RIETI Discussion Paper Series 16-E-070

Investigating the Effect of U.S. Monetary Policy Normalization on the ASEAN-4 Economies

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The Research Institute of Economy, Trade and Industry
http://www.rieti.go.jp/en/

RIETI Discussion Paper Series 16-E-070
May 2016

Investigating the Effect of U.S. Monetary Policy Normalization on the ASEAN-4 Economies[1]

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Abstract

U.S. monetary policy normalization is triggering capital outflows in the Association of South East Asian Nations (ASEAN). Using an event study, this paper reports that capital-intensive firms, the financial sector, and small firms in ASEAN are exposed to these outflows. Capital outflows also cause exchange rate depreciations that improve the price competitiveness of exports. To gauge this effect, this paper estimates price and income elasticities for ASEAN exports. The results indicate that a 10% exchange rate depreciation will increase ASEAN labor-intensive exports by 8%. ASEAN firms should use the tailwind provided by weaker exchange rates to increase exports.

Keywords: ASEAN, Capital outflows, Federal Reserve policy
JEL classification: F14, F32

[1]This study is conducted as a part of the Project "East Asian Production Networks, Trade, Exchange Rates, and Global Imbalances" undertaken at Research Institute of Economy, Trade and Industry(RIETI).
Acknowledgements: I thank Keiichiro Kobayashi, Peter Morgan, Masayuki Morikawa, Farhad Taghizadeh-Hesary, Aditya Anta Taruna, Makoto Yano, Naoyuki Yoshino, and seminar participants at RIETI and at the Asian Development Bank Institute Workshop on Global Uncertainty, Macroeconomic Shocks, and Growth in Asia for helpful comments. Any errors are my own responsibility.
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1. Introduction

The 1997-98 Asian Financial Crisis (AFC) devastated Thailand, Indonesia and other members of Association of Southeast Asian Nations (ASEAN). Real output fell 11% in Thailand and 14% in Indonesia in 1998 after growing by more than 7% per year in both countries between 1970 and 1996.

Krugman (1999, 2001), trying to explain the virulence of the crisis, focused on the interplay between capital outflows and financial intermediation. Capital outflows caused Asian exchange rates to depreciate and the net worth of domestic firms with foreign currency liabilities to tumble. As firms' retained earnings fell, their debt/equity ratios soared and they lost access to credit. These businesses soon exhausted their working capital and were forced to curtail production. Small firms suffered disproportionately because they had less collateral and less access to credit than large firms did.[2]

Given the dislocation experienced during the AFC, many are concerned that capital outflows from ASEAN triggered by U.S. monetary policy normalization will cause renewed difficulties. When Federal Reserve Chairman Ben Bernanke announced on 22 May 2013 that the Fed may taper its bond purchases as a step towards normalizing monetary policy, capital exited ASEAN and other emerging markets (EMs) in pursuit of higher returns in the U.S. Stock prices and exchange rates in ASEAN and other EMs fell. Because of the strong market reaction, this episode was dubbed the "Taper Tantrum". When Bernanke repeated the same message on 18 June 2013, emerging market stocks fell again. He then announced on 18 September 2013 that any tapering of bond purchases by the Federal Reserve would be delayed, implying that the Fed was not going to raise interest rates immediately. This caused stocks to recover in ASEAN and other emerging markets. Since then, concerns that the Federal Reserve will normalize monetary

[2] Gertler and Gilchrist (1994) discuss the vulnerability of small firms to interruptions in the flow of credit.

policy have continued to trigger capital outflows, exchange rate depreciations, and drops in ASEAN asset prices.

To shed light on how these capital outflows are affecting ASEAN economies, this paper investigates the response of a cross section of stock prices to the events discussed above. Theory posits that stock prices equal the expected present value of future cash flows. Thus by examining the response of stocks in different sectors to news about monetary policy normalization, one can learn something about what sectors of the ASEAN economies are most exposed to changes in U.S. monetary policy.

Cho and Rhee (2014) have investigated the impact of U.S. quantitative easing (QE) on Asian economies. They measured QE using dummy variables for ten weeks when important QE announcements were made. They examined the effect on China, Hong Kong, Japan, South Korea, Malaysia, the Philippines, Singapore, and Thailand. They found that QE over the 2008-2009 period strengthened Asian exchange rates and reduced local currency denominated bond yields on 5-year government bonds and credit default swap premiums on 5-year sovereign debt.[3] They concluded that QE over this period redirected capital flows to Asian countries. They also found that QE after 2009 had a more muted effect on Asia.

Estrada, Park, and Ramayandi (2015) examined how news of the taper tantrum affected aggregate stock prices in 22 developing economies, including 9 economies in developing Asia. They represented tapering news using daily dummy variables set equal to 1 from 22 May 2013 to the time when stock prices troughed at the end of June and equal to 0 for the rest of 2013. Within Asia, they reported that the news only affected equity prices in China, Hong Kong, South Korea and Singapore but not in India, Indonesia, the Philippines, Thailand, and Viet Nam.

[3] Credit default swap premiums represent the cost of insuring against bond default risk.

Chen, Mancini-Griffoli, and Sahay (2014) examined how Fed policy news affected emerging market asset prices both during the tapering period and before. They decomposed Fed policy news into "signal shocks" that affect expectations of future short-term policy rates and "market shocks" that affect longer-term rates through other channels. Estimating a panel regression model for 21 emerging market economies, they reported that news of contractionary policy measured either way during the tapering period lowered stock returns, raised bond yields, and depreciated exchange rates in emerging markets.

Previous research has focused on the effects of U.S. monetary policy on more aggregated variables in emerging markets. This paper seeks to shed light on the impact of Fed policy on ASEAN economies by using disaggregated stock returns.

The results indicate that capital-intensive industries, especially those associated with the natural resource sector, are harmed by news of Fed tapering. The insurance and finance sectors are also adversely affected. Finally, small companies in Indonesia and the Philippines, which might have more trouble accessing credit, are harmed both by news of monetary policy normalization and by depreciations of the local currency.

This paper then investigates other impacts of capital flows on ASEAN. One key opportunity arises as capital outflows trigger exchange rate depreciations and improve the price competitiveness of exports. To gauge this effect the paper estimates price and income elasticities for ASEAN exports.

Yusoff and Sabit (2015) have investigated trade elasticities for exports from the ASEAN-5 countries (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) to ASEAN's largest export market (China). Using panel Generalized Method of Moments estimation for exports to

China over the 1992 to 2011 period, they reported that a 10 percent depreciation in ASEAN would increase exports by 11 percent.

Thorbecke (2010) estimated the factors affecting labor-intensive exports from the ASEAN-4 economies (Indonesia, Malaysia, the Philippines, and Thailand) to a panel of 25 countries over the 1985-2006 period. Results obtained using panel dynamic ordinary least squares estimation indicate that a depreciation in ASEAN would significantly increase exports.

Baiardi, Bianchi, and Lorenzini (2015) estimated export functions for Indonesia and other clothing exporters over the 1992 to 2011 period. Employing a panel model including exports of 37 types of clothing, they failed to find statistically significant price elasticities for Indonesia.

This paper attempts to build on this research by estimating elasticities for individual ASEAN countries, as opposed to Yusoff and Sabit (2015) and Thorbecke (2010) who estimated elasticities for ASEAN countries together. The results indicate that a 10 percent depreciation would increase labor-intensive exports from the Indonesia by 6 percent, from Malaysia and the Philippines by 8 percent, and from Thailand by 3 percent.

One danger associated with capital flows arises as capital exits to seek higher returns elsewhere and foreign direct investment (FDI) into ASEAN falls. As Yoshitomi *et al*. (2003) discussed, attracting FDI plays an important role in promoting development in Southeast Asia. The paper considers how ASEAN countries can continue to attract FDI in a challenging environment.

The next section investigates how news of Fed tapering affects ASEAN stocks. Section 3 estimates trade elasticities for ASEAN exports and considers how ASEAN can keep attracting FDI. Section 4 concludes.

2. Federal Reserve Tapering News and ASEAN Stocks

2.1. Data and Methodology

To investigate the response of ASEAN stocks to news of U.S. monetary policy normalization, the event study methodology is employed. This involves regressing the return on stock *i* on news of the change in monetary policy. The equation takes the form:

$$R_{i,t} = \alpha_0 + \alpha_1 \Delta MP_t , \quad (1)$$

where $R_{i,t}$ is the return on stock *i* over the 24 hours bracketing the policy change and ΔMP_t is news of the change in monetary policy. Following Cho and Rhee (2014), news of U.S. monetary policy is assumed to be exogenous to ASEAN financial markets.

As discussed above, news of monetary policy normalization is measured by the three events associated with the taper tantrum in 2013. These events were widely perceived as triggering strong market reactions throughout the world. Chen, Mancini-Griffoli, and Sahay (2014) found that the May and June 2013 announcements represented strong tightening shocks and that the September 2013 decision to postpone tapering surprised markets by implying looser monetary policy.

Park and Um (2015) included the 18 December 2013 announcement by Bernanke that tapering would start. However, the 18 December announcement differed from the other three. In December Bernanke combined news that tapering would start, which should indicate tighter monetary policy, with news that the target interest rate would stay low long past the time when unemployment fell below 6.5 percent.[4] Thus this news had both dovish (i.e., indicating easier monetary policy) and hawkish (i.e., indicating tighter monetary policy) aspects, making it ambiguous.

[4] See "Transcript of Chairman Bernanke's Press Conference December 18, 2013," available at www.federalreserve.gov.

For the other events, the first two clearly indicated that U.S. monetary policy would be tighter and the third that it would be looser. The first two are thus measured with a dummy variable that equals -1 and the third with a dummy variable that equals 1. Thus a positive value for α_1 in equation (1) implies that news of monetary policy normalization by the Fed causes stock prices to fall.

One lesson from the 1997-98 Asian Crisis is that capital outflows are associated with both exchange rate depreciations and restricted access to credit. In addition, as the entire macroeconomy turns down, individual firms and sectors face demand shortfalls and falling sales.

To control for these effects, both the exchange rate and the aggregate stock market index are included in equation (1). A depreciation of the currency would harm firms saddled with foreign currency liabilities and domestic earning streams. It would benefit firms that compete heavily in the tradable goods sector. A fall in the aggregate stock market would especially harm cyclically-sensitive firms (e.g., those producing luxury items). The equation estimated takes the form:

$$R_{i,t} = \alpha_0 + \alpha_1 \Delta MP_t + \alpha_2 \Delta ER_t + \alpha_3 R_{m,t} , \qquad (2)$$

where $R_{i,t}$ and ΔMP_t are defined after equation (1), ΔER_t represents the change in the exchange rate over the 24 hours bracketing the monetary policy news, and $R_{m,t}$ represents the return on the country's aggregate stock market over these 24 hours.

Data on $R_{i,t}$, ΔER_t, and $R_{m,t}$ come from the Datastream database. For $R_{i,t}$, returns on all of the Datastream sectoral stock indices for the ASEAN-4 countries (Indonesia, Malaysia, the Philippines, and Thailand) are employed. For ΔER_t, the daily change in the log of the exchange rate of the U.S. dollar relative to the ASEAN country's currency is employed. An increase in this variable represents a depreciation of the ASEAN currency, so a negative coefficient on α_2

implies that a depreciation of the local currency will lower returns. For $R_{m,t}$, the return on the MSCI aggregate index for the ASEAN country is used. Returns are measured in local currency terms. The equations are estimated using daily data from 2 January 2013 to 31 December 2013. There are 260 observations.

2.2.Results

Before reporting the results from estimating equation (2), Table 1 examines the effect of news of U.S. monetary policy normalization and exchange rate changes on aggregate stock market returns for Indonesia, Malaysia, the Philippines, and Thailand. The results indicate that tapering news reduced aggregate returns in Indonesia by 3.5 percent, in the Philippines by 1.9 percent, and in Thailand by 1.8 percent. The tapering did not have a statistically significant effect of aggregate returns in Malaysia.

How can we understand this pattern? Sahay *et al.* (2014) reported results from panel regressions indicating that news of Federal Reserve tapering affects countries with worse fundamentals more. Their measures of bad fundamentals are elevated current account deficits, high inflation, weak growth prospects, and relatively low reserves. Bayoumi *et al.* (2015) presented finding from a panel data set indicating that a more developed financial sector tends to influence the degree to which a country is affected by news of U.S. monetary tightening. They measured financial sector development as the ratio of bank assets to GDP.

According to these measures, one would expect Indonesia to be the most adversely affected by news of Fed tapering in 2013. In that year, Indonesia's current account deficit was -3.2 percent of GDP, as compared to 3.5 percent for Malaysia , 4.2 percent for the Philippines, and -0.9 percent for Thailand. Indonesia's CPI inflation rate was 7.0 percent, as compared to 2.1 percent for Malaysia , 4.2 percent for the Philippines, and -0.9 percent for Thailand.

Indonesia's reserves equaled 11 percent of GDP, as compared to 43 percent for Malaysia, 31 percent for the Philippines, and 43 percent for Thailand.[5] Indonesia's ratio of bank assets to GDP over the 2011-2015 period equaled 48.4 percent, as compared to 145.3 percent for Malaysia, 55.9 percent for the Philippines, and 182.5 percent for Thailand. Thus, the pattern in Table 1 follows what one would predict based on fundamentals in ASEAN-4.[6]

Tables 2a-2d present the results for estimating equation (2). The tables are ordered based on the portfolios' exposures to the taper tantrum, with the first portfolio listed being the most exposed to monetary policy normalization in the U.S. and the last one listed being the least exposed. Only portfolios with statistically significant exposures (at at least the 10 percent level) are reported. Other results are available on request.

Table 2a indicates that the industries in Indonesia most harmed by monetary policy normalization in the U.S. are two capital-intensive industries, industrial metals and mines and heavy construction. Since these industries have heavy financing needs, these results suggest that capital outflows will interfere with their availability to obtain credit. The finding that the currency exposures are not statistically significant suggests that these industries do not have the kind of currency mismatches that plagued Indonesia during the 1997-98 crisis.

Small company stocks in Indonesia are harmed by news of tapering by the Fed and also by a depreciation of the rupiah. Since small companies tend to have the most difficulty obtaining finance, this finding suggests that credit factors are affecting small firms in Indonesia. If they are affecting small firms that are listed on the stock market, they are likely to affect smaller firms that are not listed and less well-collateralized even more. The exchange rate exposure also

[5] These data come from Asian Development Bank dataset Key Indicators for Asia and the Pacific, available at www.adb.org.
[6] These data come from the World Bank dataset Domestic Credit provided by the Financial Sector (percent of GDP) available at www.worldbank.org.

indicates that a depreciation of the rupiah reduces small country stock prices. This may imply that small companies in Indonesia have a mismatch between foreign currency liabilities and domestic currency asset or earnings streams.

Table 2b for Malaysia indicates that the oil and gas exploration and production sector is harmed by news of tapering. This is a capital-intensive sector with heavy financing needs, and capital outflows could make it harder for firms in this sector to access credit.

Table 2b also indicates that most types of insurance in Malaysia are harmed by tapering news. Malaysia has the most developed insurance sector in ASEAN-4, as measured by expenditure on insurance per capita.[7] The exchange rate exposures for the categories insurance, non-life insurance, and property/casualty insurance indicate that a depreciation of the ringgit would benefit the Malaysian insurance industry. This suggests either that the Malaysian insurance industry does not suffer from an excess of foreign currency liabilities relative to assets or that the industry would fare better against foreign competition if the ringgit weakened. For Thai stocks in Figure 2d, the insurance industry is also exposed to monetary policy normalization. Unlike the case of Malaysia, however, a depreciation of the exchange rate would reduce returns on Thai insurance companies. Apart from full-line insurance, the market betas for insurance stocks in Malaysia and Thailand are small. This suggests that these industries are not sensitive to business cycle downturns.

Small company stocks in Malaysia are only marginally affected by the tapering, and small company stocks in Thailand are not affected at all. By contrast, as reported in Table 2c, small company stocks in the Philippines are significantly exposed to Federal Reserve policy. As

[7] Non-life insurance penetration per capita in 2011 equaled USD 11 in the Philippines, USD 13 in Indonesia, USD 59 in Thailand, and USD 348 in Malaysia. These values are calculated by multiplying non-life insurance coverage in each country by each country's GDP measured in real US dollars and dividing this product by each country's population. Data on non-life insurance coverage are obtained from the World Bank Global Financial Development Database and data on GDP and population are obtained from the CEPII-CHELEM Database.

is the case of Indonesia, an exchange rate depreciation in the Philippines would decrease small company stock prices. The greater exposure of small company stocks in Indonesia and the Philippines to monetary policy normalization may reflect the fact that these countries have less developed financial sectors.

Table 2c also indicates that finance companies and banks in the Philippines are harmed by tapering news. The same is true of Thailand. In addition, in Thailand but not in the Philippines a depreciation of the currency would harm the financial sector.

The findings thus indicate that capital outflows will harm capital-intensive sectors in Indonesia and Malaysia and the insurance and finance sectors in Malaysia, the Philippines, and Thailand. In Malaysia a depreciation will benefit the insurance sector whereas in Thailand a depreciation will harm both the insurance and finance sectors. In both Indonesia and the Philippines, small company stocks are harmed by both the capital outflows associated with Fed tapering and by depreciations of the local currencies.

3. Estimating Trade Elasticities for ASEAN Exports and Attracting FDI

The results above indicate that capital outflows will have a contractionary impact on ASEAN economies. Blanchard *et al.* (2015) have noted that capital outflows, by increasing the cost of financial intermediation, will reduce output. They observed, however, that the resulting exchange rate depreciation can have an expansionary effect by increasing net exports (see also Krugman, forthcoming). They also argued that capital flows should be disaggregated to understand their effects.

In Asia, one type of capital inflow that can bring benefits is foreign direct investment (FDI). As Kojima (1973, 1975) has highlighted, FDI can be a vehicle for transplanting superior production technology to emerging economies in Asia through training labor and management.

FDI in the region often involves the transmission of a 'package' of capital, managerial skill, and technical knowledge to the host country.

This section investigates the extent to which exchange rate depreciations in ASEAN can stimulate exports. It also considers how countries in the region can attract FDI.

3.1. Estimating Trade Elasticities for ASEAN Exports

Many of the goods exported from ASEAN are electronics products and automobiles produced within regional value chains. Much of the value-added of these good come from imported parts and components. It is difficult to estimate how changes in ASEAN exchange rates affect these exports because their price competitiveness also depends on exchange rates in the countries producing the imported parts and components. By contrast, for labor-intensive exports such as clothing the lion's share of the value-added comes from domestic inputs. This section thus investigates trade elasticities for labor-intensive exports from ASEAN.

Exporting labor-intensive goods such as furniture and footwear also can benefit economies in the region. ASEAN countries have many unskilled or semi-skilled workers, and producing these goods would provide their workers with employment. In addition, exporting these goods can lead to learning by doing and give firms the chance to advance to higher value-added activities such as design and marketing.

To estimate elasticities for these exports the workhorse imperfect substitutes model is employed. This model posits that exports are a function of the exchange rate versus the importing country and of income in the importing country.

Exports of clothing, knitwear, carpets, leather goods, furniture, yarns, and fabrics are investigated. These are the major labor-intensive exports from ASEAN. Data on these exports from Indonesia, Malaysia, the Philippines and Thailand to 25 key importing countries over the

1983 to 2013 period are employed. The importing countries are Australia, Austria, Belgium, Bangladesh, Canada, China, Denmark, Finland, France, Germany, India, Italy, Japan, the Netherlands, New Zealand, Norway, Poland, Saudi Arabia, South Korea, Spain, Sweden, Switzerland, Taiwan, the United Kingdom, and the United States. These data come from the CEPII-CHELEM database.[8]

Bilateral real exchange rates between the ASEAN-4 countries and the importing countries can be measured using the CEPII-CHELEM bilateral real exchange rate. As Bénassy-Quéré et al. (2001) have discussed, this real exchange rate variable measures the units of consumer goods in one country needed to purchase a unit of consumer goods in another country. An increase in the exchange rate represents an appreciation of the ASEAN currency. Data on real GDP in the importing countries can also be obtained from the CEPII-CHELEM database.

Employing exports to 25 countries over 31 years provides a lot of cross sectional and time series variation. This should help to identify in an econometric sense the effect of changes in exchange rates and income in the importing countries on ASEAN exports.

A battery of panel unit root tests indicated that in most cases the variables are integrated of order 0 (I(0)). The model was thus estimated with panel least squares with importer and period fixed effects.

Table 3 presents the results. The first column presents the findings for exports from all four countries together and the next four columns findings for each of the countries individually. All of the coefficients are of the expected signs and, except for the exchange rate coefficient for Thailand, all of the coefficients are statistically significant at the 1 percent level. For the exchange rate elasticity for Thailand, the p-value equals 0.109.

[8] These data are measured in U.S. dollars and deflated using the U.S. consumer price index.

For all four countries together, the results indicate that a 10 percent depreciation of ASEAN currencies would increase exports by 7.6 percent and a 10 percent increase in rest of the world (ROW) GDP would increase exports by 19.5 percent. For Indonesia, Malaysia, the Philippines, and Thailand, respectively, a 10 percent depreciation would increase exports by 5.7 percent, 8.0 percent, 7.9 percent, and 3.0 percent and a 10 percent increase in ROW GDP would increase exports by 18.5 percent, 19.0 percent, 27.4 percent, and 13.8 percent. The somewhat lower exchange rate elasticity for Indonesia may reflect the fact that the country has focused on exporting commodities and allowed the labor-intensive manufacturing sector to become less competitive. The lower exchange rate elasticity for Thailand may reflect the prevalence of sophisticated goods such as automobiles and electronics goods in Thailand's export basket.

Between January 2013 and December 2015, the Indonesian rupiah and Malaysian ringgit have both depreciated by 20 percent according to the Bank for International Settlements CPI-deflated real effective exchange rate measure.[9] The results in Table 3 indicate that this depreciation will increase exports by 11 percent for Indonesia and by 16 percent for Malaysia. For the Philippines and Thailand, while their currencies have depreciated relative to the U.S. dollar, there has been no depreciation on a real effective basis over this period.

3.2. Attracting FDI[10]

As discussed above, attracting FDI can help to sustain growth in ASEAN countries. Much of this FDI comes in the context of global production networks. How can ASEAN countries be attractive places for continued investment by multinational corporations participating in regional value chains?

[9] These data are available at www.bis.org.
[10] This section draws on Thorbecke and Yoshitomi (2006) and Yusuf *et al.* (2003).

Kimura and Ando (2005) have presented a model for understanding firms' decisions to slice up the value chain by transferring production abroad. In their framework firms decide to fragment production when the cost saving arising from segmenting production exceeds the cost of linking fragmented production blocks (the service link cost).

Two key costs associated with linking geographically-separated production blocks are costs related to distance and to managerial controllability. Costs along the distance dimension can be lowered by improving physical and communications infrastructure, expanding the knowledge base, improving corporate governance, and providing legal remedies for violations of intellectual property rights agreements (Yusuf *et al.*, 2003). Costs along the controllability dimension arise from ineffective dispute settlement mechanisms, incomplete contracts, and asymmetric information. The service link cost can be lowered by strengthening physical infrastructure such as 1) the network of highways, ports, and airports, 2) the ICT infrastructure, 3) container yards, and also market-supportive institutional infrastructure such as 1) enforcement of the legal system, 2) information on vendors, 3) enforcement of the stability of private contracts, 4) corporate governance, and 5) legal remedies when firms violate intellectual property rights agreements.

As Kojima (1973, 1975) has emphasized, FDI in Asia can be a vehicle for technology transfer. Urata, Matsuura, and Wei (2006) reported that technology transfer is facilitated as workers in the host country are better educated. Yusuf *et al.* (2003) similarly emphasized how providing high school students with a high quality education in science and math and providing university students with scientific and engineering training can help to attract FDI. In addition, it is important to provide children with adequate nutrition, healthcare, and primary education.

To take stock of how ASEAN countries are doing in these areas and how they can improve, data from the World Economic Forum (2015) Global Competitiveness Index is useful. The World Economic Forum (WEF) surveyed 13,000 business executives in 2015 to learn about the ease of doing business in different countries. For ASEAN-4 countries, areas of special concern, with their global ranking in that area in parentheses, are as follows:

1) For Indonesia, quality of electrical supply (86th), primary education enrollment (80th), security (101st), and quantity of post-primary education (82nd);

2) For Malaysia, business impact of tuberculosis (82nd), business impact of HIV/AIDS (81st), and quantity of post-primary education (95th);

3) For the Philippines, ethics and corruption (91st), security (97th), overall infrastructure quality (106th), port infrastructure (103rd), air transport infrastructure (98th), quality of electrical supply (89th), business impact of tuberculosis (110th), business impact of HIV/AIDS (91st), primary education enrollment (100th), and quantity of post-primary education (83rd);

4) For Thailand, property rights (96th), ethics and corruption (100th), security (115th), railroad infrastructure (78th), business impact of tuberculosis (96th), business impact of HIV/AIDS (103rd), and quality of primary education (89th).

For each of the ASEAN-4 countries, there are different areas of concern. It is clear, though, that all of them have room to improve in the areas of education, human capital, infrastructure, and the quality of institutions. Doing so would help to attract FDI and strengthen their links with global production networks. This in turn would contribute to technology transfer and growth and development.

4. Conclusion

News of U.S. monetary policy normalization has triggered capital outflows from ASEAN. After the painful experience that ASEAN countries had with capital outflows during the 1997-98 Asian Crisis, there is concern that these outflows will cause renewed difficulties.

To investigate this issue this paper examines how news of Fed tapering affected ASEAN sectoral stock returns. In theory, stock prices equal the expected present value of future cash flows. Thus examining the response of stock returns to news about monetary policy normalization should shed light on how ASEAN economies will be affected.

Indonesia's aggregate stock market returns fell on average by 3.5 percent in response to each of the tapering events in 2013. This was about twice as much as the falls recorded for the other ASEAN-4 countries. Part of the reason for this is that Indonesia's fundamentals were worse than those of the other ASEAN-4 economies. In 2013 its current account deficit was 3.2 percent of GDP, its CPI inflation rate was 7.0 percent, its foreign exchange reserves equaled 11 percent of GDP, and its ratio of bank assets to GDP equaled less than 50 percent. To reduce exposure to capital outflows, Indonesia and other ASEAN economies should seek to improve their fundamentals.

At the sectoral level, the results indicate that capital outflows will harm capital-intensive sectors in Indonesia and Malaysia and the insurance and finance sectors in Malaysia, the Philippines, and Thailand. In Malaysia a depreciation will benefit the insurance sector whereas in Thailand a depreciation will harm both the insurance and finance sectors. In both Indonesia and the Philippines, small company stocks are harmed by both the capital outflows associated with Fed tapering and by depreciations of the local currencies.

Indonesia and Malaysia may be able to attract long-term investment into capital-intensive industries by enforcing private contracts, providing consistent and coherent enforcement of laws

and regulations at all governmental levels, and in other ways pursuing a market-friendly environment.

ASEAN countries should also seek to develop vibrant finance and insurance sectors that employ state of the art risk management techniques. This could help them to withstand pressures from capital outflows and from other sources. Almekinders *et al.* (2015) noted that ASEAN financial integration can stimulate financial sector development and lead to deeper, more efficient financial markets. It can also promote the development of innovative financial and insurance products, contributing to vibrant insurance markets in the region. Almekinders *et al.* also observed that financial integration is fraught with risks and must be carefully phased and sequenced. However, provided that countries in the region follow the ASEAN way of safe, gradual decision making, integration offers the potential to develop more efficient financial markets that can make economies in the region more resilient.

Indonesia and the Philippines can try to improve the access of small firms to finance. This is especially important since, if capital outflows are harming small firms that are big enough to be listed in the stock market, they are likely to hurt smaller firms that are less well collateralized even more. Wignaraja (2015) has offered several suggestions. ASEAN should increase the supply of finance by strengthening the banking system. This can be done by encouraging competition among commercial banks, privatizing state banks, and allowing foreign banks to enter. ASEAN should consider allowing banks to use non-fixed collateral. It should also seek to improve financial literacy for managers at small companies, so that they can provide banks with the type of business plans that are necessary to secure loans. Financial literacy could be promoted in secondary schools and colleges and by offering courses to managers at small

firms. Finally, nurturing domestic and regional credit rating agencies could make banks more willing to loan to smaller companies.

While capital outflows are posing challenges for small firms and for the financial sector, they are also causing exchange rates to depreciate. While all ASEAN-4 currencies have depreciated against the U.S. dollar, on a real effective basis the Indonesian rupiah and the Malaysian ringgit have depreciated by 20 percent since between 2013 and 2015 but the Philippine peso and the Thai baht have not depreciated. The results in this paper indicate that this can increase labor-intensive exports by 11 percent for Indonesia and by 16 percent for Malaysia.

Before the Asian financial crisis, more than 20 per cent of Indonesia's exports were labor-intensive manufacturing goods and less than 30 per cent were primary products such as gas and coal. These labor-intensive goods have since shrunk to less than 10 percent of exports while primary goods exports have increased. As the recent fall in primary goods prices indicates, depending on primary exports is risky. Indonesia should use the opportunity provided by the depreciating rupiah to increase manufacturing exports.

In addition, Indonesia and the other ASEAN-4 countries should seek to attract foreign direct investment from multinational corporations seeking efficient export platforms. This can provide benefits by transferring know-how and general industrial experience concerning assembly techniques, material selection, combination, and treatment techniques, machine operation and maintenance techniques, provision of blueprints; and technical data, training of engineers and operator, plant lay-out, selection and installation of machinery and equipment, quality and cost controls, and inventory management (Kojima, 1973, 1977). They should seek to lower the service link cost to promote fragmentation and obtain these benefits.

To attract FDI, ASEAN should seek to lower the cost of transferring production to their countries. While each country needs to do different things to lower this service link cost, three important steps for all are resisting corruption, improving infrastructure, and focusing on education.

For ASEAN countries, Fed policy normalization and the attendant capital outflows will pose difficulties. They will also offer opportunities. Depreciating exchange rates provide a tailwind that will help labor-intensive industries to export. Attracting FDI can help the economies to climb the ladder of technology. This episode should thus be viewed as one more turn in the long and winding road towards economic development in Southeast Asia.

For the U.S. Federal Reserve, the results here and in previous studies also contain useful information. The findings indicate that U.S. monetary policy normalization will cause the U.S. dollar to appreciate, foreign economic activity to decline, and foreign exports to increase. All three of these factors will cause U.S. net exports to fall. With the U.S. already running large trade deficits, the Fed should weigh the costs of larger imbalances together with other costs arising from normalizing policy against the benefits that may come from raising interest rates.

Table 1. Exposure of Aggregate Stock Returns in ASEAN Countries to News of Federal Reserve Tapering.

Country	Exposure to Tapering	Exchange Rate Exposure
Indonesia	0.0351***	-0.7288***
	(0.0075)	(0.2719)
Malaysia	0.0017	-0.5320***
	(0.0023)	(0.1436)
Philippines	0.0192***	-1.141**
	(0.0055)	(0.5013)
Thailand	0.0181***	-1.009***
	(0.0043)	(0.2830)

Note: The table reports coefficients from a regression of aggregate stock returns on news of Federal Reserve tapering and the country's exchange rate relative to the dollar. Daily data from January 2, 2013 to December 31, 2013 are employed. Heteroskedasticity consistent standard errors are in parentheses.

*** denotes significance at the 1% level.

Source: Datastream database and calculations by the author.

Table 2a. Exposure of Indonesian Stocks to News of Federal Reserve Tapering.

Portfolio	Exposure to Tapering	Exchange Rate Exposure	Market Beta
Industrial Metals & Mining	0.0384**	0.6607	0.5177
	(0.0174)	(0.43106)	(0.1794)
Heavy Construction	0.0360**	-0.4651	1.093***
	(0.0154)	(0.3994)	(0.1446)
Broadcasting & Entertainment	0.0225*	0.0009	0.9504***
	(0.0121)	(0.2183)	(0.0806)
Small Company Stocks	0.0112***	-0.2510**	0.7004***
	(0.0038)	(0.1230)	(0.0478)
Telecommunications, Media & Information Technology	0.0079***	0.0018	0.8528***
	(0.0023)	(0.1836)	(0.0420)
Consumer Goods	-0.0071*	-0.0885	0.7853***
	(0.0037)	(0.0936)	(0.0340)
Autos & Parts	-0.0099***	-0.0375	1.086***
	(0.0035)	(0.2237)	(0.0756)
Auto Parts	-0.0102***	-0.0383	1.094***
	(0.0035)	(0.2274)	(0.0762)
Food Products	-0.0124*	-0.5224**	0.7934***
	(0.0063)	(0.1751)	(0.0694)
Personal Goods	-0.0212*	0.4787**	1.071***
	(0.0119)	(0.2123)	(0.0946)
Food & Drug Retail	-0.0323***	0.2201	0.3615***
	(0.0096)	(0.3805)	(0.1138)

Note: The table reports coefficients from a regression of sectoral stock returns on news of Federal Reserve tapering, the country's exchange rate relative to the dollar, and the return on the country's aggregate stock market. Daily data from January 2, 2013 to December 31, 2013 are employed. Heteroskedasticity consistent standard errors are in parentheses.

*** (**) [*] denotes significance at the 1% (5%) [10%] level.

Source: Datastream database and calculations by the author.

Table 2b. Exposure of Malaysian Stocks to News of Federal Reserve Tapering.

Portfolio	Exposure to Tapering	Exchange Rate Exposure	Market Beta
Full Line Insurance	0.01163***	0.3762	1.322***
	(0.0030)	(0.2545)	(0.1965)
Oil and Gas Exploration & Production	0.0087***	-0.0010	0.8487***
	(0.0029)	(0.1377)	(0.1071)
Real Estate Investment & Services	0.0076**	-0.0425	1.3368***
	(0.0035)	(0.1351)	(0.1373)
Marine Transportation	0.0071***	0.2562	1.1929***
	(0.0027)	(0.1827)	(0.1912)
Insurance	0.0071***	0.2627**	0.5798***
	(0.0019)	(0.1150)	(0.1774)
Nonlife Insurance	0.0071***	0.2627**	0.5798***
	(0.0019)	(0.1150)	(0.1774)
Property/Casualty Insurance	0.0071***	0.2628**	0.5798***
	(0.0019)	(0.1150)	(0.1774)
Travel & Leisure	0.0067***	0.1531	1.315***
	(0.0025)	(0.0965)	(0.0883)
Consumer Services	0.0064***	0.1399*	1.1565***
	(0.0010)	(0.0715)	(0.0715)
Real Estate	0.0064**	-0.0971	1.0825***
	(0.0027)	(0.0998)	(0.1021)
Oil & Gas	0.0055***	-0.1288	1.0681***
	(0.0015)	(0.0915)	(0.07135)
Consumer Discretionary	0.0054***	0.1375**	1.142***
	(0.0011)	(0.0659)	(0.0677)
Industrial Transportation	0.0045**	0.2217	1.0359***
	(0.0023)	(0.1434)	(0.1479)
Small Company Stocks	0.0043*	-0.0193	0.9397***
	(0.0025)	(0.0702)	(0.0654)
Medium-sized Company Stocks	0.0025**	-0.0219	1.227***
	(0.0010)	(0.0573)	(0.0479)
Food & Beverage	-0.0017**	0.0598	0.7331***
	(0.0008)	(0.0747)	(0.0593)
Telecommunications	-0.0021*	-0.0471	0.6392***
	(0.0013)	(0.05850)	(0.0792)
Consumer Staples	-0.0025**	0.0238	0.7328***
	(0.0010)	(0.07264)	(0.0592)
Consumer Goods	-0.0028**	0.0046	0.7697***
	(0.0012)	(0.0700)	(0.0608)
Fixed Line Telecommunications	-0.0035**	-0.0803	0.4341***
	(0.0014)	(0.0869)	(0.0833)
Food Products	-0.0037**	0.0755	0.5996***
	(0.0016)	(0.0891)	(0.0691)

Utilities	-0.0053**	-0.1246	0.9869***
	(0.0022)	(0.0806)	(0.0726)
Electricity	-0.0067**	-0.2212*	0.9420***
	(0.0024)	(0.1181)	(0.1216)
Healthcare Providers	-0.010*	-0.1345	0.8117***
	(0.0051)	(0.1231)	(0.1262)
Beverages	-0.0103***	-0.1919*	0.3581***
	(0.0030)	(0.1045)	(0.1176)
Health Care	-0.0110***	-0.0462	0.8062***
	(0.0033)	(0.1091)	(0.1069)
Industrial Suppliers	-0.0114*	-0.0303	1.1163***
	(0.0061)	(0.2292)	(0.3118)
Medical Suppliers	-0.0155*	0.3346*	0.7781***
	(0.0057)	(0.1754)	(0.1570)
Brewers	-0.0156***	-0.1531	0.6369***
	(0.0043)	(0.1578)	(0.1676)

Note: The table reports coefficients from a regression of sectoral stock returns on news of Federal Reserve tapering, the country's exchange rate relative to the dollar, and the return on the country's aggregate stock market. Daily data from January 2, 2013 to December 31, 2013 are employed. Heteroskedasticity consistent standard errors are in parentheses.

*** (**) [*] denotes significance at the 1% (5%) [10%] level.

Source: Datastream database and calculations by the author.

Table 2c. Exposure of Philippine Stocks to News of Federal Reserve Tapering.

Portfolio	Exposure to Tapering	Exchange Rate Exposure	Market Beta
Financial Services	0.0147*	0.3169	0.3632***
	(0.0080)	(0.4508)	(0.1201)
Specialty Finance	0.0146*	0.3167	0.3630***
	(0.0080)	(0.4503)	(0.1200)
Small Company Stocks	0.0096***	-0.3192*	0.6499***
	(0.0016)	(0.1870)	(0.04353)
Banks	0.0092**	-0.0806	0.7432***
	(0.0041)	(0.1581)	(0.02814)
Brewers	0.0091*	-1.5417***	0.4477***
	(0.0048)	(0.5711)	(0.1177)
Financials	0.0070**	-0.1473	0.8526***
	(0.0029)	(0.1099)	(0.0227)
Consumer Staples	0.0054***	-0.5183***	0.6908**
	(0.0016)	(0.1895)	(0.0404)
Real Estate	0.0049**	-0.2370	1.005***
	(0.0025)	(0.1479)	(0.0311)
Food Products	0.0048*	-0.2625	0.7294***
	(0.0029)	(0.3056)	(0.0719)
Food & Beverage	0.0048**	-0.4994*	0.7082***
	(0.0024)	(0.1940)	(0.0417)
Transportation Services	0.0048*	0.4471	0.9327***
	(0.0028)	(0.5311)	(0.0852)
Industrial Transportation	0.0048*	0.4470	0.9329***
	(0.0028)	(0.5311)	(0.0852)
Coal	-0.0063***	-0.0450	0.6068***
	(0.0020)	(0.3793)	(0.0699)
Utilities	-0.0065*	-0.1010	0.6557***
	(0.0034)	(0.2771)	(0.0504)
Electricity	-0.0070**	-0.1742	0.6188***
	(0.0035)	(0.3331)	(0.0548)
Alternative Energy	-0.0223*	-0.0145	0.7507***
	(0.0107)	(0.4471)	(0.0639)

Note: The table reports coefficients from a regression of sectoral stock returns on news of Federal Reserve tapering, the country's exchange rate relative to the dollar, and the return on the country's aggregate stock market. Daily data from January 2, 2013 to December 31, 2013 are employed. Heteroskedasticity consistent standard errors are in parentheses.

*** (**) [*] denotes significance at the 1% (5%) [10%] level.

Source: Datastream database and calculations by the author.

Table 2d. Exposure of Thai Stocks to News of Federal Reserve Tapering.

Portfolio	Exposure to Tapering	Exchange Rate Exposure	Market Beta
Food Retail & Wholesale	0.0356**	0.1566	0.8277***
	(0.0171)	(0.3887)	(0.0757)
Consumer Staples	0.0328**	0.2885	0.8318***
	(0.0135)	(0.3059)	(0.0634)
Farming, Fishing, Plantations	0.0303**	0.5468	0.9570***
	(0.0125)	(0.4694)	(0.1146)
Food & Beverage	0.0276**	0.4481	0.8345***
	(0.0115)	(0.3696)	(0.0884)
Food Producers	0.0269**	0.5328	0.8426***
	(0.0123)	(0.3903)	(0.0925)
Consumer Goods	0.0241*	0.0301	0.9024***
	(0.0126)	(0.3035)	(0.0839)
Retail	0.0239*	-0.0241	0.7941***
	(0.0124)	(0.2912)	(0.0691)
Consumer Services	0.0161*	-0.00100	0.8576***
	(0.0094)	(0.2240)	(0.0524)
Life Insurance	0.0073***	-0.5254**	0.5998***
	(0.0027)	(0.2203)	(0.0596)
Insurance	0.0073***	-0.5253**	0.5998***
	(0.0027)	(0.2203)	(0.0596)
Financials	0.0060**	-0.2850**	1.025***
	(0.0028)	(0.1237)	(0.0290)
Banks	0.0055***	-0.2586*	1.039***
	(0.0019)	(0.1345)	(0.0294)
Industrials	-0.0069***	-0.2101	0.9926***
	(0.0022)	(0.1649)	(0.0448)
Telecommunications, Media & Information Technology	-0.0124***	-0.2786	1.062***
	(0.0033)	(0.2706)	(0.0580)
Mining	-0.0137*	0.0690	0.8030***
	(0.0083)	(0.4329)	(0.1043)
Coal	-0.0137*	0.0690	0.8030***
	(0.0083)	(0.43289)	(0.1043)
Basic Resource	-0.0137*	0.06896	0.8030***
	(0.0083)	(0.4329)	(0.1044)
Industrial Goods & Services	-0.0145***	-0.3474	1.1490***
	(0.0056)	(0.3557)	(0.0964)
Mobile Telecommunications	-0.0146***	-0.2846	1.0919***
	(0.0034)	0.3164	(0.0675)
Transport Services	-0.0198**	-0.3721	1.119***
	(0.0079)	(0.4851)	(0.1254)

Note: The table reports coefficients from a regression of sectoral stock returns on news of Federal Reserve tapering, the country's exchange rate relative to the dollar, and the return on the country's aggregate stock market. Daily data from January 2, 2013 to

December 31, 2013 are employed. Heteroskedasticity consistent standard errors are in parentheses.

*** (**) [*] denotes significance at the 1% (5%) [10%] level.

Source: Datastream database and calculations by the author.

Table 3. Trade Elasticities for Labor-intensive Exports from Indonesia, Malaysia, the Philippines, and Thailand to 25 countries over the 1983-2013 period.

	(1)	(2)	(3)	(4)	(5)
	Exports from ASEAN-4	Exports from Indonesia	Exports from Malaysia	Exports from the Philippines	Exports from Thailand
Exchange Rate	-0.758***	-0.571***	-0.804***	-0.787***	-0.300
Elasticity	(0.157)	(0.181)	(0.161)	(0.287)	(0.187)
Real GDP	1.953***	1.846***	1.900***	2.744***	1.377***
Elasticity	(0.157)	(0.189)	(0.186)	(0.229)	(0.092)
Adjusted R-squared	0.823	0.913	0.841	0.877	0.854

Note: The table presents the results from panel ordinary least squares estimation for exports from the ASEAN countries to 25 importing countries. Labor-intensive exports come from the categories clothing, knitwear, carpets, leather goods, furniture, yarns, and fabrics. Heteroskedasticity consistent standard errors are in parentheses.
*** denotes significance at the 1% level.
Source: CEPII-CHELEM database and calculations by the author.

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