This had visible impact on the region's growth performance given its high dependency on export markets. **Asia's asset markets probably suffered more dearly, as global investors have become more risk averse or are forced to liquidate risky assets.**

Asian equity markets, for instance, have seen cumulative net capital outflows of more than $15bn, compared with net capital inflows of more than $16bn in 2007.[1] As a result, Asian equity prices have declined sharply. Between October 29, 1997 and October 7, 2008, MSCI Asia ex-Japan dropped by 43% (see Figure 2). Meanwhile, Singapore's Strait Times Index and the H-shares Index fell by 40% from a year ago. The Hang Seng Index and Taiwan Index declined by 30-35%. The Shanghai A-shares Index tumbled by a stunning 60%!

Figure 2. Asian Equity Price Index and Bond Spreads



Source: CEIC Data Company, Factset and Citi estimates.

During the past month, Asian currencies also reversed their strengthening trends. Compared to a year ago, the Korean won depreciated by 31% against the dollar and the India rupee weakened by 18%. Even the Chinese yuan declined against the dollar lately, although it is still up by 10% from a year ago due to the rapid appreciation earlier.

Regardless of the future path of the financial crisis in the U.S., global economic and market conditions are likely to change. The world will probably no longer be the same as the one of the past decade:

- Global imbalances are likely to unwind quickly;
- Global liquidity conditions will probably become a lot tighter; and
- Global asset inflation should slow dramatically.

These changes in the global markets will have significant implications for Asia. In a way, Asia is the mirror image of the US during the past decade – Asia's external

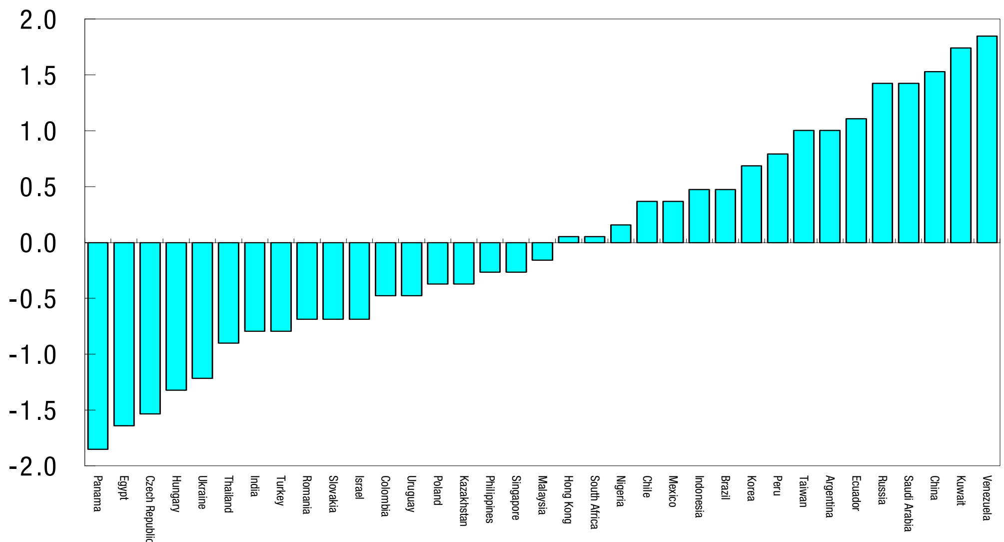
[1] Elaine Chu, "Fun With Flows — Still Seeing Outflows from Asian Equity Funds", October 7, 2008.

surpluses accompanied America's deficits, while Asia's export growth parallel America's consumption boom. Asian economies and markets, therefore, are likely to face greater risks and uncertainties.

Citi's Emerging Markets Vulnerability Index

In this note, we apply three measures to gauge Asia's vulnerabilities. The first measure, the Citi External Vulnerability Index, is an aggregate indicator of individual economies' internal and external vulnerability, consisting of inflation, fiscal balances, public debt-to-GDP ratios, current account balances, net international reserves to short-term debt, trade as a share of GDP, and FDI as a share of GDP. In essence, the Citi External Vulnerability Index indicates an individual economy's ability to withstand an unstable external environment at the aggregate level (see Figure 3).

Figure 3. Citi External Vulnerability Index, September 2008



Note: The index is a ranking of internal and external cyclical and structural measures: inflation, fiscal balances, public debt-to-GDP ratios, current account balances, net international reserves to short-term debt, trade as a share of GDP, and FDI as a share of GDP. For each indicator, we split the range between the minimum and maximum into ten levels, assigning numbers from -5 to +5, with negative numbers associated with more international exposure or greater vulnerability. The numbers are summed and then normalized to give the overall score.
Source: Citi; Don Hanna, Emerging World, 26 September 2006.

According to this Index, Asian economies are actually pretty diverse in terms of external vulnerability**. China and Taiwan look the most resilient, Thailand and India appear the most vulnerable**, and the Philippines, Singapore, Malaysia, Hong Kong, and Korea sit somewhere in between. These should provide important investment guidelines should a global recession and financial crisis drag on.

Measuring risks of external financial flows

At the moment, however, the most relevant risks for Asian economies and markets are liquidity problems. Following the policies in major global economies, central banks of China, Hong Kong, Taiwan, Korea and India all acted to either ease liquidity controls or to inject liquidity into the system. But these are not likely to inoculate Asian economies from the financial flow risks. Here we apply two measures to gauge two types of risks to financial flows: the first relates to the risk of a sudden stop of financial flows, and the second is about the risk of a sudden reversal of financial flows (capital flight).

The risk of a sudden stop of financial flows is measured by the size of a country's external financing requirements relative to its foreign exchange reserves. The more a country depends on capital inflows, the more risky it becomes when those capital inflows dry up. We calculate this indicator by: (1) adding up a country's current account deficit and its required repayment of debt principals over the next 12 months; and (2) dividing that number by the existing stock of foreign exchange reserves (see Figure 4).[2]

Figure 4. Risk of Sudden Stop of Financial Flows – External Financing Relative to Total FX Reserves (US Dollars in Millions, %)

	Current Account Deficit (2008E)	Repayment of Debt Principals (2008E)	Total External Financing (2008E)	Total FX reserves* (as of mid 2008)	Vulnerability Indicator (%)
Korea	8,000	222,300	230,300	242,215	95
Vietnam	15,169	NA	15,169	23,872	64
India	50,153	13,612	63,765	307,219	21
Indonesia	-6,409	13,683	7,274	57,019	13
Philippines	-422	4,986	4,564	37,093	12
Thailand	-5,601	5,087	-514	117,050	0
Taiwan	-28,184	12,446	-15,738	282,087	-6
Singapore	-23,483	NA	-23,483	252,180	-9
Hong Kong	-24,463	NA	-24,463	158,100	-15
China	-362,804	19,315	-343,489	1,808,828	-19
Malaysia	-38,547	5,141	-33,406	136,543	-24

Source: CEIC Data Company, Haver Analytics, IIF and Citi estimates.

* Note: Total FX reserves includes FX reserves and forward book. Forward book data available for India, Malaysia, Korea, Philippines, Singapore and Thailand

According to our measure of the risk of a sudden stop of financial flows, Korea and Vietnam face the greatest risks among Asian economies. Korea's challenge arises mainly from external debt, while Vietnam's problem is associated with current account deficits. These two economies already suffered the heaviest hits during the past few months. The Korean won has been the weakest currency, while Vietnam barely escaped a financial crisis.

India, Indonesia and the Philippines also appear to be quite vulnerable, while Malaysia, China, Hong Kong and Singapore look the most resilient in face of a sudden stop of financial flows. In fact, Taiwan, Singapore, Hong Kong, China and Malaysia are all net financiers.

The risk of a sudden reversal of financial flows (capital flight) is measured by the size of mobile capital relative to foreign exchange reserves. The size of mobile capital is represented by the sum of short-term foreign currency debts and foreign holdings of stocks and local currency bonds. Again, we calculate the indicator by: (1) adding up a country's stocks and local bonds held by foreign

[2] Calculation of this indicator follows an earlier exercise by our London-based colleague David P. Lubin for CEEMEA economies, see "External Vulnerability in CEEMEA: How fast can capital inflows reverse?", 2 April 2008.

investors and short-term debts; and (2) dividing that number by the existing stock of foreign exchange reserves (see Figure 5).[3]

Here, Indonesia and Korea stand out from the crowd as the most vulnerable economies in the case of a sudden reversal of financial flows. In Korea, the risk is mainly associated with short-term borrowing, while in Indonesia, it is mainly related to foreign holdings of Indonesian stocks. These countries are followed by the Philippines, Taiwan and Malaysia. Should the US financial crisis continue to deteriorate, currencies of these economies could suffer seriously. Meanwhile, China and Vietnam look relatively safer, as they rely a lot less on external mobile capital than their neighbors.

Figure 5. Risk of Sudden Reversal of Financial Flows – Mobile Capital Relative to Total FX Reserves (US Dollars in Millions, %)

	Short-Term Debt	Foreign Holding of Stocks	Foreign Holding of Local Bonds	External Mobile Capital	Total FX reserves* (as of mid 2008)	Vulnerability Indicator (%)
Indonesia	39,054	79,000	17,000	135,054	57,019	237
Korea	260,446	194,000	49,900	504,346	242,215	208
Philippines	17,497	18,500	0	35,997	37,093	97
Taiwan	85,223	162,000	1,480	248,703	282,087	88
Malaysia	25,427	39,000	32,100	96,527	136,543	71
India	36,617	140,000	5,000	181,617	307,219	59
Thailand	26,363	35,000	1,500	62,863	117,050	54
Vietnam	2,000	6,000		8,000	23,872	34
China	269,572	20,000		289,572	1,808,828	16
Singapore	NA	NA	NA	NA	252,180	NA
Hong Kong	NA	NA	NA	NA	158,100	NA

Source: CEIC Data Company, Haver Analytics, IIF and Citi estimates.

* Note: Total FX reserves includes FX reserves and forward book. Forward book data available for India, Malaysia, Korea, Philippines, Singapore and Thailand

Comparing the above two measures, we find that in general, a sudden reversal of financial flows could have far greater impact on Asian economies than a sudden stop of flows. Taking a simple average of the two rankings, we find that China and Malaysia are exposed to smallest risks. Meanwhile, **Korea, Indonesia, and the Philippines face the greatest risks in terms of financial flows at the aggregate level.**

External flows risks are important for macroeconomic stability. Further intensification of the US financial crisis and tightening of global liquidity would hit the economies of Korea, Indonesia, the Philippines and India the most. Meanwhile, **rising flow risks could also add greater pressures on the won, rupiah, peso and rupee in the near term.**

[3] This measure is developed based on some earlier work by our EM Strategist colleague Johanna Chua, see "Market Commentary: Asia – Re-assessing External Vulnerability", September 4, 2008.

Disclosure Appendix

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