

Trade and Business Cycle Synchronization in ASEAN-5 and China

Etty Puji Lestari¹, Lely Fera Triani²

^{1,2} Universitas Terbuka, Indonesia

Abstract. The reduction tariffs that occurred in Asia around 1980's has impact on increasing the intensity of international trade for the region countries including ASEAN-5. This research attempts to investigate the siklus bisnis pattern in ASEAN-5 countries, namely Indonesia, Malaysia, Thailand, Philipines and Singapore, was influenced by trade integration with China. These results show that China's increasing trade with ASEAN-5 countries, induces these economies to become increasingly integrated with ASEAN-5. Although ASEAN-5 countries are increasingly becoming important trading partners for China, there does not seem to be any strong relationship between output correlation and trade intensity, so business cycle becomes less synchronized.

Keywords: Trade, Business Cycle, ASEAN-5, China

1. Introduction

Efforts at economic integration and regional cooperation in East Asia have stepped up during the past decade. Many factors have contributed to the increase in pace. First, the 1997 financial crisis led to the countries in the region had to fight for each other and had less depend on multilateral institutions and countries outside the region. Second, the gridlock around Doha, the success of NAFTA, and the expansion of the EU has made regionalism a more attractive option. Third, the rapid development of China has made East Asia market more viable. Fourth, market based Regionalism or what has been termed regionalization in the form of intra-regional trade and investment has progressed even in the absence of formal agreements [1].

The Association of South East Asian Nation (ASEAN) was established in Bangkok in 1967 as one driver of the economic integration in the Southeast Asia. It initially included five members, known as the ASEAN-5 namely Indonesia, Malaysia, Philippines, Thailand and Singapore. Brunei Darussalam joined on 7 January 1984, Vietnam on 28 July 1995, Lao PDR and Myanmar on 23 July 1997, and Cambodia on 30 April 1999, making up what is today the ten Member States of ASEAN. Since the establishment of ASEAN as a regional organization, the members have put economic cooperation as one of the main agenda items. In the beginning, the economic cooperation was focused on preferential trade, joint ventures, and complementation schemes between the governments of ASEAN countries and the private parties in the ASEAN region, such as the ASEAN Industrial Projects Plan (1976), Preferential Trading Arrangement (1977), ASEAN Industrial Complementation Scheme (1981), ASEAN Industrial Joint-Ventures scheme (1983) and Enhanced Preferential Trading Arrangement (1987) [2].

¹ Department of Economics, Universitas Terbuka. Jl. Cabe Raya, Pondok Cabe, Jakarta. Indonesia. 15418. Tel.: + 62 7490941 ext 2106 ; fax: +62 7434491.

E-mail address: ettypl@ut.ac.id

² Department of Management, Universitas Terbuka. Jl. Cabe Raya, Pondok Cabe, Jakarta. Indonesia. 15418. Tel.: + 62 7490941 ext 2111 ; fax: +62 7434491.

E-mail address: lely@ut.ac.id

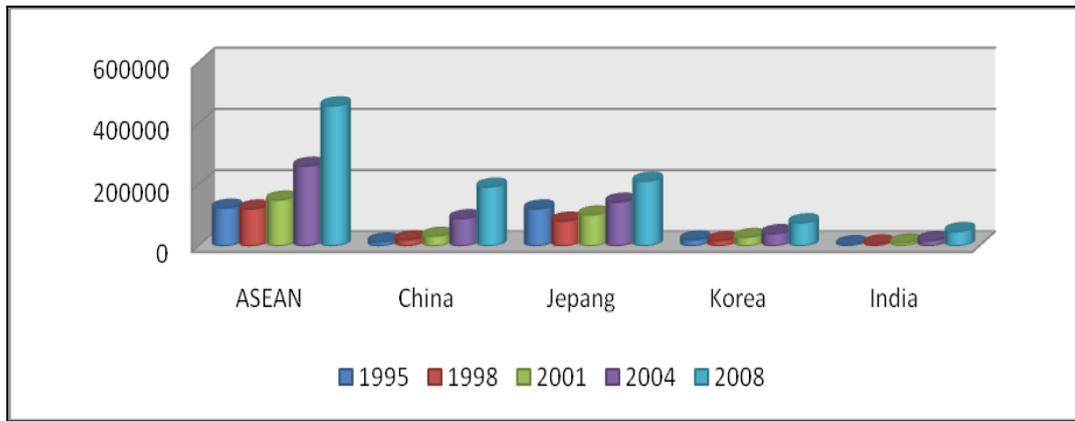


Fig. 1: The intensity of the ASEAN Trade with Other Countries

Based on the figure 1, we find out that the largest share of trade was among ASEAN members. The second position was done between ASEAN with Japan, China and Korea. The figure also said that ASEAN trade activities in Asia, especially with East Asian countries increased rapidly.

In addition, the regional integration was also driven by the hollowing out phenomenon experienced first by Japan and later on by Korea and Taiwan. Companies from those countries moved their production facilities to countries in East and Southeast Asia where wages were lower and set up factory Asia, to use Baldwin (2006) terminology. It is immediately clear that regionalism, which is a byword for formal economic integration, did not play any role in the early years of the regional integration process. In fact, the region did not have any single regionalism until early 1990s, i.e., until the ASEAN Free Trade Arrangement (AFTA) was launched [3].

Previous researchers working in the context of trade and the international business cycles have not reached a consensus about whether increased trade leads to more or less correlation of business cycles across countries. Particularly, Kenen (1969) [4]., Eichengreen (1991) [5]., and Krugman (1993) [6]., argued that as trade linkages increase, greater specialization of production will occur. This will imply in less synchronization of business cycles, if business cycles are hit by industry-specific technological shock.

The main objective of this paper is to analyze how the business cycles of China economy are influenced by increased trade with ASEAN-5 economies. As China's trade within this region began to accelerate in the 1990s, the influence of the trade linkages on business cycle co-movements seems to grow increasingly important. Moreover, possible free trade agreement in this region implies that this trend may persist even further.

2. Methodology

To measure output co-movements, annual data was collected on real GDP for 7 Asian countries over the period 1980-2011. The trade volume data are collected from IMF Direction of Trade Statistics, and industry level trade data are available from ASEAN database. The industry disaggregations in the database follow the International Standard Industrial Classification (ISIC) and are provided for manufacturing industries at the two-digit level (9 industries). The countries considered China and five ASEAN countries (Indonesia, Malaysia, the Philippines, Singapore, and Thailand).

The trade volume data are from the IMF *Direction of Trade Statistics* CD-ROM. Industry-level trade data are available in United Nations Statistics Department's Com trade database is reorganized using the World Bank's World Integrated Trade Solution (WITS) software. The industry disaggregation in the database follows the International Standard Industrial Classification (ISIC) and is provided for manufacturing industries at the two-digit level (9 industries). To investigate how the bilateral trade intensity in each pair of the 6 Asian countries a proxy was used for bilateral trade intensity, following Frankel and Rose (1998) [7]: wt_i using both export and import data. The variable was defined as follows:

$$wt_i(i, j) = \frac{x_{ijt} + m_{ijt}}{X_{it} + M_{it} + X_{jt} + M_{jt}}$$

where X_{ijt} = total nominal exports from country i to country j during period t ; M_{ijt} = total nominal imports from country i to country j during period t and X_{it} and M_{it} (X_{jt} and M_{jt}) denote total global exports and imports, respectively, for country i (j) during period t . The higher value indicates its means trade intensity more greater between country i and country j .

The trade intensity measure has a shortcoming in representing spillover effects, since it does not include information on the size of the trading partner. Given the same trade intensity, demand spillovers would be large for larger trading partners. Hence, a new measure of demand spillovers that is the multiplication of trade intensity and the corresponding trading partner's output is constructed [8].

A measure of intra-industry trade intensity is derived à la Grubel and Lloyd (1975) [9].. In constructing the measure, an important consideration is how detailed a classification of industries should be. If we want to measure trade in more homogeneous sectors, we need to disaggregate industries further. As the industries are further disaggregated, however, the portion of intra-industry trade will shrink and eventually go to nil. Rather than determining a proper industry classification a priori, was constructed based on two digit industry classifications that follow the ISIC. The constructed measure is:

$$IIT = 1 - \frac{\sum_i |x_{ijt}^k - m_{ijt}^k|}{\sum_i |x_{ijt}^k + m_{ijt}^k|}$$

where x_{ijt}^k is total nominal exports of product k from country i to country j and m_{ijt}^k is total nominal imports of product k from country j to country i . Depending on how an industry is classified, we measure $IIT-2$ for two-digit classifications. Note: that since the second term on the right-hand side of equation decreases as more intra-industry trade occurs, we subtract it from 1 so that the index will monotonically increase as intra-industry trade increases [2].

In general, there should also exist a causal effect of intra-industry trade on business cycle synchronization. To analyze this relationship more formally, we estimate the following equation is used:

$$BC(i, j)_t = \alpha_0 + \alpha_1 TI(i, j)_t + \alpha_2 IIT(i, j)_t + \varepsilon_{ijt}$$

where BC refers to the correlation of output between country i and country j during period t ; For trade intensity (TI), we use measure wt_t , and for intra-industry trade (IIT) we use $IIT-2$.

3. Result and Discussion

The results of panel regression showed that trade intensity ASEAN-5 with China have a negative impact on business cycles synchronization (see Table 1). This means that increasing trade intensity will have less influence on business cycle synchronization. One of the causes of this negative result was the small trade intensity between the five members of ASEAN-5 with China, if it is compared with the intensity of trade between ASEAN-5 countries themselves (see Figure 1).

Table 1. The Result of Panel Regression

Variable	China	
	coefficient	t-statistic
Trade Intensity/TI	-0.050922	-0.446277
Intra Industry Trade/IIT	-0.053057	-1.410282
Constanta	0.949901	39.21599
R-squared	0.012918	
Adjusted R-squared	0.001374	

The pattern of ASEAN trade are still dominated by trade among ASEAN countries. The condition is caused by several factors. The first factor is the barriers to trade between ASEAN-5 with their trading partners. Trade barriers are related to customs procedures, settlement of trade disputes and product standardization among other things. As a result, trade activity becomes inhibited. The Asian Development Bank (ADB) state that the intensity of trade growth in the decade 1980-1990 was very small. Previous research also concluded that trade intensity gave negative results on of business cycles synchronization [10].

The calculation results for the intra industry trade variable showed that intra industry trade have negative impacts on business cycles synchronization in ASEAN-5. These results concluded that intra industry trade is

not an important factor that drives business cycles synchronization. Over the past production items from ASEAN countries and China are relatively similar. They still specialize in agricultural production and labor-intensive industries such as textiles and footwear. Under these conditions, we can be sure if free trade is opened, capability of producing the goods most efficient will survive. The position is held by China, which can reduce the cost of production is low and become more efficient. China has comparative advantage because of their capability on the basis of chemical production technology, so it always supply the raw materials manufacturing industry with cheap price, irrespective of import. China also seriously reform the bureaucracy to fight corruption, collusion and nepotism, as well as executing the corruptors.

4. Conclusion

Increasing trade among Asian countries induces a higher degree of economic integration within the region. In this sense the business cycle of a country is expected to be continuously influenced by other economies in Asia, especially as trade within the region grows relatively more important. We conclude that China's increasing trade with ASEAN-5 countries, induces these economies to become increasingly integrated with ASEAN-5. Although ASEAN-5 countries are increasingly becoming important trading partners for China, there does not seem to be any strong relationship between output correlation and trade intensity, so business cycle becomes less synchronized. These findings are not surprising as total exports and imports of China to ASEAN-5 countries are relatively small compared to their overall total trade.

5. Acknowledgements

Author would like to thanks to Rector Universitas Terbuka for financial support in International Conference on Economic, Business and Innovation.

6. References

- [1] Yap, Josef T. 2005 Economic Integration and Regional Cooperation in East Asia: A Pragmatic View. *PIDS Discussion Paper Series* No. 2005-32. 2005
- [2] Lestari, E.P. Trade Integration and Business Cycle Synchronization: Empirical Study of ASEAN-5, China, Japan, Korea and India. *China-USA Business Review*, Vol. 11 No.10. Oktober 2012.
- [3] Damuri, Yose R, Raymond Atje and Arya B. Gaduh, Integration and Trade Specialization in East Asia. *CSIS Economics Working Paper Series* <http://www.csis.or.id/papers/wpe094>. 2005
- [4] Kenen, P., *The Theory of Optimum Currency Area: an Eclectic View*, In: Mundell, R., Swoboda, A. (eds.): *Monetary Problems in the International Economy*, University of Chicago Press, Chicago. 1969.
- [5] Eichengreen, B., Is Europe an Optimum Currency Area? , *Working Paper* No.3579, National Bureau of Economic Research, Cambridge, January 1991.
- [6] Krugman, P., Lessons of Massachusetts for EMU, In: F. Torres and F. Giavazzi (eds.), *Adjustment and Growth in the European Monetary Union*, Cambridge University Press, Cambridge, (1993). pp. 241-261.
- [7] Frankel, Jeffrey, and Andrew Rose. The Endogeneity of the Optimum Currency Area Criteria. *Economic Journal* 108 (449): 1998.
- [8] Shin, Kwanho dan Yunjong Wang. Trade Integration and Business Cycle Synchronization in East Asia. *Asian Economic Papers*. 2004. Vol.2 No. 3 page 1-20.
- [9] Grubel, Herbert G., and Peter J.Lloyd, *Intra-industry Trade: The Theory and Measurement of International Trade in Differentiated Products*, London: MacMillan. 1975.
- [10] Teng, Kwek Kian dan Wai, Cho.C. (2005). Trade Integration and Business Cycle Synchronization: The Case of India, China with ASEAN-5. *Working Paper*. Retrieved from www.pes.org.ph/faea/downloads/paper/3/pararell3b1.pdf