Special Feature B

Revisiting the US-Asia Decoupling Hypothesis

Introduction

Near-term growth prospects for the US economy have weakened in recent months, in line with the ongoing correction in the housing market. Moreover, financial and credit conditions have tightened, potentially compounding the slowdown in the housing sector and extending it to the broader economy. Analysts now expect US GDP growth to slow from 2.9% in 2006 to a sub-trend pace of 2% this year and 2.4% next year.[1]

In the light of these developments, and the historical importance of the US economy to Asian growth, this Special Feature re-examines the US-Asia "decoupling" hypothesis, which postulates that Asia's[2] growth cycle is now less dependent on the US. Proponents of this view argue that, compared to the 1990s, Asian economies now have more diversified export markets. They also point to more robust domestic and intra-regional growth drivers that are independent of the US and other developed economies.

This Special Feature will emphasise the important distinction between short-run and long-run influences when assessing the relevance of the decoupling hypothesis.

In particular, we find that the long-run elasticity of regional goods exports to changes in US personal consumption expenditure remains relatively high. These findings are more in line with previous studies looking at intra-regional and extra-regional trade flows which suggest that final demand in the US and other developed economies continues to have a large impact on Asian exports and overall output.

In comparison, there might be scope for *weaker synchronisation* over a shorter horizon. In the event of a soft landing in the US economy, other regions of the world may provide some short-term buffer to Asian growth, and there appears to be some scope for domestic demand in the region to shore up economic activity. Asian growth may, therefore, be supported by these factors during a contained US downturn, but the region will not be able to escape the effects of a full-blown US recession.

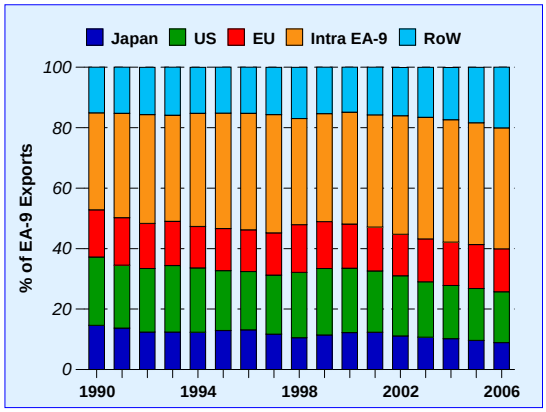
[1] Consensus Economics, Inc., October 2007.

[2] Asia refers to China, Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, Thailand and the Philippines.

Decoupling in the Long Run

For decoupling to be true as a long-run phenomenon, Asia needs well-diversified export markets, specifically markets that are clearly distinct from the US. While the share of Asia's exports to developed economies (the G3) has indeed been on the decline in recent years, the US remains one of the largest export markets for most of the Asian economies. (Chart 1) *A priori*, this may lead one to conclude that Asia is diversifying away from the US and the G3.

Chart 1
Shares of Asia's Export Markets



Source: IMF, Direction of Trade Statistics; CEIC

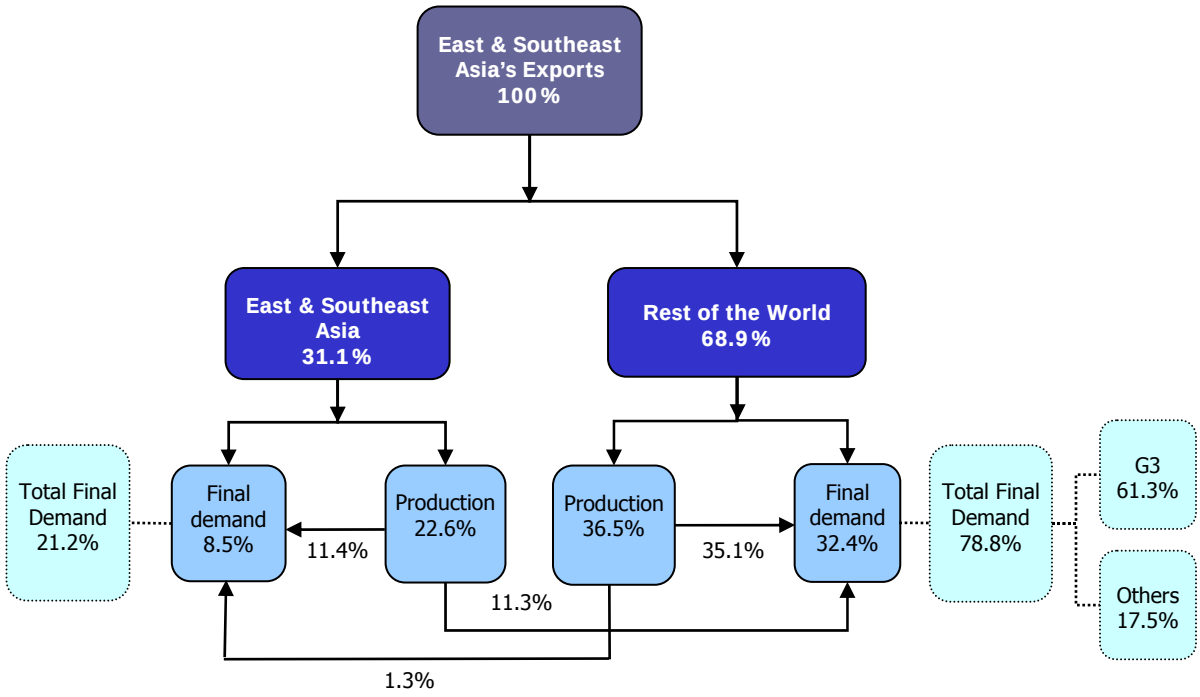
Final Demand for Asian Exports

To examine this issue more carefully, it is useful to disaggregate Asian exports into three major components: final goods that are directly consumed within the region; intermediate goods that are processed within the region for export either within or outside Asia; and final goods that are directly exported out of the region. This is necessary because Asian economies are increasingly specialising in the intermediate stages of the production chain, with the final assembly into final goods done in China. These final goods are then shipped to their destination markets within and outside the region, including to the G3. With China as the end node, most Asian economies now ship less goods to the US directly, although intra-regional shipments of intermediate goods continue to rise.

By examining within-country production structures and bilateral trade patterns between the region and its final markets, the Asian Development Bank (2007) found that while the G3 accounted for less than half of Asia's total exports, 61.3% of regional exports were still ultimately consumed in developed economies (Figure 1).[3] The declining share of US-bound exports can thus be partly explained by changes in Asian production structures, and is not sufficiently indicative of more diversified final export markets *per se*.

[3] The ADB methodology is similar to an earlier estimation framework used by EPD, MAS. (Please refer to the January 2003 issue of the *Review*).

Figure 1
Asia's Export Destinations



Source: ADB (2007). Data calculated from Global Trade Analysis Project v6.2, which corresponds to the state of the economies as at 2001.

Asia's Capacity to Absorb Regional Exports

A closely related issue concerns whether demand from within Asia itself can substitute for weaker export demand from the US. Figure 1 demonstrates that Asia's absorption capacity remains weak, at slightly over a fifth of its exports. This issue was examined more closely by Meng *et al.* (2006), who compared the 1995 and 2000 data from the *Asian International Input-Output Tables*. Indonesia aside, they found that final demand from the US is still more important to each Asian country's total output than demand from other ex-Japan Asian economies combined. (Table 1, columns 4 and 1)

With few exceptions, countries within the region have generally become more important to each other, with China's final demand for regional output rising over the period for all Asian countries. (Table 1, columns 1 and 2) At the same time, however, US final demand has remained as important or become more so for several economies. Indeed, the US contribution remains large in Malaysia, Singapore, and Taiwan, although it has declined as compared to 1995. Demand in Asia thus appears insufficient to take up the slack from weaker final demand in the US.

Table 1
Contribution Rate of Final Demand in X to Output in Y (% of Total Output in Y)

Y \ X		1	2	3	4	5	6
		Asia ex-Japan^	of which China	Japan	USA	Rest of the World*	Total External Final Demand
Indonesia	1995	3.0	0.6	4.2	2.9	9.3	19.4
	2000	6.1	1.7	7.3	5.4	15.8	34.6
Malaysia	1995	9.4	1.6	6.8	13.7	29.8	59.7
	2000	10.9	2.6	8.4	13.0	28.9	61.2
Philippines	1995	2.4	0.3	3.2	8.1	13.8	27.5
	2000	3.9	1.1	4.5	10.6	18.0	37.0
Singapore	1995	10.9	1.6	4.5	12.2	37.9	65.5
	2000	7.8	1.9	2.7	8.0	42.8	61.3
Thailand	1995	3.6	0.7	4.1	5.3	19.0	32.0
	2000	4.7	1.4	4.6	7.2	22.8	39.3
China	1995	1.6	79.2	3.7	3.2	12.3	20.8
	2000	1.4	78.6	3.1	5.2	11.7	21.4
Taiwan	1995	5.0	1.5	3.8	7.5	22.4	38.7
	2000	5.6	3.6	3.1	7.2	19.5	35.4
Korea	1995	3.6	1.4	2.8	4.3	14.6	25.3
	2000	3.7	2.1	2.3	4.7	15.3	26.0

Adapted from Meng *et al.* (2006)
^ excludes the originator economy on the leftmost column
* excludes the economies listed on the leftmost column

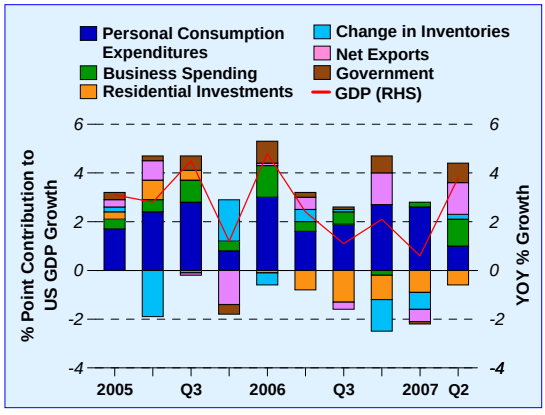
Weaker Synchronisation in the Short Run

In the short term however, the impact of a US slowdown on Asia might be less severe, and dependant on three factors: the contained nature and extent of the current US slowdown; Europe's and Japan's ability to provide temporary offsetting demand for Asian exports; and relatively stronger domestic demand in the region.

Nature and Extent of Current US Slowdown

In this current cycle, US economic activity has slowed owing, in part, to a substantial correction in the housing market. (Chart 2) Looking at five-year rolling correlations, we find that the relationship between Asian exports and overall US activity (as proxied by the US coincident indicator) has fallen sharply since the beginning of the year. This is consistent with the observation that Asian exports generally do not feed into the US homebuilding process, and are thus unlikely to be hit by a housing-led US slowdown. In contrast, the mild US recession in 2001 resulted in a protracted period

Chart 2
Contribution to US GDP Growth

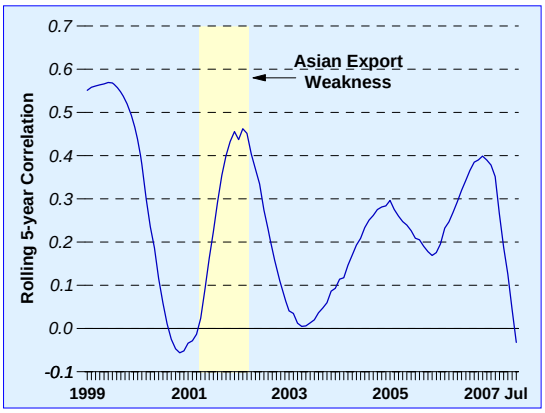


Source: US Bureau of Economic Analysis

of negative export growth for Asia[4], and correlations with correlations with US economic activity rose sharply over the period. (Chart 3)

This shows that the dynamics between US growth and Asian exports are quite different during a US recession as compared to a mild slowdown. Table 2 highlights the largest percentage point deviations of US GDP growth from the business cycle peak during periods of recessions.[5] On average, US GDP growth drops by 3.4% points from its peak over the course of all recessions since 1965. The maximum deviations in Asian export growth rates are also tabulated. Although the effects of improved supply management and leaner inventories may have dampened the business cycle and reduced the length of recessions in recent years, regional exports are still likely to slow significantly in the event of a severe US recession. Notably, short recessions are not necessarily less painful for Asia than long-drawn-out ones. The record since 1965 shows that while the shortest three recessions lasted an average of seven months each, Asian export growth rates fell by 35% points from the business cycle peak.

Chart 3
Rolling 5-year Correlation between Asian Exports and US Coincident Indicator (3-month lag)



Source: CEIC; MSD, MAS estimates

Table 2
Deviations in US GDP Growth and Asian Export Growth During US Recessions since 1965

	% Point Deviation from Growth Recorded at US Business Cycle Peak	
	GDP	Asian Exports
Average of all recessions since 1965	-3.4	-24.2
Average of all recessions excluding 2001	-3.7	-30.6
Average of past 2 recessions (1990 & 2001)	-1.4	-3.8
Largest single deviation within the 3 longest recessions (lasting an average of 14 months each)	-5.1	-39.4
Largest single deviation within the 3 shortest recessions (lasting an average of 7 months each)	-7.2	-35.7

Source: NBER; CEIC; MSD, MAS estimates

[4] Export data is taken from seven Asian countries, namely Hong Kong, Korea, Singapore, Indonesia, Malaysia, Thailand and the Philippines. Data from China prior to 1981 and Taiwan prior to 1987 are not available.

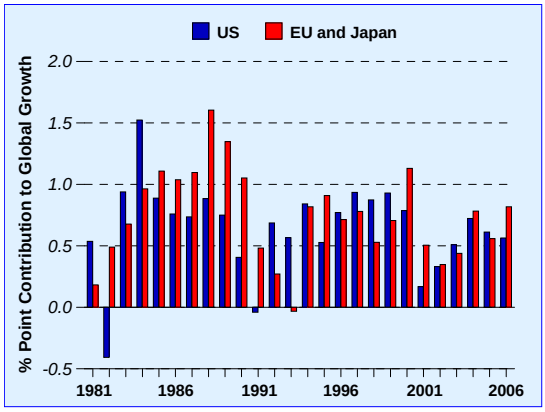
[5] The NBER defines a recession as a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production and wholesale-retail sales.

Offsetting Support from the EU and Japan

In the current cycle, the EU and Japan have contributed an equivalent, or larger share of global growth than the US. (Chart 4) It follows that, in the short run, Asia's exports to the EU or Japan should hold up during a US slowdown if GDP growth between the US and the EU and Japan is now more weakly correlated.

We examine this issue by extracting the cyclical components of European and Japanese growth using the Hodrick-Prescott (HP) filter. Pairwise correlations show that the EU would be a poor substitute for the US, since the cyclical fluctuations in its GDP are significantly correlated with the US. (Table 3) This result is strengthened by Granger causality tests which show that the null hypotheses that the US and the EU **do not** Granger-cause one another cannot be rejected at the 5% probability level. (Table 4) Growth in the EU could either slow with weaker US growth, or itself be the cause of slower economic activity in the US. Japan, in comparison, appears to be a stronger candidate as a substitute market for Asian exports.

Chart 4
Contribution to Global Growth



Source: IMF WEO

Table 3
Correlation in Cyclical Components of GDP

	Correlation	Student's t-stat
US-JP	0.03	0.244
US-EU	0.41	3.125

Source: CEIC; MSD, MAS estimates

Table 4
Granger Causality Tests

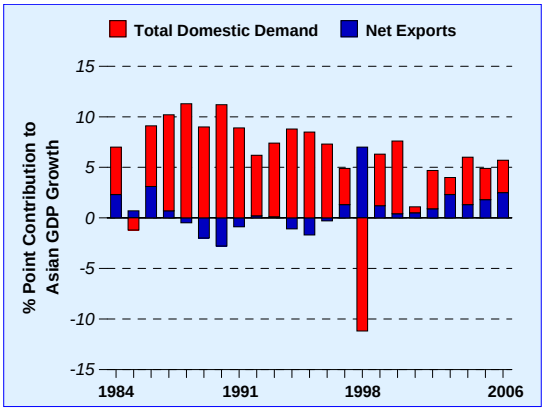
Lags	Null Hypothesis F-Stats			
	US does not Granger cause EU	EU does not Granger cause US	US does not Granger cause JP	JP does not Granger cause US
1	22.29*	11.04*	0.35	0.26
2	4.68*	9.76*	0.92	1.20
3	2.26	3.84*	0.99	0.59
4	1.24	2.97*	0.69	1.43

* Statistically significant at 5% level
Source: MSD, MAS estimates

Temporary Offsetting Support from Asian Demand

After declining sharply during the Asian Financial Crisis, domestic demand in the region now accounts for a larger share of GDP growth than net exports. (Chart 5a) While the recovery in domestic demand is in place, it has occurred at a diminished pace relative to its historical record. (Chart 5b) The contribution of private consumption to GDP growth has stabilised at lower levels than previously, while the investment recovery is still in its early stages. As a share of GDP, both components of domestic demand are still below their 1996 levels, with fixed investments still nearly 10% points lower. (Chart 6)

Chart 5a
Contribution of Net Exports and Domestic Demand to Asian GDP Growth



Source: CEIC
Note: Excludes China, which only provides expenditure-side breakdown on a nominal basis

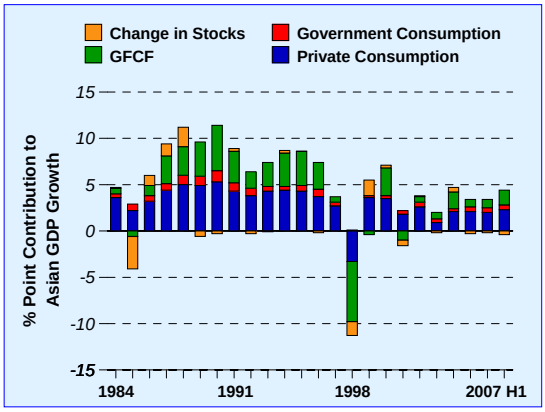
Yet, the outlook for Asian domestic demand appears fairly bright. The excess capacity that came about with over-investment in the pre-Crisis years and in 2001 has largely been worked off, or has become obsolete, necessitating new investment. Activity in regional property markets has also increased, and home and office construction has picked up in line with improved consumer and business confidence.

Should domestic demand recover more quickly, there could be important cyclical buffers for regional growth in the event of a temporary US slowdown.

Closer Financial "Coupling"

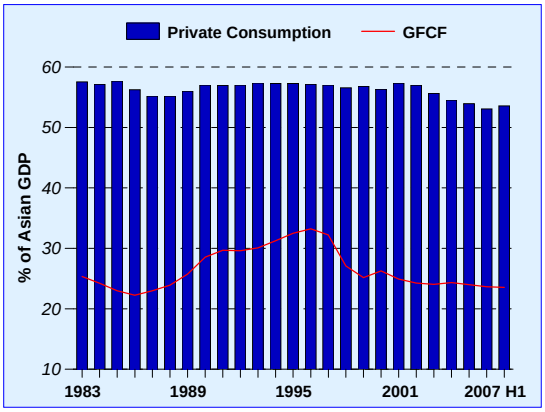
At this point, however, it is worthwhile noting that nearly all the region's financial markets have become increasingly correlated with those in the US. (Table 5) This could be the result of financial globalisation, and it provides another channel through which shocks in the US could be transmitted to the Asian economies in the short term. Funke (2002) examines the hypothesis that stock market developments impact private consumption in 16 emerging economies (including eight in Asia). Stock market changes are found to have a small but statistically significant impact on household spending, and the sensitivity of the latter to the former appears to have increased in the post-Asian Financial Crisis period. Asian stock markets and consumption thus remain "coupled" to US financial markets.

Chart 5b
Contribution of Components of Domestic Demand to Asian GDP Growth



Source: CEIC
Note: Excludes China, which only provides expenditure-side breakdown on a nominal basis

Chart 6
Asian Private Consumption and GFCF



Source: CEIC

Table 5
Pairwise Correlation of Asian Stock Market Indices with the US Dow Jones Industrial Index

	Pre-Crisis (1990-1996)	Post-Crisis (1999-2007)
China	0.42	0.64
Hong Kong	0.90	0.92
Korea	0.46	0.78
Taiwan	-0.11	0.72
Singapore	0.81	0.92
Indonesia	0.52	0.79
Malaysia	0.84	0.80
Philippines	0.48	0.87
Thailand	0.56	0.54

Source: CEIC; MSD, MAS estimates
Note: US DJIA returns are lagged by one day

Econometric Evidence

As a final overall test of the structural decoupling hypothesis, we estimate the long-run response (elasticity) of Asia's goods exports (*exports*) in response to a change in US personal consumption expenditures on goods (*uspce*) using monthly data from 1994 to 2007. The equation is specified in (1) below, and controls for exchange rates (*exchange*) and lagged values of Asian *exports* and *uspce*.[6]

$$log(exports)_t = a_0 + a_1 log(exports)_{t-1} + a_2 log(uspce)_t + a_3 log(uspce)_{t-1} + a_4\, log(exchange)_{j,t} + \xi_t \qquad (1)$$

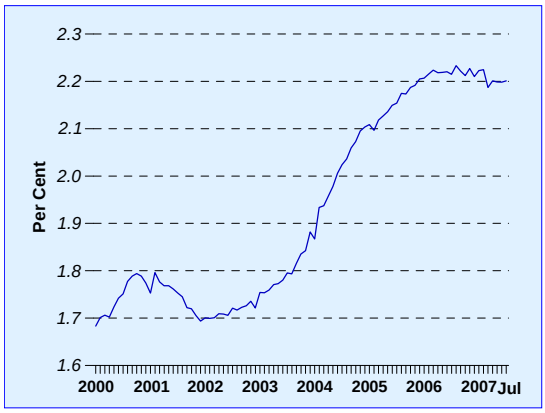
The equation is run over a five-year rolling window, and the coefficient estimates at the end period in each window were extracted. (Chart 7) The results of the full-sample OLS estimation are summarised in Table 6.

The long-run elasticity (LRE) for each window is calculated as per equation (2):

$$LRE = (a_2 + a_3)/(1 - a_1) \qquad (2)$$

From our estimates, every 1% change in US PCE results in a 2.2% change in Asian exports. This does not suggest that Asia has structurally decoupled or de-linked from the US.

Chart 7
Long-run Elasticity of Asian Exports with Respect to US Personal Consumption Expenditures



Source: MSD, MAS estimates

Table 6
Coefficient Estimates

Dependent Variable	Coefficient	t-stat
EXPORTS(-1)***	0.732	16.85
USPCE	0.023	0.10
USPCE(-1)**	0.565	2.21
SGPDOLLAR***	-0.453	-5.99
CHNRMB***	-0.080	-4.04
Adjusted R-squared	0.996	
Std Error	0.030	
Durbin Watson	2.510	

*** and ** represent significance at the 1% and 5% levels respectively.

Sum-up

This Special Feature has looked again at the Asian decoupling hypothesis. We find little evidence of structural decoupling so far, and a better description of the current economic environment is that the US and Asia remain firmly coupled in the long run, but are experiencing weaker synchronisation in the short run owing to a number of moderating factors. These include the modest nature of the slowdown in the US economy thus far, which has been largely confined to housing-related sectors, and the fact that Asia's short-term growth trajectory has been buffered by a recovery in domestic demand. In the event of a severe recession in the US, however, it is unlikely that Asian exports and growth will be unaffected.

[6] We originally included a number of other Asian currencies but found them to be statistically insignificant.

Indeed, as Asian financial markets appear to be even more closely correlated with those in the US than before, any further fallout from the ongoing financial and credit market turmoil could be transmitted rapidly to the region.

References

Asian Development Bank (2007), "Uncoupling Asia: Myth and Reality", *Asian Development Outlook 2007,* pp. 66-81.

Funke, N (2002), "Stock Market Developments and Private Consumer Spending in Emerging Markets", *IMF Working Paper* No. 02/238, International Monetary Fund.

Institute of Developing Economies (2006), *Asian International Input-Output Table 2000*, Japan External Trade Organisation.

Institute of Developing Economies (2001), *Asian International Input-Output Table 1995*, Japan External Trade Organisation.

Meng, B, Sato, H, Nakamura, J, Okamoto, N, Kuwamori, H, Inomata, S (2006), "Interindustrial Structure in the Asia-Pacific Region: Growth and Integration, by Using 2000 AIO Table" *Discussion Paper* No. 50, Institute of Developing Economies, Japan External Trade Organisation.

Monetary Authority of Singapore (2003), *Macroeconomic Review*, Vol II Issue 1, pp. 60-70.

National Bureau of Economic Research (2003)*, Business Cycle Expansions and Contractions.*