

Lee, Minsoo; Park, Donghyun; Abdon, Arnelyn; Estrada, Gemma

Working Paper

Economic Impact of Eurozone Sovereign Debt Crisis on Developing Asia

ADB Economics Working Paper Series, No. 336

Provided in Cooperation with:

Asian Development Bank (ADB), Manila

Suggested Citation: Lee, Minsoo; Park, Donghyun; Abdon, Arnelyn; Estrada, Gemma (2013) : Economic Impact of Eurozone Sovereign Debt Crisis on Developing Asia, ADB Economics Working Paper Series, No. 336, Asian Development Bank (ADB), Manila, <https://hdl.handle.net/11540/2338>

This Version is available at:

<https://hdl.handle.net/10419/109446>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

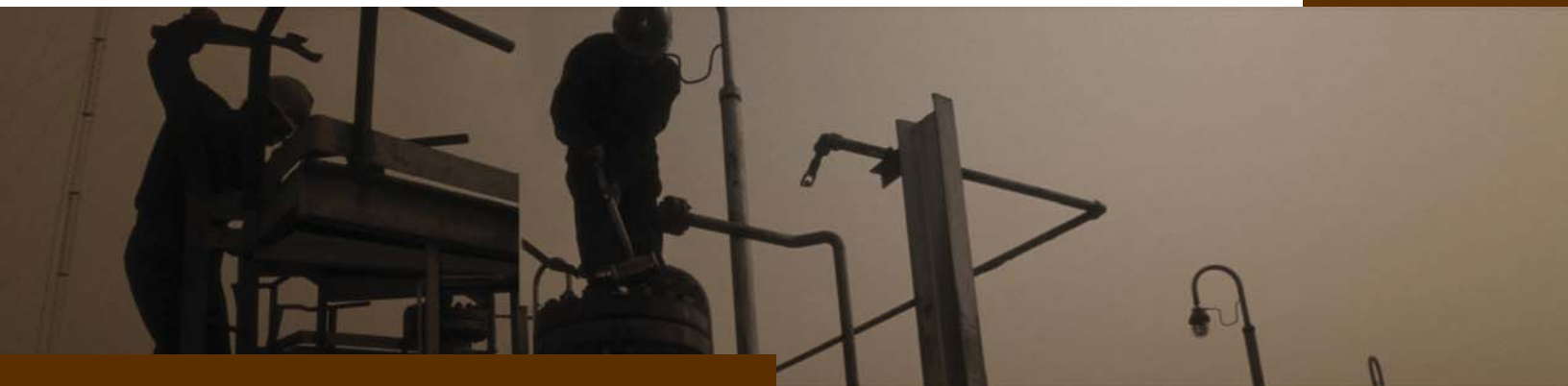
You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<http://creativecommons.org/licenses/by/3.0/igo>

ADB Economics Working Paper Series



Economic Impact of Eurozone Sovereign Debt Crisis on Developing Asia

Minsoo Lee, Donghyun Park, Arnelyn Abdon, and Gemma Estrada
No. 336 | January 2013

Asian Development Bank



ADB Economics Working Paper Series

Economic Impact of Eurozone Sovereign Debt Crisis on Developing Asia

Minsoo Lee, Donghyun Park, Arnelyn Abdon,
and Gemma Estrada

No. 336 January 2013

Minsoo Lee is Senior Economist, Donghyun Park is
Principal Economist, Arnelyn Abdon is Economics
Officer, and Gemma Estrada is Economics Officer at the
Macroeconomics and Finance Research Division,
Economics and Research Department.

Asian Development Bank

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org

© 2013 by Asian Development Bank
January 2013
ISSN 1655-5252
Publication Stock No. WPS135468

The views expressed in this paper are those of the author and do not necessarily reflect the views and policies of the Asian Development Bank (ADB) or its Board of Governors or the governments they represent.

ADB does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use.

By making any designation of or reference to a particular territory or geographic area, or by using the term “country” in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

Note: In this publication, “\$” refers to US dollars.

The ADB Economics Working Paper Series is a forum for stimulating discussion and eliciting feedback on ongoing and recently completed research and policy studies undertaken by the Asian Development Bank (ADB) staff, consultants, or resource persons. The series deals with key economic and development problems, particularly those facing the Asia and Pacific region; as well as conceptual, analytical, or methodological issues relating to project/program economic analysis, and statistical data and measurement. The series aims to enhance the knowledge on Asia’s development and policy challenges; strengthen analytical rigor and quality of ADB’s country partnership strategies, and its subregional and country operations; and improve the quality and availability of statistical data and development indicators for monitoring development effectiveness.

The ADB Economics Working Paper Series is a quick-disseminating, informal publication whose titles could subsequently be revised for publication as articles in professional journals or chapters in books. The series is maintained by the Economics and Research Department.

CONTENTS

ABSTRACT	V
I. INTRODUCTION	1
II. TRADE CHANNEL: IMPACT OF EURO CRISIS ON ASIAN EXPORTS AND GROWTH	2
III. FINANCIAL CHANNEL: IMPACT OF EURO CRISIS ON ASIA'S FINANCIAL SYSTEM	11
A. Impact of Euro Crisis on Asia's Equity and Bond Markets	12
B. Impact of Euro Crisis on Asia's Banking Sector	16
C. Developing Asia's Exposure to Eurozone Lending	17
D. Impact of Bank Borrowings from Eurozone on Asia's Private Credit Growth— An Econometric Analysis	20
IV. DEVELOPING ASIA'S POLICY SPACE TO COPE WITH THE EURO CRISIS	21
V. CONCLUDING OBSERVATIONS AND POLICY IMPLICATIONS	25
REFERENCES	27

ABSTRACT

The European Union (EU) has traditionally been an important economic partner for Asia. In addition to absorbing a significant share of the region's exports, the EU has been a major source of foreign direct investment and other capital flows into the region. In light of such close economic linkages between the EU and Asia, the euro crisis will undoubtedly influence Asia's short-term macroeconomic outlook. The key question, however, is how big the impact will be. This paper tries to answer this by examining both the trade and financial channels of crisis transmission. The impact on developing Asia will fall primarily on trade but there are also significant effects on the region's financial systems, especially its banking sector. However, overall, the magnitude of the shock from the euro crisis will be significantly smaller than the shock from the global crisis. A further cause for guarded optimism is that developing Asia still has relatively ample policy space to cushion a major external shock.

Keywords: euro crisis, developing Asia, financial channel, international trade, equity and bonds market

JEL Codes: E44, F15, F34

I. INTRODUCTION

Notwithstanding developing Asia's (henceforth Asia) growing weight and stature in the world economy, it is premature to talk of the region's decoupling from the advanced economies. The 2008–2009 global financial and economic crisis gave a vivid reminder of Asia's continued vulnerability to the G3—the United States (US), the European Union (EU), and Japan—business cycle. Despite the negligible exposure of the region's banking system to subprime assets, the crisis hit the region hard through the trade channel. The adverse impact of the crisis on the region peaked during fourth quarter of 2008 and first quarter of 2009, when a collapse of exports triggered widespread fears about a deep and protracted recession. Bold and decisive countercyclical macroeconomic policy, in particular big fiscal stimulus packages which were quickly implemented, staved off recession and laid the foundation for a robust V-shaped recovery. The budding recovery gained full momentum when world economy and trade stabilized and normalized.

Just a few years after the global crisis, Asia now faces another major threat to its growth from the G3, this time from Europe. More specifically, the sovereign debt crisis afflicting Greece and other eurozone economies (henceforth euro crisis) is the single biggest downside risk to the current global outlook. From Asia's viewpoint, both the 2008–2009 global crisis and the on-going euro crisis represent external shocks originating from large economies outside the region. On the other hand, there are some key differences between the two crises. The euro crisis is essentially a fiscal crisis associated with governments borrowing too much and taking on unsustainable levels of debt. In contrast, the global crisis was a banking crisis resulting from banks lending too much money to borrowers with poor credit histories. The euro crisis is a public sector crisis whereas the global crisis was a private sector crisis. In terms of impact on Asia, the single most significant difference between the two is that the euro crisis is, so far, limited to the eurozone whereas the global crisis was a synchronized G3 crisis that spread from its US epicenter to the EU and Japan. The simultaneous recession in the G3 had a predictably marked adverse impact on the global outlook.

The impact of the euro crisis on Asia will depend heavily on how the crisis plays out. There remains a great deal of uncertainty about the future evolution of the crisis, notwithstanding the massive injection of liquidity by the European Central Bank (ECB) in late 2011 and early 2012. While the tail risk of the euro crisis morphing into a second global crisis still cannot be ruled out, market consensus seems to be gravitating toward some type of resolution in the near future. That is, the probability of a full-blown contagion infecting US and Japan, and resulting in another synchronized G3 recession, remains relatively small. Therefore, the analysis here will center on a baseline scenario of the euro crisis being largely confined to the eurozone and largely to a recession in the real economy rather than a full-blown financial crisis. The limited exposure of US banks to eurozone periphery government bonds strengthens the case for this baseline scenario. In striking contrast, due to the heavy exposure of EU banks to subprime assets, the US subprime crisis spread like a wildfire across the Atlantic and brought the global financial system, trade, and economy to its heels.

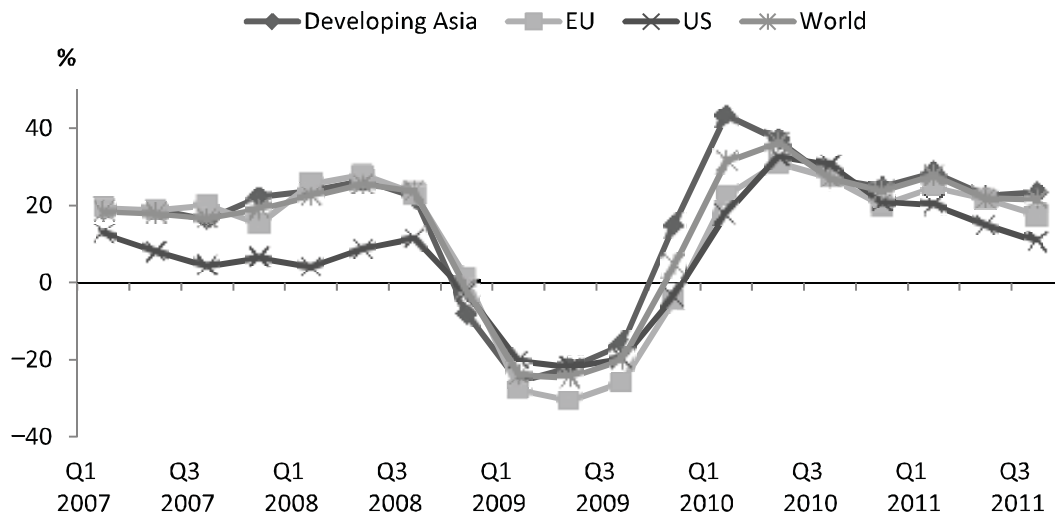
The EU has traditionally been an important economic partner for Asia. In particular, during the region's pursuit of export-oriented industrialization, the high-income economies of Western Europe, along with the US, served as the main markets for the region's exports. Initially, low income levels and purchasing power of Asia and other parts of the developing world limited the scope for exports to markets outside the two regions. Even today, the EU and US play outsized roles as importers of final goods due to their high consumption levels. In addition to

absorbing a significant share of the region's exports, the EU has been a major source of FDI and other capital flows into the region. More recently, mirroring Asia's emergence as a third hub of the world economy as a result of its rapid growth, the region is now an increasingly significant import market and source of investment for the EU.

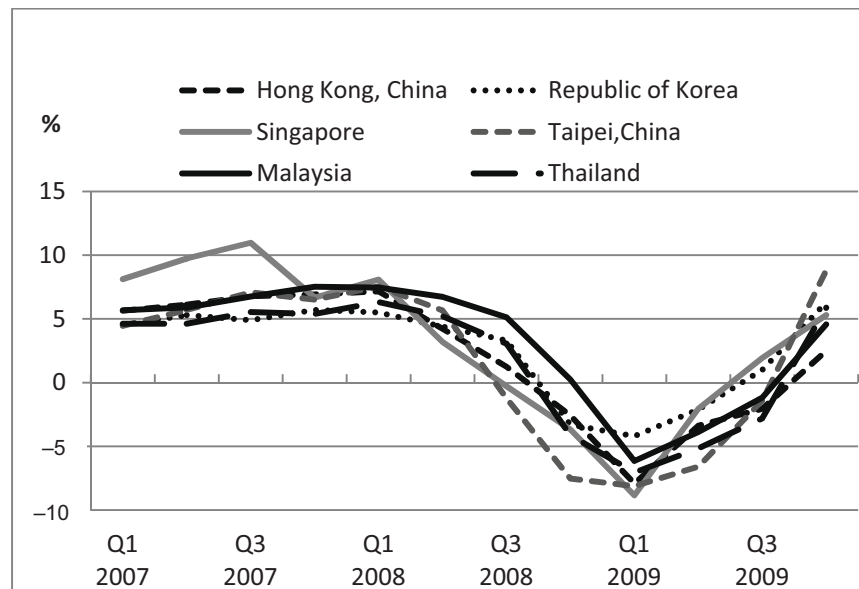
In light of such close trade and, to a lesser extent, financial linkages between the EU and Asia, the euro crisis will undoubtedly influence Asia's short-term macroeconomic outlook. However, the key question is not whether the euro crisis will have an impact on Asia but how big the impact will be. This paper tries to answer this question by examining both the trade and financial channels of crisis transmission. More specifically, it looks at the effect of euro crisis on Asian exports and growth, contagion from EU financial markets to Asian financial markets, and influence of EU bank lending on credit growth in Asia. The paper will also touch upon Asia's policy space to assess how well the region is positioned to weather another major external shock. The paper concludes with an overall assessment of how Asia's short-term economic outlook is affected by the euro crisis.

II. TRADE CHANNEL: IMPACT OF EURO CRISIS ON ASIAN EXPORTS AND GROWTH

Trade is the primary channel through which the euro crisis will be transmitted from the EU to Asia. While there are significant and growing financial linkages between EU and Asia, they pale in comparison to their extensive, well-established trade linkages. The EU has long been a major market for Asian exports. The main impact of the 2008–2009 global crisis fell on Asian exports and growth (Figures 1 and 2), and this will be the case for the euro crisis. While Asia's relative lack of financial integration with the US minimized trans-Pacific financial contagion, the synchronized recession of the advanced economies had a predictably pronounced effect on Asian exports and growth. Similarly, the adverse impact of the euro crisis on the EU's real economy will crimp its appetite for imports from Asia. The EU is now widely expected to contract this year, and this will harm Asian exports and growth. What matters for Asia is the magnitude of the impact. In this context, a key factor is the relative importance of EU market for Asian exporters.

Figure 1: Developing Asia's Exports, Q1 2007–Q3 2011

Source: Authors' calculations based on Direction of Trade Statistics (accessed 27 Jan 2012).

Figure 2: Quarterly GDP Growth, Selected Developing Asian Economies Q1 2007–Q4 2009

Source: CEIC Data Company (accessed 5 March 2012).

There has been a visible shift in Asia's export markets from the Group of 3 (G3)—US, EU, and Japan—to developing countries since 1995. The share of the G3 in Asia's exports fell from about one-half in 1995 to a little more than one-third in 2011. During the same period, there has been a corresponding increase in the share of developing countries. The shift

parallels the sustained shift in the center of gravity of the world economy from advanced economies to developing countries, and has gained further momentum since the global crisis. That crisis originated in the advanced economies, which were consequently hit harder and are recovering more slowly than developing countries. Between 2007 and 2011, the share of the G3 in Asia's exports fell further, with the decline most pronounced for the US, while the shares of Africa and Latin America rose (Table 1). Furthermore, the share of intra-Asian trade rose from 39.9% in 2007 to 42.1% in 2011. Asia's export dependence on EU is much less than Africa and more or less the same as Latin America. Interestingly, the EU has now become a larger export market for Asia than the US. However, the more fundamental trend is that both are declining in relative significance. In and of itself, this suggests that a recession in the US will have a smaller impact on Asian exports and growth than it did in the past.

Table 1: Export Share by Region, 2007 and 2011, % of Total Exports

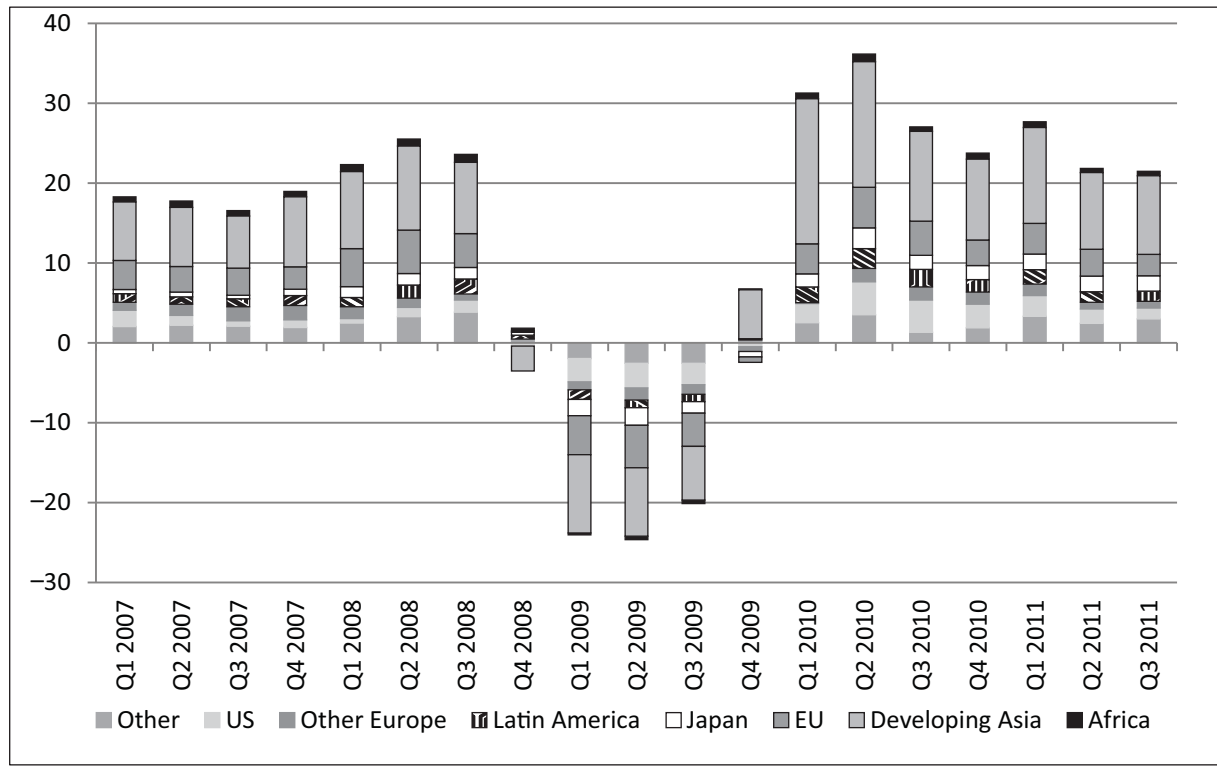
Destination	Exporting Region					
	Africa		Developing Asia		Latin America	
	2007	2011	2007	2011	2007	2011
Africa	8.5	9.5	2.3	2.7	1.6	1.4
Developing Asia	15.1	23.3	39.9	42.1	9.0	15.5
EU 27	37.8	31.2	15.6	14.0	13.4	13.0
Other Europe	3.6	3.2	5.0	4.8	2.5	2.6
Japan	2.7	2.7	7.8	7.3	2.4	2.6
Latin America	3.6	3.9	3.2	4.4	17.3	16.8
US	21.6	17.7	15.2	12.4	44.8	36.8
Other	7.1	8.6	11.1	12.3	9.0	11.3

Note: Data up to September 2011.

Source: Authors' calculations based on Direction of Trade (accessed 23 Jan 2012).

EU = European Union, US = United States.

Besides the relative importance of exports to EU in Asia's total exports, another key indicator in assessing the trade impact of the euro crisis on Asia is the relative importance of the growth of exports to EU in growth of Asia's total exports. A higher contribution of EU to Asia's export growth portends a bigger effect of an EU recession on the region's export and growth momentum. After bottoming out in the fourth quarter of 2008 and first quarter of 2009, Asia's exports grew at a robust pace between late 2009 and early 2010 when global trade normalized. However, since then the region's export growth has slowed down noticeably, reflecting external uncertainties intensified by the euro crisis. Predictably, in light of the post-crisis weakening of its growth, the EU's relative contribution to Asia's export growth has shrunk since the global crisis (Figure 3). Prior to the crisis, the EU accounted for 16.5% of the region's export growth but after the crisis this figure dropped by 4 percentage points to 12.4%. Therefore, not only is the EU declining in importance as an export market for Asia, but also as a source for Asia's export growth. Both are consistent with the relative decline of the EU in the world economy in recent years, especially since the global crisis.

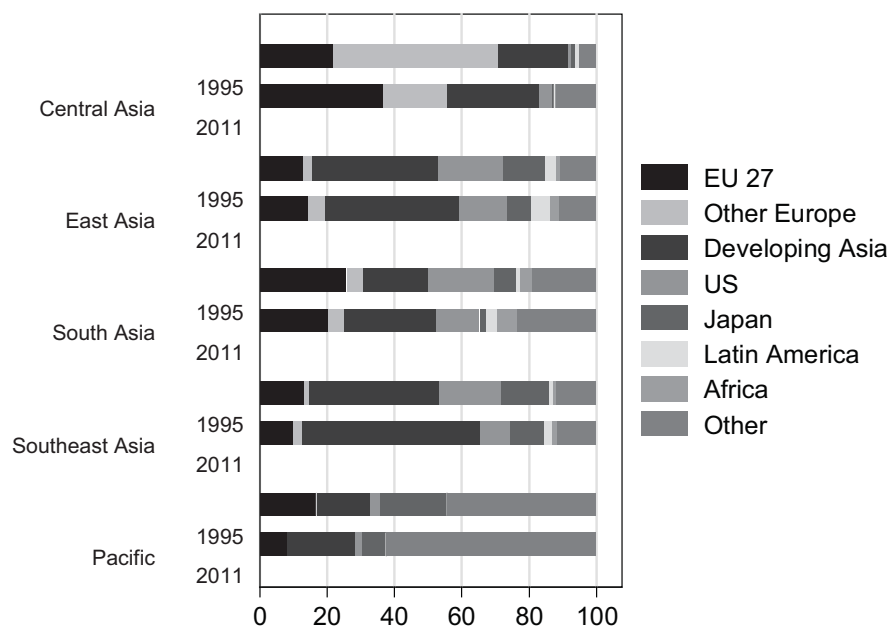
Figure 3: Contributions to Developing Asia's Export Growth

EU = European Union, US = United States.

Note: Data up to September 2011.

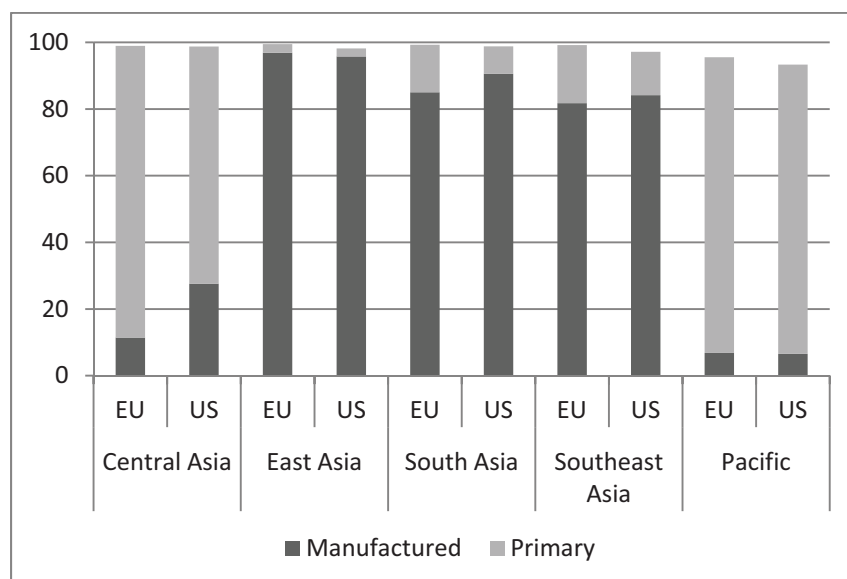
Source: Authors' calculations based on Direction of Trade Statistics (accessed 23 Jan 2012).

The level of trade exposure to Europe varies widely across Asia's subregions and countries. As noted earlier, Asia as a whole is much less exposed to Europe than Africa and has a similar exposure to Latin America. However, this region-wide exposure level contains a great deal of diversity. Therefore, some subregions and countries are more vulnerable to a European downturn than others. In particular, the share of exports to Europe is highest for Central Asia than it is for other subregions (Figure 4). In 2011, Europe took in 56% of Central Asia's exports with the EU absorbing 37% and other European countries absorbing the rest. Between 1995 and 2011, there has been a visible reorientation of Central Asia's exports from the Russian Federation and Eastern Europe to the EU. While the geographic distribution of Central Europe's exports implies that it is the most vulnerable to a euro crisis, the product composition of its exports implies otherwise. This is because the subregion's exports to the EU are primarily commodities, which are less sensitive to the business cycle than manufactured goods. On the other hand, the exports of East and Southeast Asia, Asia's traditional manufacturing hubs, are heavily skewed toward manufactured goods and hence more vulnerable to an EU recession (Figure 5). During the global crisis, highly open exporters of manufactured goods such as the newly industrialized economies, Malaysia, and Thailand were hit harder than other groups of countries.

Figure 4: Export Share by Subregion, % of Total Exports (1995 and 2011)

EU = European Union, US = United States.

Source: Authors' calculations based on Direction of Trade Statistics (date accessed 23 Jan 2011).

Figure 5: Share of Primary and Manufactured Exports to the US and EU, 2005–2010 average (%)

EU = European Union, US = United States.

Source: Authors' calculations based on UN Comtrade database (accessed 27 Jan 2012).

Another indicator of the relative importance of exports to EU in economic performance is the ratio of exports to EU to gross domestic product (GDP). The higher this ratio, the greater the importance of exports to EU in a country's economic performance. Table 2 confirms that the ratio varies greatly across subregions and countries, as it does for geographic distribution and product composition of exports. Table 2 shows exposure to the US for the sake of comparison and includes both direct and total export exposure. Total exposure includes potential re-exports—e.g., Malaysia exports to the People's Republic of China (PRC), which re-exports to the EU. Overall, exposure to EU is higher for East and Southeast Asia than it is for the other subregions. This is plausible since those two subregions export a lot of manufactured goods, much of it to the EU. For developing Asia as a whole, in contrast to the earlier period of 1994–2006 (IMF 2008), export exposure to EU has declined in 2006–2010, lending further support to Asia's declining vulnerability to an EU slowdown.

The impact of the euro crisis on Asia's GDP growth will differ from country to country but the overall impact is likely to be significant but manageable. This is consistent with the overall picture of a declining role of EU in Asia's exports and export growth. In our baseline scenario of a recession which is largely confined to the eurozone, Oxford Economic Forecasting model simulations indicate that 2012 GDP growth for Emerging Asia¹ will drop by a little more than 1%. For individual countries, the impact varies from 0.4% to 2% (Figure 6). Predictably, the negative impact on the region is bigger for two worse case scenarios—a eurozone recession combined with a US recession and a second global crisis. Since Emerging Asia includes the most open Asian countries with the highest degree of exposure to the EU, the impact on the GDP growth of the rest of developing Asia to be smaller. At a broader level, the simulation results point to a moderation rather than derailment of Asia's growth momentum. Finally, the vector autoregression (VAR) model is another empirical avenue for analyzing the potential impact of an EU recession on developing Asia's GDP growth.

The vector autoregression (VAR) model allows to assess the relative contribution of EU's imports, US's imports, and PRC's imports to the GDP of nine countries between Q1 2000 and Q4 2011. We include the PRC in light of its growing importance as an export market for Asian countries although its relative role differs a lot across countries (Figure 7). The nine countries in the sample are Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam. So, for example, we can use the VAR model to estimate the relative role of EU's imports from Malaysia—i.e., Malaysia's exports to EU—in Malaysia's GDP. The VAR model includes the following four variables: Malaysia's real GDP, EU's real imports from Malaysia, US's real imports from Malaysia, and the PRC's real imports from Malaysia.

¹ Emerging Asia includes the People's Republic of China; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei, China; Thailand; and Viet Nam.

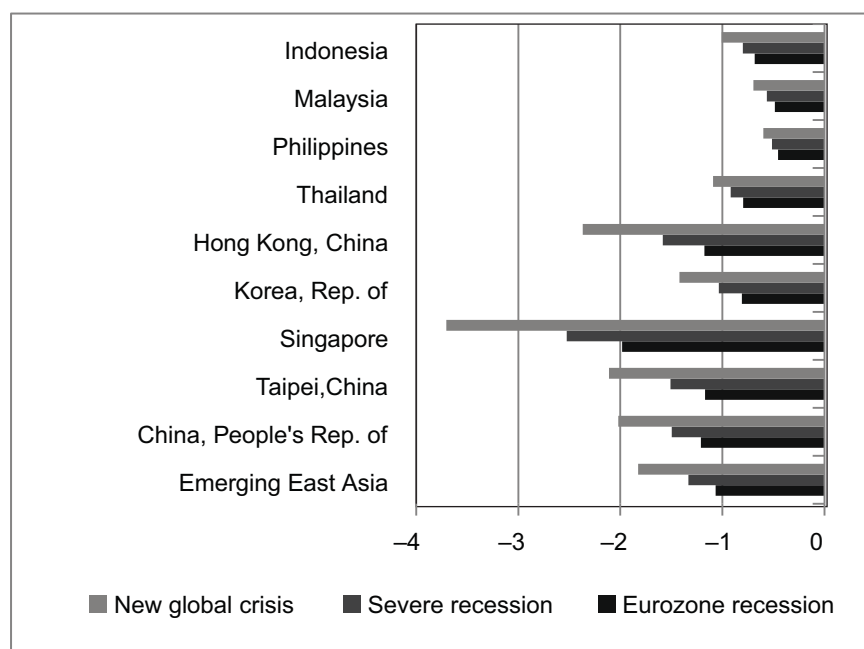
Table 2: Export Exposure to US and EU, % of GDP

	Exposure to the US						Exposure to EU					
	Direct			Total			Direct			Total		
	2006	2008	2010	2006	2008	2010	2006	2008	2010	2006	2008	2010
Central Asia	0.6	2.1	0.9	1.2	2.9	1.4	8.5	11.9	4.6	13.0	16.5	6.4
Armenia	1.0	0.5	0.9	1.6	0.7	1.1	7.2	4.3	3.6	10.8	6.3	5.6
Azerbaijan	0.5	13.0	3.1	1.3	15.5	4.1	16.8	57.0	18.1	20.1	67.4	21.5
Georgia	0.8	0.8	1.5	1.1	1.4	1.9	2.2	1.5	1.4	3.6	3.2	2.8
Kazakhstan	1.1	1.1	1.2	1.9	1.9	2.0	16.0	14.2	10.3	20.5	19.0	13.4
Kyrgyz Republic	0.3	0.1	0.1	0.9	0.7	0.3	0.9	2.8	0.3	4.9	7.0	1.8
Tajikistan	0.0	0.0	0.0	1.0	0.5	0.5	21.2	10.6	0.4	34.0	17.6	1.7
Turkmenistan	0.3	0.6	0.2	0.6	1.1	0.6	1.9	2.9	2.0	4.2	7.9	3.0
Uzbekistan	0.8	0.9	0.2	1.4	1.3	0.4	2.0	1.6	0.6	5.9	3.8	1.6
East Asia	10.2	8.5	7.3	14.6	12.1	10.5	9.0	9.9	7.1	14.8	16.0	11.9
China, People's Rep. of	7.5	5.6	4.8	10.1	7.4	6.2	6.3	5.8	4.7	10.3	9.4	7.4
Hong Kong, China	25.2	21.5	19.1	34.5	29.0	25.9	22.0	21.4	17.9	35.0	34.3	29.0
Korea, Rep. of	4.6	5.0	4.9	6.8	7.4	7.1	4.5	5.0	3.9	7.9	9.1	7.5
Mongolia	3.5	2.0	0.2	7.2	4.6	2.7	3.1	7.5	1.7	6.0	11.2	4.0
South Asia	2.6	1.9	1.5	3.1	2.3	1.8	3.8	3.7	2.9	4.9	4.9	3.7
Afghanistan	0.6	0.8	0.5	0.7	0.8	0.6	0.7	0.6	0.4	0.9	1.0	0.5
Bangladesh	4.4	3.3	3.1	4.9	3.8	3.4	8.2	7.6	7.0	10.3	9.6	8.7
India	2.0	1.7	1.4	2.7	2.3	2.0	2.8	2.9	2.4	4.1	4.4	3.6
Maldives	0.2	0.2	0.1	0.9	0.6	0.3	3.9	4.4	2.0	5.1	5.4	2.5
Nepal	1.1	0.5	0.4	1.3	0.7	0.5	1.1	0.8	0.6	1.5	1.1	0.9
Pakistan	2.8	2.1	1.9	3.3	2.5	2.2	2.9	2.8	2.4	4.0	3.9	3.3
Sri Lanka	7.1	4.6	3.4	7.7	5.1	3.7	6.8	6.9	5.1	8.5	9.1	6.7
Southeast Asia	10.2	7.1	6.2	14.6	10.4	9.0	7.8	6.4	5.7	13.7	11.7	10.1
Brunei Darussalam	4.6	0.7	0.1	6.9	3.0	2.0	1.1	0.1	0.1	3.4	2.4	1.8
Cambodia	26.1	17.5	16.4	29.3	20.3	20.0	8.9	6.7	7.9	13.3	10.9	13.3
Indonesia	3.1	2.6	2.0	4.8	3.8	2.9	3.2	2.9	2.3	5.6	5.2	3.9
Lao PDR	0.2	0.8	0.9	2.6	2.5	2.6	3.1	3.2	3.1	5.9	5.5	5.2
Malaysia	19.2	11.2	8.0	26.4	16.1	12.1	12.4	9.5	8.5	23.0	18.1	15.4
Myanmar	0.0	0.0	0.0	2.2	1.2	0.6	2.2	0.8	0.4	4.5	2.2	1.2
Philippines	7.0	4.7	3.8	9.8	6.4	5.2	7.0	4.8	3.5	12.1	8.2	6.1
Singapore	19.0	12.8	10.3	34.3	24.3	19.3	20.4	17.6	14.9	38.7	33.7	27.7
Thailand	9.5	7.2	6.3	13.8	10.8	9.3	8.2	7.5	6.0	14.3	13.4	11.0
Viet Nam	12.9	13.2	13.7	16.2	16.0	16.2	11.1	11.2	10.3	16.6	17.0	15.6
Pacific	1.9	1.5	1.5	3.5	3.4	2.4	2.9	3.9	2.5	4.9	6.6	4.0
Fiji	5.1	5.0	6.1	5.5	5.4	6.5	4.3	4.2	1.6	5.1	5.1	2.3
Papua New Guinea	1.4	1.3	1.0	3.6	3.1	2.3	8.3	10.3	7.6	12.0	14.7	10.8
Samoa	1.0	0.9	0.7	1.2	1.1	0.8	0.2	0.1	0.3	0.5	0.5	0.5
Solomon Islands	0.6	0.2	0.2	3.6	3.0	2.5	2.9	6.0	4.3	6.0	9.7	7.2
Tonga	2.9	1.5	0.6	3.1	1.7	0.9	0.1	0.3	0.2	0.3	0.5	0.4
Vanuatu	0.5	0.2	0.2	4.2	5.8	1.7	1.6	2.3	1.0	5.6	9.2	2.6
Developing Asia	5.1	4.1	3.4	7.4	6.0	4.9	6.4	7.1	4.5	10.4	11.1	7.2

EU = European Union, US = United States.

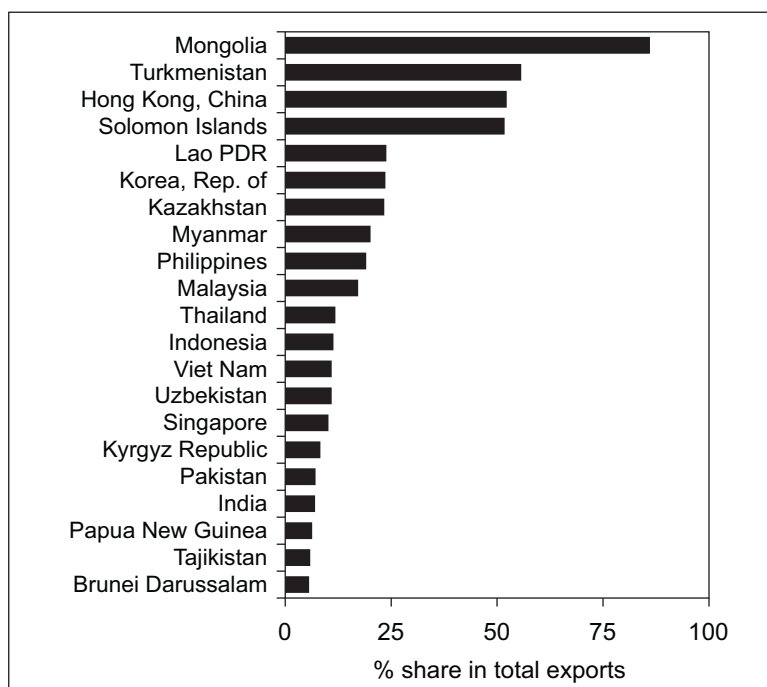
Source: Authors' calculations based on Direction of Trade Statistics (accessed 23 Jan 2012).

Figure 6: Impact of Eurozone Crisis on Selected Asian Economies
(deviation from the baseline forecast, percentage points)



Source: Asian Development Bank (2011).

Figure 7: Share of Exports to PRC, 2011



Note: Economies whose export to PRC is less than 5% are not shown. Data up to September 2011. Source: Authors' calculations based on Direction of Trade Statistics (date accessed 23 Jan 2012).

The first step towards measuring the effect of EU's imports from Malaysia is to compute the dynamic responses of Malaysia's GDP to positive shocks to EU's imports. More precisely, we compute impulse responses, which refer to the responses of the level of domestic output to a one standard deviation shock to the EU's imports. Summing up the impulse responses gives us the cumulative effect of the positive EU import shocks on Malaysia's GDP over time. Likewise, we can sum up impulses to compute the cumulative effect of positive shocks to the US's and the PRC's imports on Malaysia's GDP over time. The impulse response functions indicate a substantial response of the GDP of three Asian countries—namely Hong Kong, China; India; and the Republic of Korea—to positive EU import demand shocks.

A more fundamental issue than impulse responses is the relative importance of the import demand shocks of PRC, EU, and the US in the domestic GDP fluctuations in the nine sample countries. This depends not only on the size of the impulse responses in the face of a given size shock but also the frequency and average size of shocks hitting the economy. More specifically, variance decompositions, which measure the percentage of the forecast error variance of domestic output at various forecast horizons that is attributable to each shock, indicate the relative importance of demand shocks of the PRC, the EU, and the US.

Table 3 shows an example of variance decomposition (VD) results, for Indonesia. Model 1 in Table 3 reports the results of the VD for the estimated four-variable VAR model. After 10 quarters, for example, exports to the EU account for about 25% of Indonesia's output fluctuations. Besides Indonesia, VD results indicate that the EU's imports also played a significant role in the GDP fluctuations of Hong Kong, China; the Republic of Korea; and the Philippines. The six-variable Model 2 adds the PRC's exports to the EU and the US to take into account the fact that the PRC imports a lot of parts and components from other Asian countries, and assembles them for export to the EU and the US. That is, to some extent, the PRC's import demand is not an independent demand but derived demand based on final demand from the EU and the US. Model 2 VD results indicate that the EU's import demand is no longer a significant source of Indonesia's GDP fluctuations once we take into account the PRC's derived import demand. However, Model 2 results for other countries indicate that exports to the EU remain an important source of fluctuations for Hong Kong, China; India; Malaysia; the Philippines; and Viet Nam.

The overall pattern from the VD analysis is that import demand from both the EU and the US are significant sources of GDP fluctuations in our nine sample countries. The VD results confirm that under our baseline scenario of a recession which is confined to the EU, the impact on Asia's exports and hence growth will be tangible but manageable. Once we incorporate the PRC's derived import demand, the PRC's exports to the EU and the US emerge as a new significant source of GDP fluctuations in many Asian countries. This points to the importance of derived demand in the PRC's demand for Asian exports. In addition, for many Asian countries, exports to the PRC lose much of their significance.

Table 3: Variance Decomposition Results for Indonesia, %

Period	(1)				(2)					
	Exports to US	Exports to EU	Exports to PRC	Other shocks	Exports to US	Exports to EU	PRC's export to US	PRC's export to EU	Exports to PRC	Other shocks
1	0.6 (3.5)	15.2 (9.2)	3.5 (6.1)	80.7 (11.5)	0.9 (3.8)	12.6 (9.4)	10.1 (7.8)	4.1 (5.3)	1.1 (3.0)	71.1 (12.1)
2	4.0 (8.4)	29.0 (12.8)	8.7 (9.6)	58.3 (12.8)	2.9 (7.5)	18.6 (11.5)	8.9 (9.8)	4.0 (5.6)	5.0 (5.9)	60.5 (10.8)
3	18.8 (14.4)	23.0 (12.5)	8.3 (9.8)	49.9 (12.6)	18.4 (14.0)	13.7 (9.0)	9.4 (12.3)	4.1 (4.7)	4.2 (6.5)	50.1 (11.0)
10	42.2 (17.3)	25.4 (14.4)	9.5 (8.4)	22.9 (10.8)	23.5 (13.4)	5.4 (10.0)	20.9 (16.1)	22.0 (11.7)	10.7 (11.1)	17.4 (11.1)

EU = European Union, PRC = People's Republic of China, US = United States.

Source: Authors' calculations. Numbers inside the parenthesis are standard errors.

Overall, our analysis indicates that the impact of the euro crisis on Asia via the trade channel will be tangible but not pronounced. Asia's exports and growth will definitely feel the effect of a euro recession but the impact is likely to be noticeably smaller than the pronounced effect observed during the global crisis. Some subregions and countries will be hit harder than others but the impact will be manageable even in the hardest hit subregions and countries. The EU remains an important export market for Asia but its relative importance has been declining, a decline which has accelerated since the global crisis. Furthermore, the evidence points to a visible but not pronounced effect of an EU recession on Asian countries' growth. The one big difference between the global crisis and the euro crisis is that the former was a synchronized G3 recession which led to a collapse of global trade, whereas the latter is a recession which is limited to the EU and hence a reduction of demand from only the EU. While we should be careful not to downplay the role of the EU, especially since it continues to play a disproportionate role as a consumer of final goods from Asia, the overall picture is such that a euro crisis will dent but not arrest the momentum of growth.

III. FINANCIAL CHANNEL: IMPACT OF EURO CRISIS ON ASIA'S FINANCIAL SYSTEM

The dominant channel of transmission of the euro crisis to Asia will be the trade channel but there will be effects on Asia's financial sector as well. During the global crisis of 2008–2009, Asia's financial systems were largely immune from the credit crunch which engulfed the EU and the US except for sporadic bouts of turbulence in a few countries such as Indonesia and the Republic of Korea. But by and large, credit continued to flow uninterrupted from the financial system to the real economy and Asia was largely spared the financial paralysis which almost brought financial intermediation to a standstill in the West. On the other hand, the onslaught of recession in the G3's real economies and consequent collapse of their import demand had a pronounced impact on Asia's export and growth. This asymmetry between the transmission of the crisis to the real and financial sectors reflects the fact that Asia's trade integration with the West is at a much more advanced state than its financial integration.

For this fundamental reason behind the asymmetrical effect of the global crisis on Asia during the global crisis, we can expect the euro crisis to leave a bigger and deeper mark on Asia's exports and growth than on Asia's financial stability. Just as relatively low level of financial integration with the US protected Asian financial systems from the global crisis, we can expect relative lack of financial linkages with the EU to shelter them this time around. Asian banks and financial institutions had minimal exposure to US subprime assets during the global crisis, and they have minimal exposure to eurozone government bonds this time around. Furthermore, the massive injection of liquidity by the European Central Bank (ECB) has bolstered the contingent balance sheets of eurozone banks and financial institutions, and thus significantly reduced the risk of a full-blown financial crisis in the eurozone, at least in the short term. The abatement of the risk of a euro financial meltdown due to decisive ECB action further reinforces the likelihood that the primary transmission channel will be the trade channel via a eurozone recession, and the financial channel will play at most a secondary role.

A. Impact of Euro Crisis on Asia's Equity and Bond Markets

Nevertheless, while the financial channel will play a visibly smaller role than the trade channel, the sizable and growing financial linkages—albeit overshadowed by trade linkages—between Asia and the EU imply that the euro crisis will have at least some potential negative spillovers on Asian financial systems. One possible route for financial contagion is via capital markets—i.e., equity and bond markets—but the balance of evidence indicates only a limited scope for this type of financial contagion. The collapse of capital markets, especially the equity markets, along with freefalling exchange rates, was perhaps the most dramatic symptoms of crisis during the Asian financial crisis of 1997–1998. One way to get some idea of the risk of financial contagion from the eurozone to Asian equity and bond markets is to look at the movement of eurozone financial indicators and Asian financial markets. Table 4 indicates there is no systematic positive correlation between eurozone financial indicators and Asian financial markets. A more rigorous, in-depth analysis of financial contagion to Asian equity and bond markets via the event study methodology also yields the same conclusion—i.e., little evidence of financial contagion (Aizenman et al. 2012).

Relationship between Eurozone Financial Indicators and Emerging Market Stock and Bond Market Indices

Indicator	Euro Financial Indicators			Equity MSCI Indices (\$)				Bond EMBI Indices (\$)			
	EONIA	iTraxx	Pr(Default)	Global EM	ASIA	EEMA	LATM	Global EM	ASIA	EEMA	LATM
EONIA	-0.5255*										
iTraxx (Default)	-0.3076*	0.6529*									
Global EM	0.1038*	-0.0193	-0.4809*								
ASIA	0.0644*	-0.0097	-0.4868*	0.9954*							
EEMA	0.6581*	-0.4620*	-0.6060*	0.8934*	0.8714*						
LATM	-0.0887*	0.2022*	-0.3616*	0.9789*	0.9679*	0.8159*					
Global EM	-0.5628*	0.5902*	-0.1573*	0.8472*	0.8439*	0.5524*	0.9104*				
ASIA	-0.4873*	0.3627*	-0.2520*	0.8314*	0.8241*	0.6112*	0.8507*	0.9221*			
EEMA	-0.3894*	0.5240*	-0.1857*	0.8865*	0.8739*	0.6419*	0.9472*	0.9751*	0.8763*		
LATM	-0.5551*	0.5720*	-0.1713*	0.8471*	0.8440*	0.5553*	0.9095*	0.9969*	0.9230*	0.9644*	

Significance at 10 percent level.

Indicator	Euro Financial Indicators			Equity MSCI Indices (\$)				Bond EMBI Indices (\$)			
	EONIA	iTraxx	Pr(Default)	Global EM	ASIA	EEMA	LATM	Global EM	ASIA	EEMA	LATM
EONIA	-0.4268*										
iTraxx (Default)	-0.6360*	0.8595*									
Global EM	0.6786*	-0.2538*	-0.4443*								
ASIA	0.6344*	-0.2579*	-0.4532*	0.9938*							
EEMA	0.8358*	-0.4882*	-0.5872*	0.9593*	0.9406*						
LATM	0.5781*	-0.002	-0.3003*	0.9768*	0.9590*	0.9074*					
Global EM	0.0603*	0.5108*	0.0093	0.8402*	0.8169*	0.7013*	0.9138*				
ASIA	0.1685*	-0.1213*	-0.1654*	0.7855*	0.7596*	0.7296*	0.7848*	0.8251*			
EEMA	0.2442*	0.4336*	-0.0551*	0.8517*	0.8227*	0.7331*	0.9263*	0.9826*	0.7724*		
LATM	0.0996*	0.4391*	-0.0171	0.8559*	0.8319*	0.7250*	0.9289*	0.9928*	0.8256*	0.9700*	

Asia, Latin America, and Africa, EONIA = Euro Overnight Index Average Swap Index 3-Month, EMBI = JP Morgan Emerging Markets Bond Index, Global EM = Global Europe 5-Year Credit Default Swap Index, LATM = Latin America, MSCI = Morgan Stanley Capital International, Pr(Default) = Fitch's Probability of Default

Significance at 10% level.

	Euro Financial Indicators			Equity MSCI Indices (\$)				Bond EMBI Indices (\$)			
	EONIA	iTraxx	Pr(Default)	Global EM	ASIA	EEMA	LATM	Global EM	ASIA	EEMA	LATM
EONIA											
iTraxx	0.1789*										
Pr(Default)	-										
	0.5368*	0.5737*									
Global EM	0.7006*	-0.3353*	-0.8570*								
ASIA	0.7359*	-0.2840*	-0.8400*	0.9951*							
EEMA	0.6878*	-0.4391*	-0.8496*	0.9534*	0.9357*						
LATM	0.4881*	-0.5227*	-0.8677*	0.9475*	0.9177*	0.9057*					
Global EM	0.8830*	0.4044*	-0.4147*	0.6661*	0.7045*	0.5713*	0.4505*				
ASIA	0.7913*	0.5890*	-0.2215*	0.5119*	0.5588*	0.3965*	0.2764*	0.9662*			
EEMA	0.8253*	-0.1751*	-0.7483*	0.8370*	0.8396*	0.8461*	0.7313*	0.7728*	0.5960*		
LATM	0.8543*	0.5223*	-0.2886*	0.5580*	0.6037*	0.4536*	0.3269*	0.9860*	0.9788*	0.6800*	

ce at 10% level.

st, and Africa, EONIA = Euro Overnight Index Average Swap Index 3-Month, EMBI = JP Morgan Emerging Markets Bond Index, Global EM = Global Europe 5-Year Credit Default Swap Index, LATM = Latin America, MSCI = Morgan Stanley Capital International, Pr(Default) = Fitch's Probability of

2012).

Aizenman et al. (2012) assessed the likelihood of financial contagion from the eurozone to Asian financial markets using event study. More specifically, the event study methodology was used to measure the responses of equity and bond markets in developing countries to bad news from the eurozone—e.g., sudden spike in the risk of sovereign default by a eurozone periphery country. The authors assume that financial markets' expectations about the future effects of distinct news are recorded by the observed reaction of asset prices in the days following the news. That is, asset prices capture and incorporate the effect of relevant shocks and developments. The event study methodology allowed the authors to trace the impact of distinct eurozone news on the dynamics of equity and bond prices in developing countries.

Thin and underdeveloped financial markets are often subject to wild gyrations in asset prices which are detached from fundamentals. For example, sales or purchases by a single large market player can exert disproportionate influence on asset prices. Therefore, we limit our analysis to a subset of developing countries with relatively deep and well-developed financial markets where asset prices are more responsive to news.

The 20 countries covered are Brazil; Chile; the PRC; Colombia; Czech Republic; Egypt; Hungary; India; Indonesia; the Republic of Korea; Malaysia; Mexico; Peru; the Philippines; Poland; the Russian Federation; South Africa; Taipei, China; Thailand; and Turkey. Since eurozone news may have different effects for different regions, we analyze three different regions—developing Asia (eight countries), Latin America (five countries) and Eastern Europe, Africa, and Middle East (seven countries)—in addition to the whole sample.

Table 5 reports the baseline regression results for the sample of 20 developing countries. The first two columns use cumulative normal return of equity and bond market as the dependent variable, while the third and fourth columns use cumulative abnormal returns. Our key variable of interest, in terms of assessing the risk of financial contagion from the eurozone to developing countries is bad news from the eurozone. The results provide some evidence of contagion—negative eurozone news has a significant negative effect on normal returns in the equity markets. Table 6 reports the regression results for the subsample of eight developing Asian countries. Negative eurozone news does have a significant effect on either normal or abnormal returns in both the equity or bond markets. This suggests that the risk of a financial contagion from the eurozone to Asia via financial markets is limited. This is plausible in light of limited financial integration between the two regions.

Table 5: Impact of Eurozone Bad News on Returns in Developing Countries' Equity and Bond Markets

Variable\Return	Normal Return						Abnormal Return					
	Equity			Bond			Equity			Bond		
	coeff.	(s.e.)		coeff.	(s.e.)		coeff.	(s.e.)		coeff.	(s.e.)	
Global crisis period	-0.690	(0.29)	**	-0.336	(0.08)	***	-0.038	(0.44)		-0.683	(0.10)	***
Euro Crisis: bad news	-1.122	(0.54)	**	0.165	(0.14)		0.990	(0.82)		0.207	(0.19)	
Euro Crisis: good news	-0.432	(0.39)		0.012	(0.10)		1.429	(0.59)	**	-0.110	(0.14)	
(bad news)x(exposure)	-0.051	(0.04)		-0.004	(0.01)		-0.038	(0.06)		-0.022	(0.01)	*
constant	-1.178	(0.22)	***	0.075	(0.06)		-3.605	(0.33)	***	0.056	(0.08)	
country-events	1900			1900			1900			1900		
R-sq.	0.016			0.011			0.004			0.030		

Standard errors are in parentheses. ***, **, * denote statistical significance at 1%, 5%, 10%, respectively.

Table 6: Impact of Eurozone Bad News on Returns in Developing Asian Countries' Equity and Bond Markets

Variable\Return	Normal Return						Abnormal Return					
	Equity			Bond			Equity			Bond		
	coeff.	(s.e.)		coeff.	(s.e.)		coeff.	(s.e.)		coeff.	(s.e.)	
Global crisis period	0.198	(0.42)		-0.194	(0.11)	*	1.293	(0.68)	*	-0.642	(0.16)	***
Euro Crisis: bad news	-2.273	(1.53)		0.082	(0.41)		1.528	(2.47)		0.039	(0.58)	
Euro Crisis: good news	-0.807	(0.56)		0.061	(0.15)		1.077	(0.91)		0.189	(0.21)	
(bad news)x(exposure)	0.185	(0.28)		0.016	(0.08)		0.025	(0.46)		0.057	(0.11)	
constant	-1.914	(0.32)	***	-0.065	(0.09)		-4.783	(0.51)	***	-0.174	(0.12)	
country-events	760			760			760			760		
R-sq.	0.008			0.004			0.015			0.022		

Standard errors are in parentheses. ***, **, * denote statistical significance at 1%, 5%, 10%, respectively.

Source: Table 2, Aizenman, et al. (2012).

B. Impact of Euro Crisis on Asia's Banking Sector

While one channel of financial contagion from the eurozone to Asia is via the equity and bond markets, another channel is through the banking sector. Within the banking channel, there are two possibilities. First, Asia's banks and financial institutions may have exposure to the government bonds of eurozone periphery countries at the heart of the euro crisis.

However, anecdotal evidence suggests that this exposure is minimal. Second, eurozone banks may sharply cut back their lending to Asia to repair balance sheets damaged by the euro crisis—for example, losses incurred on holdings of eurozone periphery government bonds. Unlike the first channel, the second channel is relevant in light of the large amounts of eurozone bank lending to Asia. From Asia's viewpoint, a cutback in eurozone bank lending could seriously

tighten external financing conditions, especially for countries which depend heavily on foreign bank loans.

C. Developing Asia's Exposure to Eurozone Lending

Overall, eurozone has been an important source of foreign bank loans for developing Asia. According to data from the Bank for International Settlements, in September 2011 Asia's borrowings from eurozone banks amounted to around \$440 billion, equivalent to 14% of the region's total foreign bank financing.² The exact impact of eurozone bank loans in an Asian economy will depend on the extent to which that economy relies on eurozone banks as source of external financing. In East Asia, South Asia, and Southeast Asia, eurozone banks provide about 12%–17% of their total foreign bank borrowings. In Central Asia and the Pacific, the shares are even higher at nearly 50% (Table 7). This suggests that the two subregions are most at risk of disruptions to their credit flows should eurozone cross-border lending be sharply reduced. Even for developing Asia as a whole, there is a fairly high dependence on eurozone banks in the context of borrowing from foreign banks.

However, just a few economies account for the lion's share of the region's exposure to eurozone bank financing. Only five economies—the PRC; Hong Kong, China; the Republic of Korea; India; and Singapore—jointly took in about three-fourths of Asia's total borrowing from eurozone banks. In terms of the sheer size of funding, these economies might seem most vulnerable to large cutbacks in borrowings from eurozone banks. However, a much more accurate indicator of vulnerability to credit tightening by eurozone banks is the share of eurozone bank borrowing as a share of domestic credit. This share indicates the relative role of eurozone bank borrowing in domestic financial intermediation. Borrowings from eurozone banks are equivalent to 4%–8% of domestic credit in India, Indonesia, the Republic of Korea, Malaysia, the Philippines, and Viet Nam. As expected, the shares in Asia's two major financial centers—Hong Kong, China and Singapore—are higher. However, those very high shares probably reflect their role as financial centers rather than a disproportionate dependence in financial intermediation. While there are differences across countries, developing Asia as a whole does not seem at high risk of a credit crunch from a pullback of eurozone bank lending.

² Data are based on 30 economies that provide consolidated worldwide banking data to the Bank for International Settlements. The economies are Australia; Austria; Belgium; Brazil; Canada; Chile; Denmark; Finland; France; Germany; Greece; Hong Kong, China; India; Ireland; Italy; Japan; Luxembourg; Mexico; The Netherlands; Norway; Panama; Portugal; Singapore; Spain; Sweden; Switzerland; Taipei, China; Turkey; the United Kingdom; and the United States. For eurozone, nine countries (Austria, Belgium, France, Germany, Greece, Italy, the Netherlands, Portugal, and Spain) with individual country data on developing Asia are included.

Table 7: Asia's Borrowings from Eurozone Banks, September 2011

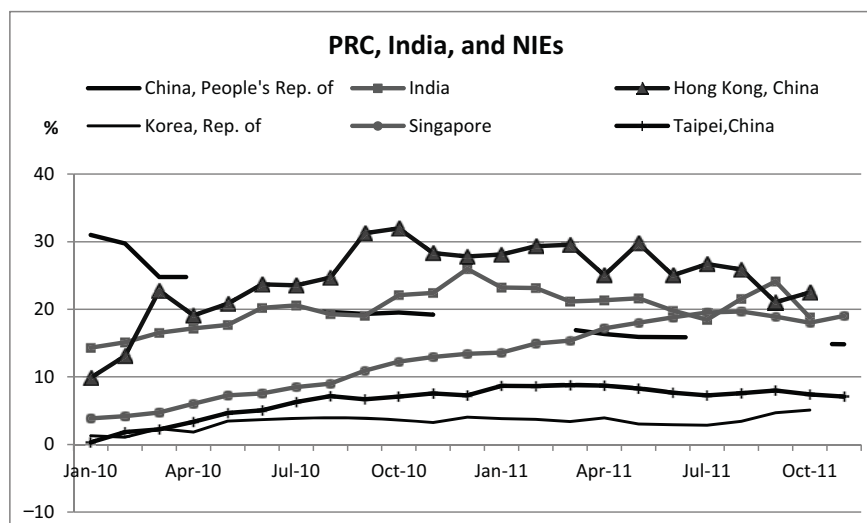
Region/Economy	Amount (\$ billion)	Share by Each Region/Economy (%)	Share of Borrowings from Eurozone in Total Foreign Bank Borrowings	Borrowings from Eurozone Banks as Share of Domestic Credit
Central Asia	13.3	3.0	49.2	–
East Asia	228.9	51.9	12.4	–
People's Rep. of China	96.4	21.9	14.1	0.9
Hong Kong, China	63.8	14.5	9.8	12.4
Rep. of Korea	44.0	10.0	13.0	4.1
Taipei, China	24.7	5.6	14.2	4.1
South Asia	60.4	13.7	17.2	–
India	57.5	13.0	17.9	4.4
Southeast Asia	114.8	26.0	14.3	–
Indonesia	18.8	4.3	16.2	6.6
Malaysia	10.2	2.3	7.0	3.0
Philippines	8.2	1.9	20.7	7.7
Singapore	63.6	14.4	16.9	27.4
Thailand	7.1	1.6	7.5	1.5
Viet Nam	6.4	1.5	26.2	4.6
Pacific	23.5	5.3	49.8	–
Developing Asia	440.9	100.0	14.3	2.9

– = means data not available.

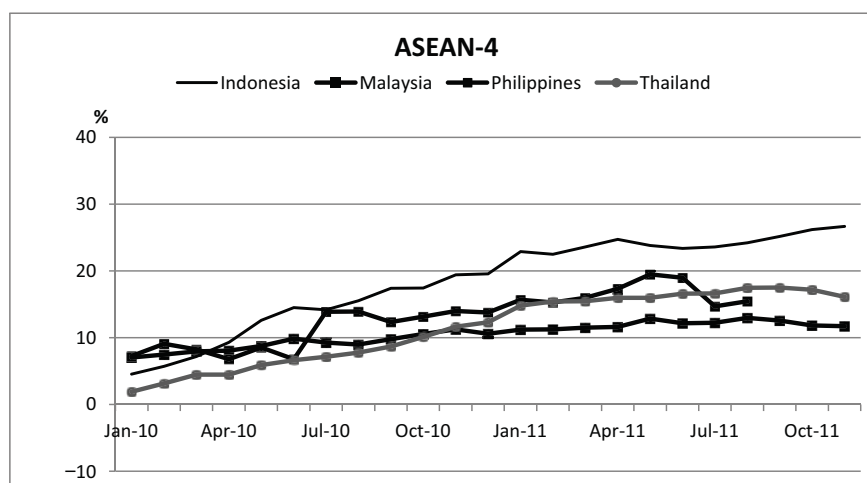
Note: Data for developing Asia are based on the 11 economies with data.

Source: Authors' calculations based on Table 9b (Consolidated foreign claims, immediate borrower basis), Bank for International Settlements.

Lending further support to such a benign projection is the healthy state of the region's banking sector. The good health of developing Asia's banks will help cushion adverse fallout from a eurozone banking crisis. So far private credit continues to expand at a healthy pace, which indicates that the effects of the euro crisis on the region's banking sector are quite limited (Figure 8). Furthermore, key indicators of financial soundness such as risk-weighted capital adequacy ratio and ratio of nonperforming loans point to a robust and resilient banking sector capable of absorbing external shocks (Table 8). External debt indicators in Asia are also favorable; other than Hong Kong, China and Singapore—the two financial centers, external debt is low as a share of GDP. Although the overall picture of the impact on Asia's banking sector remains benign, there is no room for complacency among policymakers. In this connection, our formal empirical analysis below reveals that borrowing from eurozone banks has had a significant positive effect on private credit growth for a group of eleven major Asian economies.

Figure 8: Growth in Private Credit

NIE = Newly industrialized economies



NIE = Newly industrialized economies comprise Hong Kong, China; Rep. of Korea; Singapore; and Taipei, China.

Sources: CEIC Data Company; International Monetary Fund, *International Financial Statistics* online database (both accessed 7 February 2012).

Table 8: External and Financial Vulnerabilities (%)

Economy	External Debt/GDP (2011)	Foreign Exchange Reserves, Months of Imports (2011)^a	Short-term External Debt/Reserves (2011)^b	Risk-Weighted Capital Adequacy Ratio (March 2011)^c	Bank Non-performing Loans to Total Loans (2010/2011)^d
China, People's Rep. of	9.5	20.1	15.8	11.8	1.1
Hong Kong, China	376.7	6.2	250.0	16	0.7
India	17.4	7.3	25.9	13.6	2.4
Indonesia	28.6	6.3	35.3	17.6	2.9
Korea, Rep. of	34.9	5.8	45.6	14.3	1.9
Malaysia	29.1	7.5	24.1	16.4	2.9
Philippines	27.5	10.6	10.7	16.7	3.8
Singapore	246.9	6.0	199.6	17.8	1.8
Taipei,China	27.1	14.4	27.9	—	0.4
Thailand	33.5	7.9	23.2	15.5	3.5

"—" means data not available.

^a Data for India refer to 2010.

^b Data are as of September 2011 for India, Singapore, and Taipei,China; 2010 for Thailand.

^c Data are as of June 2011 for Malaysia.

^d Data are as of March 2011 for the People's Rep. of China; Hong Kong, China; and Thailand; March 2010 for India; May 2011 for Indonesia; June 2011 for Malaysia; Dec 2010 for the Rep. of Korea and the Philippines; Sep. 2010 for Singapore; Dec. 2011 for Taipei,China.

Sources: Authors' calculations using data from CEIC Data Company and International Monetary Fund, International Financial Statistics; *Asian Development Outlook* data base; International Monetary Fund, *Financial Soundness Indicators*, September 2011.

D. Impact of Bank Borrowings from Eurozone on Asia's Private Credit Growth—An Econometric Analysis

We performed panel data regression analysis to examine the relationship between Asia's private credit and borrowings from eurozone banks. This exercise uses data from the first quarter of 2000 to the third quarter of 2011 and covers 11 Asian economies (the PRC; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei,China; Thailand; and Viet Nam). The basic specification of the model is:

$$PCgr_{i,t} = \beta_0 + \beta_1 EBgr_{i,t-1} + \beta_2 GDPgr_{i,t-1} + \beta_3 i_{i,t-1} + \beta_4 Dgr_{i,t} + \beta_5 FFRch_{i,t}$$

The dependent variable is growth in private credit ($PCgr_{i,t}$), while the key independent variable is lagged growth in eurozone borrowings ($EBgr_{i,t-1}$). The model controls for lagged GDP growth ($GDPgr_{i,t-1}$), lagged interest rate ($i_{i,t-1}$), growth in deposits ($Dgr_{i,t}$), and change in US federal funds rate ($FFRch_{i,t}$). GDP growth is an indicator of the demand for credit; a more vibrant economy is expected to lead to higher growth in domestic credit. Interest rate is used as proxy for overall monetary stance, since a restrictive monetary policy can lead to slower credit growth. Growth of deposits is used to account for the importance of domestic deposits as source of loanable funds. Change in US federal fund rates is included as a measure of global liquidity conditions. Country fixed effects are controlled in the regressions. The empirical model is largely based on Guo and Stepanyan (2011), who analyzed the determinants of bank credit based on a sample of over 80 emerging market economies.

The regression results reported in Table 9 indicate that lagged growth in eurozone borrowings has a positive and significant impact on private credit growth; however, its

magnitude is negligible. This implies that a sharp cutback or reversal of eurozone bank loans from Asia may disrupt domestic financial intermediation in the region but its impact would be minimal.

Table 9: Regression Results: Dependent Variable—Growth in Private Credit

	A	B	C
Lagged growth in borrowings from eurozone banks	0.044*** (0.013)	0.042*** (0.012)	0.041*** (0.012)
Lagged GDP growth	0.362*** (0.102)	0.349*** (0.097)	0.460*** (0.104)
Lagged interest rate	-0.974*** (0.235)	-1.103*** (0.224)	-1.166*** (0.223)
Growth in deposits		0.413*** (0.059)	0.422*** (0.059)
Change in federal funds rate			-0.540*** (0.190)
Constant	6.426*** (1.177)	24.832*** (2.693)	23.950*** (2.689)
Observations	440	440	440
Adjusted R-squared	0.627	0.664	0.670

Standard errors in parentheses.

*** p<0.01

Note: The estimation controls for country fixed effects. Standard errors are in parentheses.

Source: Authors' calculations.

IV. DEVELOPING ASIA'S POLICY SPACE TO COPE WITH THE EURO CRISIS

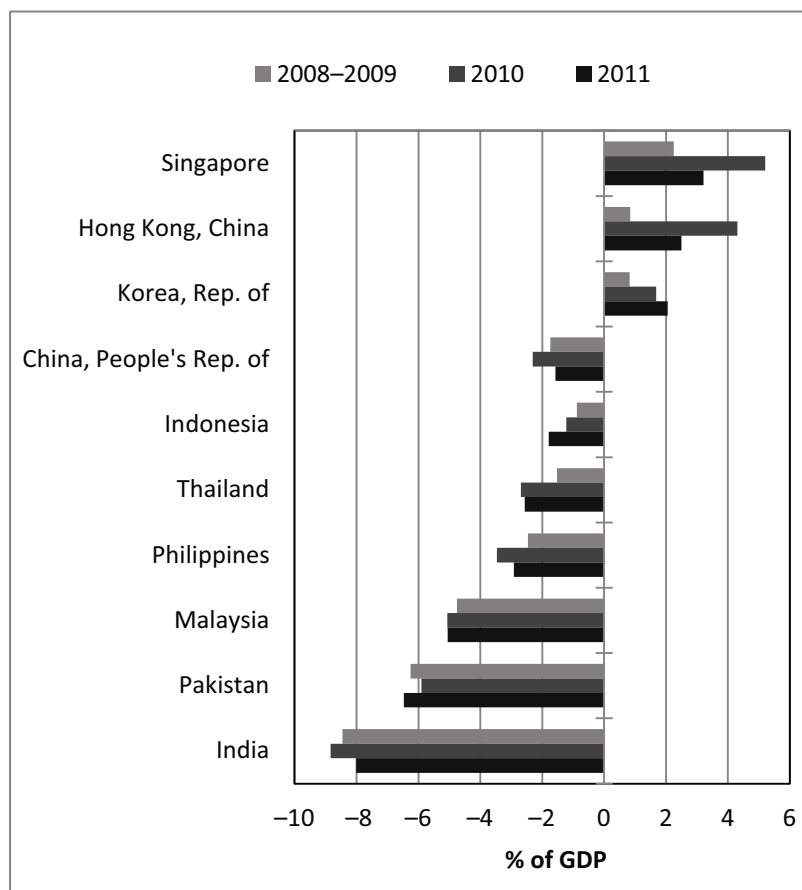
Any meaningful discussion of the potential effect of the euro crisis on Asia must include a discussion of policy space available to the region's policymakers. To the extent that the policymakers have ample policy space, they will be able to use policy tools to mitigate the adverse impact of the euro crisis. On the other hand, lack of policy space will amplify the adverse effects of the euro crisis on the region. The region's experiences during the global crisis served as a vivid reminder of the importance of policy space in determining the impact of a large external shock. It is widely agreed that the region's ample policy space enabled the region's policymakers to aggressively pursue countercyclical macroeconomic policy which helped stave off a deep and protracted recession. In particular, fiscal space allowed the region's governments to quickly unleash large fiscal stimulus programs which supported aggregate demand and growth in the face of collapsing exports and feeble private domestic demand.

More specifically, policy space refers to the scope for using fiscal, monetary, and financial policy to counter the effects of an external shock. For example, relatively low public debt to GDP ratios allows governments to raise spending and cut taxes without triggering adverse reactions from financial markets about fiscal sustainability. Likewise, a history of anti-inflationary credibility expands the scope for interest rate cuts and a clearly defined lender of last resort function strengthens the effectiveness of financial policy during a crisis. While the region's stimulus during the global crisis used up some of its policy space, nevertheless Asian economies still appear to have ample room to respond through monetary, fiscal, or financial

policy. Strong macroeconomic fundamentals can once again cushion the region from a large external shock.

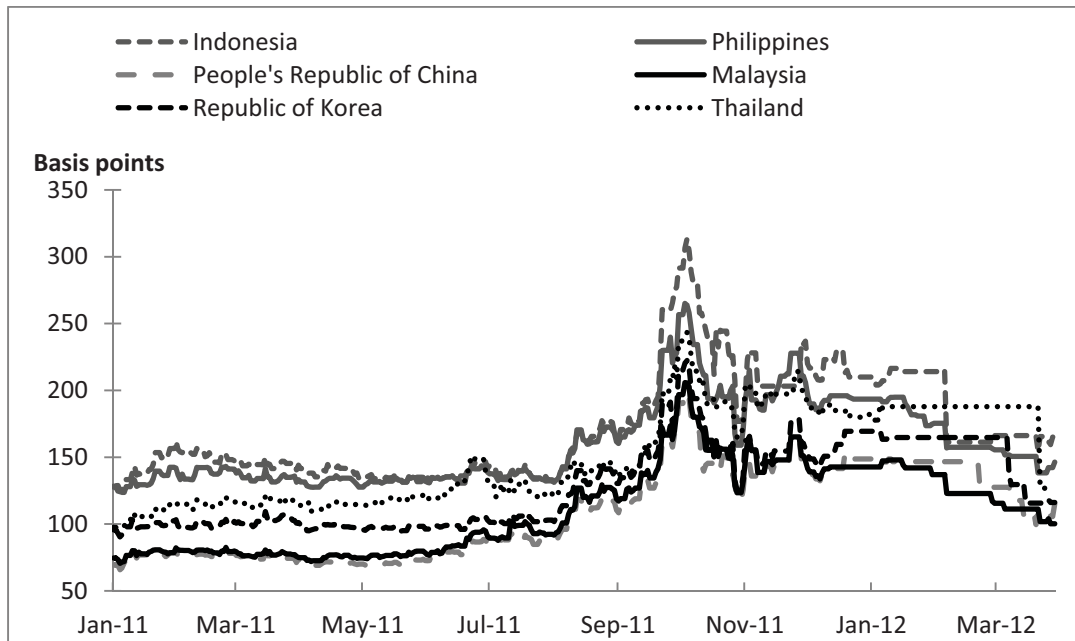
Above all, Asian countries still have the luxury of fiscal space which would enable them to unleash a forceful fiscal stimulus in the event of a major slowdown. Fiscal balances of many Asian countries in the region remain at healthy levels. In the PRC, India, the Republic of Korea, the Philippines, and Thailand, fiscal position has improved in 2011 relative to the 3 previous years as a result of the unwinding of the stimulus implemented during the global crisis (Figure 9). Furthermore, Asian countries' public debt to GDP ratios are well below those of the advanced economies and generally quite close to their desirable medium-term levels. Furthermore, financial markets' concerns about the fiscal sustainability of the region's countries have abated since escalating in October 2011 despite lingering uncertainty about the euro crisis, as evident in the decline of sovereign spreads (Figure 10).

Figure 9: Fiscal Balances, Selected Developing Asian Economies



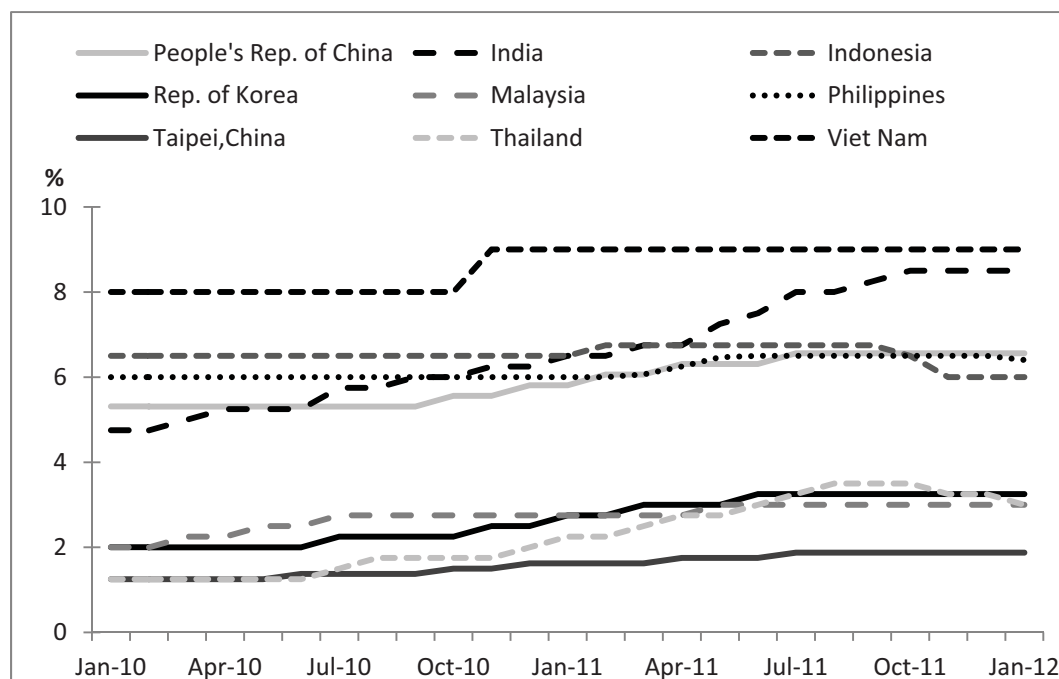
Source: International Monetary Fund, September 2011 Fiscal Monitor "Addressing Fiscal Challenges to Reduce Economic Risks".

**Figure 10: Credit Default Swap Spreads, 5-year,
Selected Developing Asian Countries**



Source: Bloomberg (accessed 9 March 2012)

Developing Asia's economies also have some scope to ease monetary policy. To stem rising inflation and to unwind the monetary stimulus response to the global crisis, several economies have gradually tightened monetary policy over the last 2 years or so. Since nominal benchmark rates are above the zero floor, monetary authorities have sufficient room to lower the rates should there be a need for monetary easing to prop up their financial systems and economies (Figure 11). Inflation rates have also been declining, stemming concerns that inflationary pressures may limit the scope for monetary policy. In the PRC, Indonesia, Republic of Korea, and the Philippines, inflation rates are moving closer to targets set by monetary authorities. Turning to financial policy, the region's central banks have ample foreign exchange reserves to help them cope with any unexpected shortage of foreign currency liquidity. Furthermore, they have clearly specified lender of last resort facilities and flexible collateral arrangements. Sound financial supervision and regulation has resulted in healthy financial systems. For example, a large share of bank loans is financed through deposits rather than wholesale funding (Table 10).

Figure 11: Benchmark Interest Rates, Selected Developing Asian Economies

Source: CEIC Data Company (accessed 9 March 2012).

Table 10: Banks' Loan to Deposit Ratio (%), Selected Developing Asian Economies

Economy	2007	2008	2009	2010	2011
Brunei Darussalam	74.1	70.0	61.7	58.4	51.7
Cambodia	68.8	103.1	81.0	79.1	83.4
China, People's Rep. of	74.1	69.6	72.6	73.1	73.4
Hong Kong, China	45.8	47.3	49.1	58.3	63.3
India	74.5	75.3	71.4	76.3	75.1
Indonesia	70.0	80.1	76.3	81.2	90.1
Japan	76.3	73.9	69.2	66.1	64.2
Korea, Republic of	135.6	134.1	126.3	118.3	118.5
Lao PDR	33.4	48.8	70.8	71.1	-
Malaysia	90.9	92.7	91.7	93.4	92.6
Myanmar	47.0	43.4	39.2	37.2	39.7
Philippines	59.2	59.6	58.6	59.3	64.5
Singapore	82.9	85.3	77.9	81.5	86.7
Taipei, China	68.4	64.3	60.6	61.7	63.2
Thailand	99.1	97.7	95.2	96.6	97.1
Viet Nam	96.4	98.0	105.9	102.2	107.3

Source: Authors' calculations using data from International Financial Statistics, International Monetary Fund and national sources.

Notwithstanding the region's ample policy space, the region should closely monitor the euro area as there is still a great deal of uncertainty on how the euro crisis will unfold. Economies should be ready to adjust fiscal, monetary, and financial policy in response to new major developments in the eurozone, especially a sudden and sharp deterioration. How the region fares in the event of another major external shock will ultimately depend on how effectively it manages its policy space. In addition, the region should be careful to preserve its

tradition of fiscal prudence and macroeconomic stability, which is what gave it its highly valuable policy space in the first place. That is, policy space should be used primarily in response to a clear and present danger, such as another global crisis, rather than during every episode of uncertainty and instability. In addition, the region's ample fiscal space may be more apparent than real once we take into account the wide range of medium-term fiscal demands looming on the region's horizon. These include rising pension and health care costs associated with the region's rapid demographic transition as well as social protection expenditures required for a more inclusive growth.

V. CONCLUDING OBSERVATIONS AND POLICY IMPLICATIONS

Our analysis of the impact of euro crisis on developing Asia points to a sizable but manageable short-term impact. Put differently, the euro crisis will slow down but not derail the robust momentum of the region's recovery since the global crisis of 2008–2009. The EU will remain an important economic partner for the region in the foreseeable future. Above all, the EU is a key export market for a region which still depends heavily on exports for growth. Furthermore, our analysis points to a significant effect on the region's financial systems, especially its banking sector. However, overall, the magnitude of the shock from the euro crisis will be significantly smaller than the shock from the global crisis. A critical but often overlooked structural difference between the two crises is that the global crisis was a synchronized crisis which simultaneously affected the EU, Japan, and the US, but the euro crisis is largely confined to Europe. Within developing Asia, some subregions and countries, especially the most open economies which export manufactured goods to EU, will be hit harder than others but even those economies should be able to cope.

A further cause for guarded optimism is that developing Asia still has relatively ample policy space to cushion a major external shock. Therefore, not only is the magnitude of the shock smaller relative to the global crisis, but the region has monetary, fiscal, and financial policy tools to mitigate the impact of another external shock. During the global crisis, countercyclical macroeconomic policy, in particular large fiscal stimulus programs, laid the foundation for a V-shaped recovery. Likewise, developing Asia's policymakers remain relatively well equipped in the tail-risk event that the euro crisis morphs into another global crisis. However, the broader policy lesson from Asia's global crisis experience is that the region's tradition of fiscal prudence can yield huge benefits in times of severe crisis. Furthermore, the region faces a number of medium-term fiscal demands, for example those associated with an aging population and fostering inclusive growth, which further strengthen the case for fiscal responsibility.

Going forward, the impact on developing Asia will fall primarily on trade but the region should be able to weather a euro slowdown. The euro crisis is still far from fundamentally resolved and its evolution will clearly impinge heavily on its future impact. The most practical and immediate implication for policymakers is that they should continue to keep a close eye on eurozone developments and their ramifications for their economies. Of particular concern to the region is the tail risk of a sharp, abrupt deterioration of the euro crisis and its transformation into another global financial crisis. However, for the moment, the risk of this worst-case scenario of a full-fledged financial crisis appears to be receding due to large liquidity injections by the ECB. The much more likely scenario is that of medium term weakening of the growth momentum in Europe due to governments consolidating their finances and banks repairing their balance sheets. The consequent weakening of Asia's exports to Europe will have a visible but not

pronounced effect on Asia's growth. Furthermore, in line with its weakening since the global crisis, the EU's share of Asia's exports has already been falling for some time.

Beyond the very short term, the euro crisis further strengthens the case for developing Asia's rebalancing toward domestic sources of growth. In a fundamental sense, the euro crisis is simply part and parcel of the broader, long-term shift of global economic power from the North to the South. Europe had already been weakened by the global crisis and the euro crisis merely reflects an intensification of the medium-term structural problems which stand in the way of a firmer recovery in the advanced economies. The euro crisis did not precipitate Europe's slow growth but it has complicated its efforts to mount a firm and durable post-global crisis recovery. From Asia's viewpoint, this reinforces a two-speed world economy which combines robust, sustained growth in the South with feeble, sputtering recovery in the North. Therefore, Asia should continue and reinforce its efforts to stimulate domestic demand, along with South–South trade, to compensate for lackluster demand from its traditional G3 markets.

Developing Asia can and should make bigger contributions toward fostering global financial stability. Global financial turmoil is a global public bad and, by the same token, global financial stability is a global public good. The post-global crisis world is likely to be characterized by moderation due to slower growth in the advanced economies. Another defining characteristic of the post-crisis world is greater global instability since the advanced countries, which used to be bedrocks of stability, have now themselves become the sources of stability. While Asia can protect itself from heightened global volatility by structural measures such as rebalancing and financial sector development, the region has now grown large enough to make significant contributions of its own to global financial stability. Regardless of the pros and cons of recent calls for Asia to contribute financial resources toward resolving the euro crisis, such calls bring up a bigger point. In particular, the region should not only contribute more resources but also actively take part in global discussions on strengthening the global financial architecture. One specific avenue is through the International Monetary Fund where an expanded Asian role would go hand in hand with increased Asian contributions.

REFERENCES

- Aizenman, Joshua., Yothin Jinjarak, Minsoo Lee, and Donghyun Park. 2012. Developing Countries' Financial Vulnerability to the Euro Crisis: An Event Study of Equity and Bond Markets. *NBER Working Paper Series* No. 18028. Cambridge, MA: National Bureau of Economic Research.
- Asian Development Bank. 2011. *Asian Economic Monitor*. Manila.
- Guo, Kai and Vahram Stepanyan. 2011. Determinants of Bank Credit in Emerging Market Economies. IMF Working Paper WP/11/51, International Monetary Fund, Washington, D.C.
- IMF. 2008. Regional Economic Outlook: Asia and Pacific. International Monetary Fund.
- Park, Donghyun and Kwanho Shin. 2009. The People's Republic of China as an Engine of Growth for Developing Asia?: Evidence from Vector Autoregression Models. *ADB Economics Working Paper Series* No.175. Manila: Asian Development Bank.
- Taylor, John B. and John C. Williams. 2009. "A Black Swan in the Money Market," *American Economic Journal: Macroeconomics*, American Economic Association, 1(1):58–83. January.

Economic Impact of Eurozone Sovereign Debt Crisis on Developing Asia

This paper examines the impact of eurozone sovereign debt crisis on developing Asia through the trade and financial channels. The impact will fall primarily on trade but there are also significant effects on the region's financial systems, especially its banking sector. However, overall, the magnitude of the shock from the euro crisis will be significantly smaller than the shock from the global crisis.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two-thirds of the world's poor: 1.7 billion people who live on less than \$2 a day, with 828 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org/economics