



Structural reform, intra-regional trade, and medium-term growth prospects of East Asia and the Pacific—Perspectives from a new multi-region model[☆]

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ABSTRACT

This paper analyses the potential benefits from reforms aimed at promoting domestic demand in the region, as well as the effects of slower growth in the US and the G3 (US, euro area, and Japan) on the members of the Executives' Meeting of East Asian-Pacific Central Bank (EMEAP). The analysis is based on simulation scenarios using an expanded version of the IMF Global Integrated Monetary and Fiscal (GIMF) model which is particularly useful for conducting medium-term policy analysis, as it incorporates rich layers of intra-regional trade, production, and demand allowing the transmission mechanism of structural reforms and external shocks to be fully articulated. The simulation results show that reforms to rebalance the pattern of demand in regional economies (such as Mainland China) more towards domestic demand could entail non-negligible benefits for the EMEAP. These benefits could be even larger for those economies that more flexibly adjust to the shift in China's trade pattern. The simulation results also demonstrate that structural reforms in EMEAP economies will allow them to reduce vulnerabilities to economic downturns in major economies.

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1. Introduction

Emerging Asia is generally considered vulnerable to external shocks because of its heavy dependence on exports, see IMF (2007) for instance. However, the stellar growth and rapid expansion of intra-regional trade in recent years have prompted some economists to argue that the region has become more resilient to shocks emanating from major economies. In particular, some studies, Chan (2007) for example, argue that Mainland China (China hereafter) has become a major driver of growth in the region. Other studies (Asian Development Bank, 2007; IMF, 2007; Monetary Authority of Singapore 2007), however, point out that while intra-regional trade linkages have increased in recent years, about two thirds of the trade flows still consist of intermediary goods which are assembled in China and then shipped to markets outside the region. In particular, Zhang (2008) finds that roughly half of the exports of Korea, the Philippines, Singapore, Thailand and Malaysia to China in 2005 were used as inputs for exports to other countries. There are also analyses taking emerging Asia's increased integration into the global financial system as a potential source of exposure of the region to external shocks (Cheung, Fung, & Tam, 2008; He, Cheung, & Chang, 2007).

[☆] The views and analysis expressed in this paper are only those of the authors, and do not necessarily represent the views of their affiliations.

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In this context, reforms that promote domestic demand in regional economies could mitigate the negative spillover effects from a protracted slowdown in major economies, although the benefits of such reforms may take time to materialise. Rebalancing of the sources of demand could also have a positive impact on other economies in the region (He, Cheung, et al., 2007). Blanchard and Giavazzi (2005) and Lardy (2007) prescribe a three-handed reform package for China which includes lowering households' savings rate, allowing the renminbi to appreciate, and reducing or reallocating investment away from the tradable sector to non-tradable sector.

This paper studies spillover effects of external shocks and structural reforms in the region.¹ It does so by extending the Global Integrated Monetary and Fiscal (GIMF) model to eight economic blocks, five of which are EMEAP economies.² The GIMF model is a dynamic stochastic general equilibrium multi-country model with overlapping generations, and can be used to conduct short-term as well as medium-term policy analysis. Compared with conventional macro-models, the GIMF model has some unique features that make it suitable for policy analysis of EMEAP economies. It is built with a stratified multilateral trade matrix, which can be calibrated to reflect intra-regional trade flows among EMEAP economies at the levels of intermediate, consumption and investment goods. Therefore, two economies with similar openness but with different trade pattern and trade structure may experience different effects facing a common external shock. The model also incorporates rich layers of supply and demand. Production process is broken down into manufacturing of intermediate goods, distribution of intermediate goods to domestic and foreign assemblers, and production of final consumption and investment goods. This production structure thereby allows transmission mechanisms of external shocks or structural reforms to be fully articulated.

Our simulations indicate that a protracted US and G3 slowdown would exert significant adverse effects on the growth in EMEAP, with the size of the spillovers depending on, among others, economies' openness, net foreign asset status, and financial market development. Simulations of a successful implementation by the Chinese government of its 11th 5-year plan to achieve a balanced and sustainable growth going forward indicate that such reforms could entail non-negligible output gains for the region. China's imports of consumption goods would likely rise, while its demand for intermediary goods would likely fall. Regional economies that more flexibly adjust to this likely shift in China's trade pattern would benefit more.

The rest of this paper is organised as follows: Section 2 gives a brief non-technical overview of the GIMF model; Section 3 presents the key equations of the model; Section 4 describes the calibration of the model parameters; Section 5 discusses the main results of the simulation scenarios considered; and Section 6 concludes.

2. The structure of the GIMF

The GIMF model, developed at the IMF and documented in Kumhof and Laxton (2008), has been widely used at the IMF in background papers during Article IV consultations.³ The model integrates domestic supply, demand, trade, and international asset markets in a single theoretical structure, thereby allowing transmission mechanisms to be fully articulated. It is well suited for analysing the effects of monetary policy, fiscal policy, and structural reforms, as well as the global and regional implications of these policies and other events.

The GIMF divides an economy into 10 sectors that allows a more detailed exploration of the interaction between sectors and the transmission of shocks and effects of policies. This feature is not present in previous multi-country macro-models such as the Multimod of the IMF with partial micro-foundations. There are wide-ranging nominal and real rigidities at the sectoral level generating realistic inertial dynamics for key macroeconomic aggregates. Unions, manufacturers, and distributors face nominal rigidity in price setting, while retailers and importers are subject to real rigidities as it is costly to rapidly adjust their sales volume. Manufacturers are also subject to real rigidity in capital accumulation.

Each economy is populated with two types of households, overlapping generations (OLG) households and liquidity constrained (LIQ) households. The main difference between these two types of households is that the latter do not have access to financial markets, and are forced to consume their after tax income each period. Unions buy labor services from the two types of households and sell them to manufacturers who also purchase investment goods from distributors and use the two production factors to produce intermediate tradable and non-tradable goods. The intermediate goods are then sold to domestic distributors and import agents of foreign economies—this is the first layer of trade (intermediary goods trade). Distributors combine domestic and foreign-produced tradable goods with public infrastructure to produce output that will be used as inputs in the production of domestic consumption and investment goods on the one hand and will be exported on the other—this is the second layer of trade (final goods trade). Investment goods producers sell their final output to manufacturers and the government, while consumption goods producers sell their final output to the government and retailers, who in turn sell their output to households. A flowchart of the main sectors is shown in Fig. 1.

¹ Corsetti, Pesenti, and Roubini (1999) study the vulnerability of an economy to external shocks in a new framework of currency crisis. Here we focus on the impacts of economic slowdown in the U.S. and G3 on EMEAP economies mainly through trade channel and confidence effects. As a result, the larger the exposure of an economy to the US (G3), the more it suffers.

² Founded in 1991, EMEAP is a cooperative organisation of central banks and monetary authorities in the East Asia and Pacific region. It comprises central banks and monetary authorities of the following 11 economies: Australia, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, and Thailand. The version of the GIMF used for this exercise has eight country-blocks, namely Australia–New Zealand, China, euro area, Japan, Korea, rest of EMEAP, rest of the world, and the US.

³ See, for example, IMF (2008a) and Kumhof and Laxton (2007).

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