



Full length article

Feasibility of a currency union in East Asia using the five-variable structural vector autoregressive model

Najla Shafighi^a, Behrooz Gharleghi^{b,*}^a Faculty of Economics and Management, National University of Malaysia (UKM), 43600, Bangi, Selangor, Malaysia^b Faculty of Business and Management, Asia Pacific University of Technology and Innovation, Bukit Jalil, 57000, Kuala Lumpur, Malaysia

ARTICLE INFO

Article history:

Received 18 September 2014

Received in revised form 16 July 2016

Accepted 17 July 2016

Available online 21 July 2016

JEL classification:

F31

F36

Keywords:

Optimum currency area

Structural vector autoregressive

Exchange rate

East Asian region

ABSTRACT

Following the closer monetary cooperation among East Asian countries in recent years, this paper empirically investigates the feasibility of forming a currency union in the region by examining the symmetry of underlying shocks for the most recent period (post-crisis 1999–2013) and by testing the level of correlation of the shocks. Using a five-variable structural vector autoregressive model, we identify various types of shocks in ten East Asian economies. An impulse response function and variance decomposition of shocks are used to identify the size, speed of adjustments to the shocks, and the root cause of variability in macro variables. Empirical analysis suggests the capacity of Indonesia, Japan, Hong Kong, Korea, Malaysia and the Philippines to participate in a common currency area.

© 2016 Economic Society of Australia, Queensland. Published by Elsevier B.V. All rights reserved.

1. Introduction

The emergence of economic integration in a number of global regions, as demonstrated by the establishment of the North American Free Trade Agreement (NAFTA), the European Union (EU), the Mercado Común del Sur (Mercosur), the Economic and Monetary Community of Central Africa (CEMAC), the Organization of Eastern Caribbean States (OECS), the West African Economic and Monetary Union (UEMOA) and the Central American Common Market (CACM), has encouraged tighter economic integration in East Asia. At the same time, flow on effects from the 1997 financial crisis have increased economic inequality in the region while simultaneously generating new economic and political interest in strengthening monetary cooperation (Mishra and Sharma, 2010). One important aspect of monetary integration is its generally recognized macroeconomic benefits in the form of monetary policy which can better manage aggregate demand and promote investment in regional economies (Mundell, 1961).

The evaluation of underlying shocks, including supply shocks, demand shocks and monetary shocks, is necessary to assess the feasibility of creating an optimum currency area (Xu, 2006; Soo and Choong, 2010). According to Mundell (1961) and MacKinnon (1963), the demand to peg the bilateral exchange rates of two economies rises with the bilateral intensity of trade, flexibility of factor markets, and symmetry of underlying shocks. However, the correlation of shocks is generally accepted as the main criterion for a country to join a currency union (Huang and Guo, 2006). Mundell (1961) argues that countries with positively correlated economic shocks are suitable candidates for forming a currency union because they tend to use similar policies to adjust imbalances.

* Corresponding author.

E-mail addresses: shafighi_nab@yahoo.com (N. Shafighi), gharleghi.bn@gmail.com (B. Gharleghi).

The main objective of the current paper is to assess the attractiveness and feasibility of creating a currency union in East Asia on the basis of the optimum currency area (OCA) theoretical framework. First, we focus on the symmetry of various structural economic shocks across economies. This contrasts with the literature which has largely adopted a straightforward approach mainly limited to the examination of cross-country macroeconomic variables, such as real output, the consumer price index (CPI) and interest rates (e.g., Ito, 1994; Takuchi, 1994; Goto and Hamada, 1994; Kwan, 1998; Kandil and Trabelsi, 2012; Hsu, 2010).

Second, we develop a five-variable structural vector autoregressive (SVAR) model instead of the two-variable models developed in the earlier studies (and which consisted of only one supply shock and one demand shock—e.g., Bayoumi and Eichengreen, 1993; Lee and Koh, 2012), or the three-variable (e.g., Chow and Kim, 2003; Zhang et al., 2004) and four-variable models (e.g., Huang and Guo, 2006). To assess the extent of the symmetry of shocks in East Asian export-oriented countries, our model incorporates more than the typical two-variable model (Ling, 2001) integrating external supply, external monetary, domestic supply, demand, and monetary shocks into the SVAR model.

Third, using the latest data and five-variable SVAR model can contribute to an improved understanding of the underlying forces that determine economic movements across East Asian countries after the 1997 financial crisis. Five ASEAN members (Indonesia, Malaysia, Philippines, Singapore and Thailand) and five East Asian countries (China, Hong Kong, Korea, Taiwan and Japan) are selected for this study.

The remainder of this paper is organized as follows. Section 2 reviews some empirical studies on OCAs. Section 3 describes the data and presents the econometric methodology of the SVAR. Section 4 provides the empirical results and findings. Finally, Section 5 concludes with relevant policy implications.

2. Previous studies

Bayoumi and Eichengreen (1993) published one of the first empirical papers that deal with macroeconomic disturbance. They apply a variant of the VAR model introduced by Blanchard and Quah (1989) to the members of the European Community to measure the nature of economic disturbance within groups of countries. Their SVAR model is premised in turn on the aggregate demand–aggregate supply (AD–AS) model in which a supply shock can influence output and price level in both the long-run and the short run, whereas a demand shock has no effect on output in the long-run (Bayoumi and Eichengreen, 1993). In a related study on monetary integration in East Asia, Bayoumi and Eichengreen (1994) apply a similar technique to differentiate demand and supply shocks and to estimate the respective correlations of these shocks. They find symmetry in supply shocks among Indonesia, Malaysia, Hong Kong and Singapore, and also between Korea and Japan. Therefore, it may be assumed that these two groups of countries are more likely to form an OCA than other countries in the region.

Lee and Koh (2012) empirically assess the desirability of East Asian economies (ASEAN with three other East Asian countries) forming a monetary union using a two-variable SVAR model to measure the macroeconomic disturbances (supply shocks and demand shocks), and to identify potential candidates in forming an OCA. Their findings show that East Asian countries exhibit less symmetry in underlying shocks but faster adjustment to such shocks – especially after the financial crisis – and which therefore increases the likelihood of monetary integration among ASEAN countries. Zhang et al. (2004) employ a three-variable SVAR model consisting of supply, demand, and monetary shocks to test the symmetry of these shocks among East Asian countries. In doing so they analyze the feasibility of forming an OCA. They conclude from their results that an OCA is not feasible in the East Asian region. Chow and Kim (2003) investigate the feasibility of a common currency peg in East Asia based on a three-variable SVAR methodology, which differentiates global supply, regional supply, and domestic supply shocks. They find that domestic outputs of these countries are influenced more by country-specific shocks than by regional shocks. They further suggest that East Asian countries are structurally different from one another and, thus, are subject to asymmetric shocks. Therefore, based on the OCA theory, a common currency peg in East Asia will be costly and difficult to sustain.

Huang and Guo (2006) employ a four-variable SVAR model, which includes external global supply shocks, domestic supply and demand and monetary shocks in the assessment of the feasibility of creating an OCA in East Asia. This model accounts for the effect of external global supply shocks. Their findings confirm those of Bayoumi and Eichengreen (1994) who argue that this region is not ready to form an OCA, although Korea, Hong Kong, Indonesia, Malaysia, Singapore and Thailand are better suited to the creation of a currency union.

In seeking to provide a more comprehensive and reliable model this paper adds two external global shocks (supply and monetary) and three domestic shocks (supply, demand, and monetary) to the literature by introducing the five-variable SVAR model.

3. Methodology

In this section, we extend the previous works by improving the methodology used to evaluate the symmetry of shocks in East Asian countries. Underlying shocks can be global or country-specific. Therefore instead of a four-variable model (four shocks), we consider a model with two external global shocks (supply and monetary) and three domestic shocks (supply, demand, and monetary). Given that East Asian countries typically adopt an export-oriented strategy, incorporating two external shocks into the model provides more information and a more rigorous methodology on which to decide whether or not to adopt a common currency.

Download English Version:

<https://daneshyari.com/en/article/5052683>

Download Persian Version:

<https://daneshyari.com/article/5052683>

[Daneshyari.com](https://daneshyari.com)