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Is East Asia an optimum currency area?

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ABSTRACT

This paper assesses the empirical desirability of the East Asian economies to an alternative exchange rate arrangement (a monetary union) that can potentially enhance the exchange rate stability and credibility in the region. Specifically, the symmetry in macroeconomic disturbances of the East Asian economies is examined as satisfying one of the preconditions for forming an Optimum Currency Area (OCA). We extend the existing literature by improving the methodology of assessing the symmetry shocks in evaluating the suitability of a common currency area in the East Asian economies employing the Bayesian State-Space Based approach. We consider a model of an economy in which the output is influenced by global, regional and country-specific shocks. The importance of a common regional shock would provide a case for a regional common currency. This model allows us to examine regional and country-specific cycles simultaneously with the world business cycle. The importance of the shocks decomposition is that studying a subset of countries can lead one to believe that observed co-movement is particular to that subset of countries when it in fact is common to a much larger group of countries. In addition, the understanding of the sources of international economic fluctuations is important for making policy decisions. The falling share of country specific factor and the rising role of region factor indicate that East Asia has become increasingly favorable for a monetary union. However, the share of country-specific factor that is still significant implies that it could be costly to renounce individual currencies to advance into a monetary union in East Asia.

1. Introduction

East Asia was late in jumping onto the regionalism bandwagon in comparison with the European and North American countries. The first Regional Trade Arrangements in East Asia only existed in 1977 when Association of Southeast Asian Nations (ASEAN)[1] reached an agreement on its Preferential Trading Arrangements. Several further attempts to forge closer economic integration amongst the East Asian countries during the 1990s were unsuccessful. Most researchers identified three major reasons for the sudden interest in East Asia for greater economic integration: (1) the failure of the World Trade Organization (WTO) and Asia-Pacific Economic Cooperation (APEC) to make any significant headway on trade liberalization. (2) the widening and deepening economic integration in Europe and North America; and (3) the Asian financial crisis.

East Asian countries have reassessed their strategies towards further trade liberalization after the failure to launch a new round of trade negotiations during the WTO Ministerial Meeting in Seattle. If the global trading system does not continue to liberalize, the region may be affected negatively as many of the East Asian countries depend on export to sustain their economic growth.[2] Hence, the perception that a new round of WTO trade negotiations had failed to materialize due to a lack of enthusiasm and political will in both the US and Europe has fueled concerns among the East Asian countries about the direction that the global trading system is heading. In Europe, the European Union (EU) has expanded into Central and Eastern Europe and will be progressing into greater monetary union. In the United States (US), North American Free Trade Area (NAFTA) and Latin American countries are heading towards greater economic integration.

The idea of a common currency for ASEAN Plus Three (APT)[3] became popular after the Asian financial crisis 1997–98.[4] The first significant concrete 'product' of APT is an agreement, reached at Chiang Mai in Thailand in May 2000, to establish a regional currency-swap facility to enable the states to protect themselves better against any future financial crises similar to the Asian financial crisis in 1997. As a result of its announcement, the idea of a single currency for East Asia was transformed from a "laughable concept" to a "possible policy goal" (Castellano, 2000). The APT process has involved annual

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[1] Comprising only the founding members: Indonesia, Malaysia, the Philippines, Singapore and Thailand.

[2] Bergsten (2000).

[3] APT region includes the 10 ASEAN countries (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam) plus China, Japan and South Korea.

[4] See Section 2.2.3 for factors sparkling interest in East Asian regionalism and Section 2.3 for the prospects of APT.

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meetings of leaders, ministers and senior offices of the 13 members' countries. The APT leaders have also commissioned studies and reports to explore bases for further East Asian cooperation which encouraged development of proposals for an "East Asia Summit". During the APT summit in 2004, the decision to hold the first East Asia Summit (EAS) was reached. The first EAS was held in Kuala Lumpur, Malaysia on 14 December 2005. The EAS has since been meeting annually since 2005. The participating countries were the APT members, and India, Australia, New Zealand, the United States and Russia.[5] This EAS is seen as a significant step towards a new era of regional cooperation as it went beyond the narrow geographical definitions or ethnic/racial identity in attempting to lay the groundwork for a new regionalism. The inclusion of the participating states in the EAS demonstrates an outward-looking approach to the emerging East Asian regionalism (Desker, 2005). An important outcome of the EAS was that the leaders envision the emergence of a single East Asia Community with a common goal. The Hanoi Declaration on the Commemoration of the Fifth Anniversary of the EAS in October 2010 declared that all the participating countries agreed to strengthen the EAS further in the future.

The journey towards economic integration in East Asia has begun and monetary integration is inevitable in the integration process. Despite the promising developments discussed above, many are still doubtful if the region is ready for a monetary union. If the East Asian countries were interested to pursue the idea of a common regional currency, detailed studies on this issue must be carried out. This study proposes the examination of the theory of Optimum Currency Area (OCA) by the Nobel laureate Robert Mundell in the case of East Asia. The OCA theory has been widely applied to examine the suitability of the European countries to form a monetary union which path the way to the formation of Euro. The criteria include the symmetry of shocks across countries, factor mobility, wage flexibility, trade and financial integration, and political integration. The greater the linkages between the countries using any of the above criteria, the more suitable a common currency. Much of the literary works focus on the criterion of the similarity of shocks. It is almost a "catch all" OCA property, or "meta" property, capturing the interaction between several properties (Mongelli, 2002). The rationale for this criterion is that countries experiencing similar disturbances are likely to respond with similar policies, thus making them better candidates for forming a monetary union.

However, the measurement of business cycle synchronization is inherently an empirical question which has no universal consensus answers. Although there has been increasing interest among the researchers to examine the suitability of East Asian countries for a common regional currency, most of the related studies have been based primarily on inappropriate econometrics techniques. Simple correlation between countries is mainly used to measure the degree of shock symmetry in the OCA literature. The correlation is usually calculated between a country and a chosen anchor country. Lee et al. (2002) provided some disadvantages of bilateral measures in the following reasons: (1) the degree of region-wide co-movements, rather than bilateral ones provides a more appropriate measure since we are interested in the net benefits of adopting a common monetary policy across economies in the region; (2) the simple correlation does not offer the sources of the shocks, there may be the third factor such as the world common shocks that induce a high correlation between countries; (3) there is no single country plausibly offers a regional anchor.[6]

Another celebrated technique in OCA literature is Bayoumi's structural VAR technique. The first stage of this technique consists of running a national VAR of changes of output and prices. To identify the coefficients of the structural form, Bayoumi assumed the orthogonality of supply and demand shocks that only supply shocks are able to affect the level of output, and that demand shocks are temporary. This approach comes with several caveats. First of all, if the logs of output and prices in quarterly format are cointegrated in several of the countries of the sample, the coefficients of the VAR are asymptomatically biased. In addition, as Bayoumi recognized, neither the orthogonality of supply and demand shocks nor the short duration of demand shocks are uncontestable assumptions. A shock to terms of trade would affect both aggregate supply and demand. In economies with high unemployment rates, demand shocks can be expected to have effects that are highly persistent, if not permanent. Bayoumi and Eichengreen (1994) argued that only supply shocks are crucial disturbances to which independent monetary policy wishes to respond. Many researchers see little justification that only supply shocks matter.[7] They argued that there may not be much room left for the policy makers to react to if supply shocks are permanent shocks. In addition, if demand shocks do not originate from policy implementations, the monetary policy authority may wish to counteract to these disturbances. The existing methodologies also fail to recognize the sources of the shocks. For instance, one does not know whether the economic fluctuations of a country are accounted by the country specific, regional or the world common factors. Table A1 in the Appendix A summarizes the selected OCA literature for East Asia.

In the business cycle literature, there exists a strand of methodology that allows the analysis at a disaggregated level using the Bayesian State-Space Model. However, such methodology is mainly used to analyze the business cycles in the Western countries. Very few, to our knowledge, have applied it in the OCA context. We propose to employ this model which allows us to decompose aggregate shocks into country-specific, regional and world common business cycles. The importance of studying all three in one model is that studying a subset of countries can lead one to believe that observed co-movement is particular to that subset of countries when it in fact is common to a much larger group of countries. For example, Kose et al. (2003) found that the distinct "European" business cycle in the European countries is due to co-movement common to all countries in the world. Understanding the sources of international economic fluctuations is important for making policy decisions. For example, if a country exhibits a large value of the share accounted by the region common factor, then its business cycle movement is largely synchronized to the region, indicating that a regional common monetary policy is more effective to respond to the disturbances. However, if a country possesses a smaller value of the share accounted for by the region common factor and a larger value of that accounted for by the country-specific factor, it needs to rely more heavily on its own independent counter-cyclical monetary policy. Unlike previous studies that examine only the degree of correlations of business cycle among countries, our study enables us to identify the sources of the economic fluctuations for each country. As a result, composition of the shocks in East Asia will be identified and appropriate policy actions can be undertaken accordingly.

2. Methodology

The econometric model employed here follows the dynamic unobserved factor model in Kose et al., 2003, which is an extension of the single dynamic unobserved factor model in Otrok and Whiteman (1998). The world economy consists of many different regions and each region consists of many different countries. This study decomposes the movement of an aggregate output, consumption, and investment in each country *i* into four different components: (i) the world common component, (ii) the region common

[5] The United States and India become participating states since 2011.

[6] In Europe, Germany is generally perceived as the regional anchor. However, there is no country which can play such similar role in East Asia.

[7] Among others, see Lee et al. (2002).