



ASEAN Research Digest

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MONETARY UNION MIGHT NOT BE NECESSARY FOR ASEAN BUT MONETARY COOPERATION BRINGS SUBSTANTIAL GAINS

Title of study: A simulation study of an ASEAN monetary union

By J. Engwerda, O. Boldea, T. Michalak, J. Plasmans, Salmah

Published in: Economic Modelling, Volume 29, September 2012

BACKGROUND

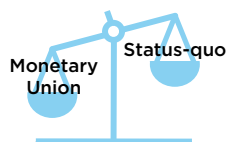
Research objective:

To explore the implications of an ASEAN Monetary Union (MU).

- ASEAN's objective with the ASEAN Economic Community (AEC) is to deepen its regional integration.
- The three components needed for full economic integration are a customs union, a common market and an economic union.



- ASEAN **has made some progress in all above mentioned areas** but the questions remain whether further adjustments are required beyond the national borders and **how ASEAN can move onwards towards the goal of creating an AEC.**
- In this study, the authors assess the potential gains and losses of ASEAN countries if they would form a MU compared with the status-quo.



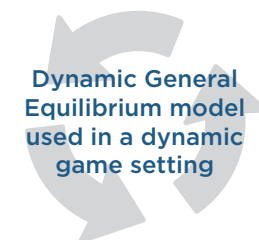
KEY FINDINGS

Simulation results

	SCENARIOS	COALITION STRUCTURE	TYPE OF PRICE SHOCK	OUTCOME	INTERPRETATION
1	National monetary policies but no fiscal policies	Non-cooperative regime	Symmetric	Convergence of prices to a new higher equilibrium level	Monetary authorities are not able to stabilise prices, especially in the country hit by the price shock
			Asymmetric	Exponential growth of prices and exchange rate	
		Grand coalition (cooperation between all monetary authorities)	Symmetric	Prices converge to a new equilibrium value for any type of shock	Both types of shocks are absorbed better with monetary cooperation
			Asymmetric		
2	National monetary and active fiscal policies	Non-cooperative regime	Symmetric	Convergence of prices to a new equilibrium level, lower than in Scenario 1	Symmetric shocks are better absorbed by including fiscal policies, but asymmetric shocks are dealt with worse
			Asymmetric	Exponential growth of prices and exchange rate, larger than in Scenario 1	
		Grand coalition (cooperation between all monetary and fiscal authorities)	Symmetric	Prices converge to a new equilibrium for any type of shock but the new equilibrium value is higher than in Scenario 1. Adjustment for asymmetric shocks is faster than in Scenario 1	The use of fiscal policies does not have a significant impact on the price adjustment process
			Asymmetric		
3	Monetary union and national fiscal policies	Non-cooperative regime	Symmetric	Prices almost instantly adapt to a level almost the same as the original level	Effectiveness of the price path is the most under an MU when fiscal authorities do not cooperate
			Asymmetric	Price divergence is less pronounced than in the other scenarios	
		Grand coalition (cooperation between all fiscal authorities and one regional central bank)	Symmetric	Price convergence speed is slower than under the non-cooperative regime and prices differ more from the original price. Almost the same price path compared with Scenario 2	Cooperation between fiscal authorities does not help to absorb shocks. Monetary Union does not significantly improve on monetary cooperation in Scenario 2
			Asymmetric	Price path to a new equilibrium is much slower for the country hit by the shock	

METHODOLOGY

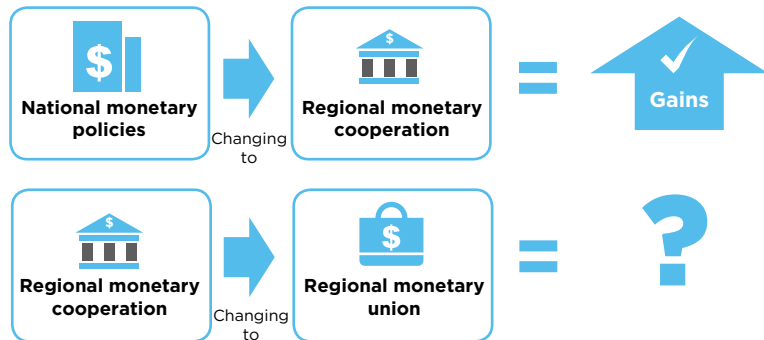
- The study formulates a small-scale dynamic general equilibrium model of nine ASEAN countries and estimates the model with recent data.
- The dataset is taken from ASEAN Statistical Yearbooks for 1995-2007, and from 2002-2007 through selected ASEAN indicators. Myanmar is omitted because there is no data on budget deficit since 2002.
- The study then explores the theoretical implications of an ASEAN MU using the model in a dynamic game setting.
- The authors then find analytical conditions for the existence of equilibria in the model, and analyse impulse response functions to see the consequences of different economic shocks under different coalition structures and the desirability of monetary cooperation.



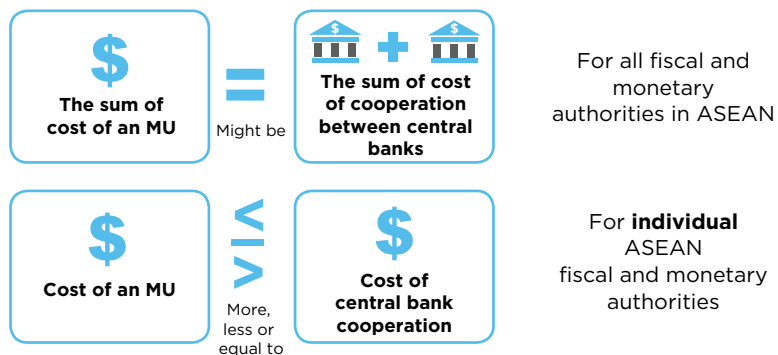
- ▶ Non-cooperative regime = a scenario where all countries play against each other
- ▶ Grand coalition = a scenario where all countries cooperate

- ▶ Symmetric price shock = a price shock that hits all countries with equal size
- ▶ Asymmetric price shock = a price shock that hits only one country and not the others

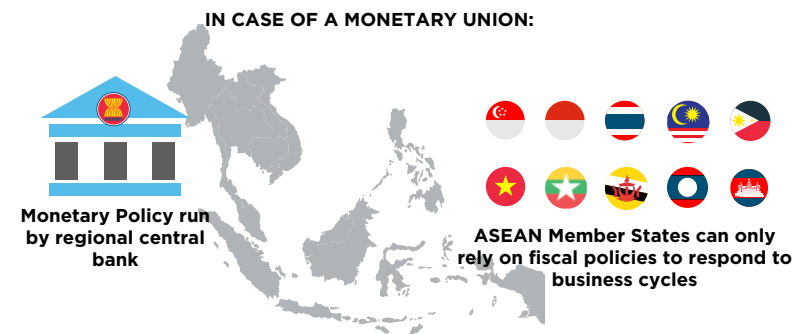
- The main finding is that there are **substantial gains from monetary policy cooperation**, but whether a monetary union would improve upon monetary cooperation is not clear.



- The simulations suggest that the **sum of the costs** involved for all monetary and fiscal players is about the same under an MU and under a regime where central banks cooperate. The **cost for individual countries may however differ under different regimes**.



- Interestingly, the estimation procedure reports that current **fiscal policy has not had much effect on the economic variables in ASEAN** countries, likely due to the fact that ASEAN countries have not used fiscal instruments to counter economic shocks in the past few years.
- But in case **ASEAN would form an MU**, individual countries would need to **restructure to rely more on fiscal policies** since they cannot use monetary instruments as the monetary policy would be set by a regional central bank.



- Another interesting point is the conflict of interest between fiscal and monetary authorities regarding cooperation.
 - ▶ Fiscal authorities benefit most from full cooperation.
 - ▶ Monetary authorities benefit most from not cooperating with fiscal authorities.
- Furthermore, in case countries are hit by an asymmetric shock and if there is some form of fiscal cooperation, the countries that are not hit suffer more than the country that is hit by the shock
- Therefore, such **economic cooperation might only be feasible for those ASEAN countries that have similar economic structure and are not often hit by country specific shocks**.

WHY IT MATTERS

While ASEAN has not made any commitment towards forming a monetary union, some still see such a union as a logical final step of economic integration. This study shows that some of the benefits that come with a monetary union, can also be achieved with lower levels of monetary cooperation. As we have seen with the European Monetary Union and the European sovereign debt crisis, a monetary union can be risky and should not be entered into prematurely. Moreover, a monetary union might not be a feasible option if economic shocks are country specific.

OPENING POWER TRADE IN ASEAN WOULD ENCOURAGE THE DEVELOPMENT OF RENEWABLE ENERGY GENERATION AND SAVE COST

Title of study: Power generation and cross-border grid planning for the integrated ASEAN electricity market: A dynamic linear programming model

By Youngho Chang, Yanfei Li | Published in: Energy Strategy Reviews, 2012

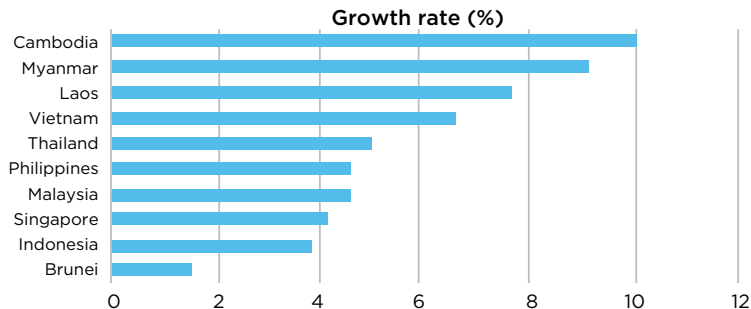
BACKGROUND

Research objectives:

To quantify the economic benefits of the **ASEAN Power Grid (APG)** and to propose an optimised development plan of power generation capacity in ASEAN, based on the APG.

- The **APG** and the **Trans-ASEAN Gas Pipeline (TAGP)** were planned to create an **energy-interconnected ASEAN**, connecting energy resource-rich and energy resource-poor members.
- The problem of how the available resources can be used to meet the **rising energy need** of the region is exacerbated by the **uneven distribution of energy resources** and **different levels of economic development** across ASEAN.
- Due to ASEAN's high economic growth, **electricity demand in ASEAN is projected to grow by 6.1% to 7.2% per annum**, which would mean that it would have more than **tripled by 2030**.

Expected growth rate of power demand in ASEAN countries 2010-2030



- The ASEAN Center for Energy estimates that ASEAN has:

22 billion barrels of oil reserve

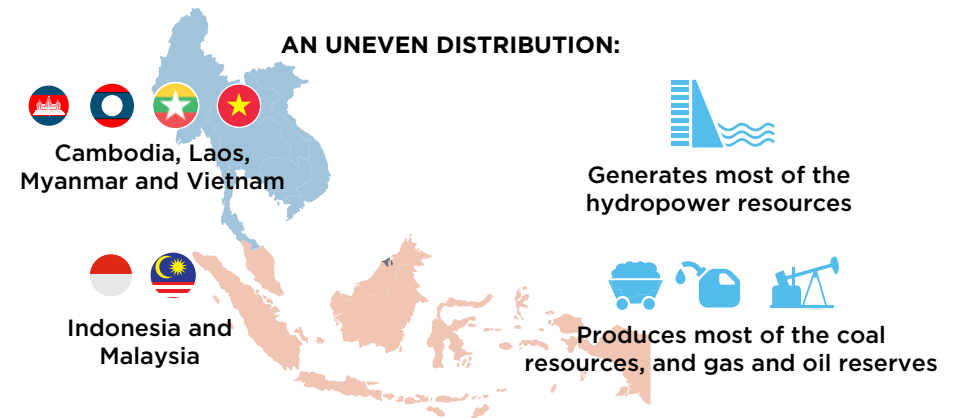
227 trillion cubic feet of natural gas reserve

46 billion tons of coal reserve

234 GW of hydropower potential

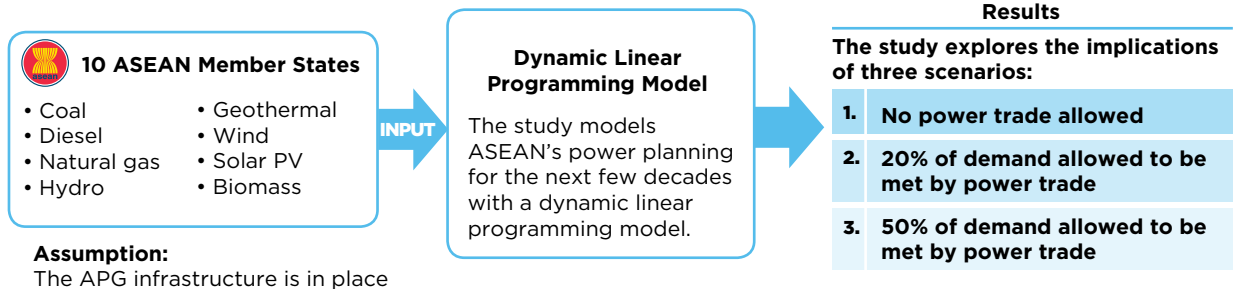
20 GW of geothermal capacity

- ASEAN countries are rich in energy sources but the distribution of the resources is unbalanced



METHODOLOGY

- The study has two main purposes:
 - To examine the least-cost development of different types of energy resources
 - To scan alternative combinations of energy resources needed for power generation in each time period
- The authors use the **dynamic linear programming framework** in power generation first developed by Turvey and Anderson (1977) but add extensions:
 - A new country dimension is added to allow cross-border electricity trade
 - The cost of cross border power transmission and transmission loss are taken into account
 - Carbon emissions and carbon cost from power generation are also covered





KEY FINDINGS

- **Natural gas appears to be the dominant future energy source** for power generation in ASEAN, against its main two competitors - coal and hydropower, mainly because it is more competitive in terms of cost and emission efficiency.



- In the scenario where **no power trade** is allowed, countries that lack renewable energy sources are forced to build **more natural gas or coal power** generation capacities to meet growing demand.

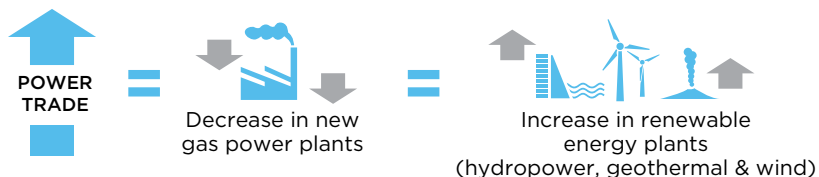
SCENARIO: POWER TRADE NOT ALLOWED



Forced to generate more natural gas or coal power

- In the scenarios **where power trade is allowed, the APG is successful in enabling active cross-border power trade** between resource-rich countries and high-demand countries.

SCENARIO: POWER TRADE ALLOWED



- **With increased power trade**, the required amount of new natural gas power plants decreases significantly, and the amounts of **new renewable energy** plants, especially hydropower, geothermal, and wind, **increases**.
- **Power trading is cost saving** as countries are able to import power from resource rich countries instead of building new power facilities.

WHY IT MATTERS

This study shows that ASEAN's energy cooperation is on the right path, given that it will follow through on its energy-interconnectivity initiatives such as the APG and the TAGP. The region has enough energy reserves to meet its growing energy need, and it could meet those needs more efficiently if countries are able to trade power between each other. Increased power trade is also environmentally friendly, as it increases the production of renewable sources and decreases the production of fossil fuel sources.

		COST SAVING	
1.	No power trade allowed	0%	0
2.	20% of demand allowed to be met by power trade	3.0%	US\$ 20.9 billion
3.	50% of demand allowed to be met by power trade	3.9%	US\$ 29.0 billion

- Hydropower is the dominant renewable energy source.

		NEW HYDROPOWER CAPACITY	CAPACITY BY 2030
1.	No power trade allowed	Developed in 2022	37 GW
2.	20% of demand allowed to be met by power trade	Developed in 2016	58 GW
3.	50% of demand allowed to be met by power trade	Developed in 2015	61 GW

- **Other renewable energy sources** (geothermal, wind, and biomass) are projected to be **developed much later than hydropower**, or between the years 2026-2028, in all scenarios.
- The level of **biomass power generation**, which uses domestic biomass resources, **decreases with increased trade**, as countries are able to draw from cheaper resources from other countries.
- **Solar PV (Photo voltaic)** power generation is not developed in any of the scenarios, suggesting that it is either **too costly or not efficient enough** compared with other resources.
- **Thailand** has the potential of being a **power trading hub** in the region due to its position between the northern and southern ASEAN countries, as it could import and re-export power between the north and south.



CHINA-ASEAN TRADE GROWTH IS FAR HIGHER THAN ORIGINALLY PREDICTED WHEN COMPONENT TRADE IS INCLUDED

Title of study: The Impact of ACFTA on People's Republic of China-ASEAN Trade: Estimates Based on an Extended Gravity Model for Component Trade

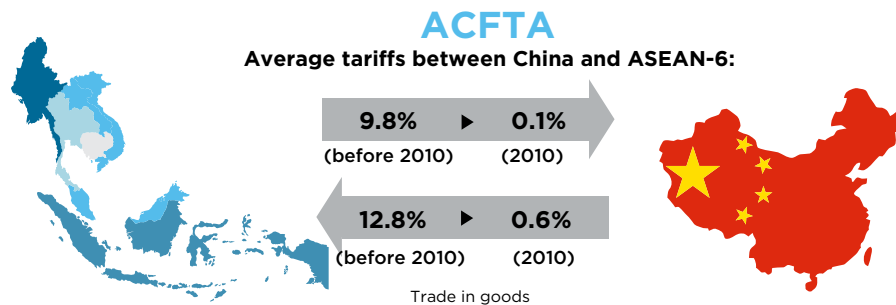
By Yu Sheng, Hsiao Chink Tang, and Xinpeng Xu | Published in: Asian Development Bank (ADB) Working Paper No. 99, July 2012

BACKGROUND

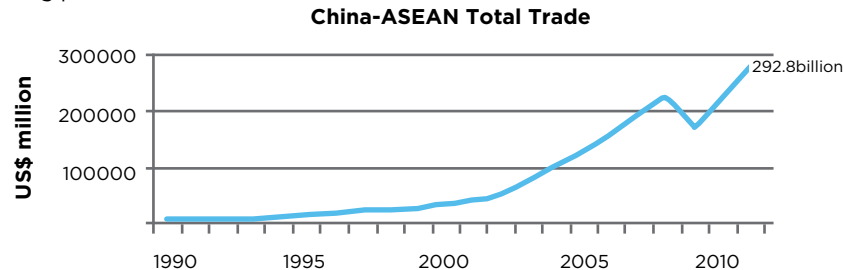
Research objective:

To explore how **trade in parts and components differ from trade in final goods following the implementation of the ASEAN-China Free Trade Agreement (ACFTA)**, how much trade flows between China and ASEAN has changed since ACFTA and whether increased integration between **China and ASEAN would negatively affect members' trade with non-members**.

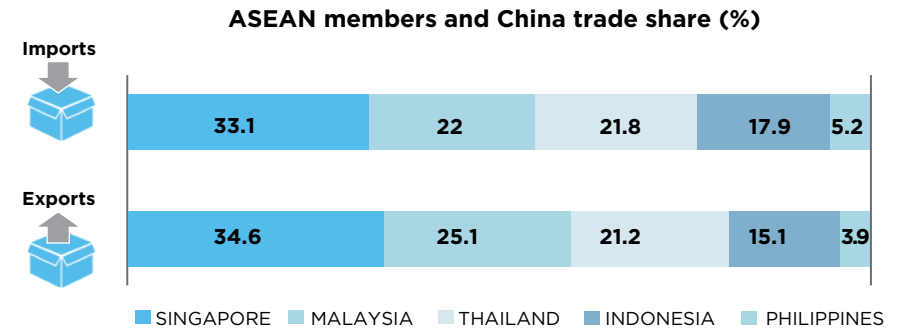
- The ACFTA came into effect on 1 January 2010. It is the world's third largest in economic size after NAFTA (North American Free Trade Agreement) and the EU, and it has the highest population of all free trade areas with 1.9 billion people.



- By 2015, the zero-tariff rate on Chinese goods will be extended to the CLMV (Cambodia, Laos, Myanmar and Vietnam) countries.
- Trade flows between ASEAN and China has grown rapidly in the past few decades; China is currently ASEAN's largest trading partner and ASEAN is currently China's third largest trading partner.¹



Footnote: 1. ASEAN Secretariat, December 2012



- The authors include trade in **parts and components** in their model as they believe conventional predictions of trade between the two regions after the implementation of ACFTA, to be underestimated.
- They highlight three characteristics of **component trade** and its impact on trade creation:
 - its growth may follow a different path than growth in final goods trade
 - new component trade is the pattern likely to be determined by cross-country industrial linkages according to countries' comparative advantages
 - trade with the rest of the world may increase as non-member countries can also be involved in the production chain
- The share of trade in parts and components of total trade between ASEAN and China is large compared with the rest of the world.

Share of parts and components in total manufacturing exports (2004)		
ASEAN (+6)	EU	NAFTA (US, Canada, Mexico)
33.5%	20.9%	30.7%



METHODOLOGY

- The study uses an **extended gravity model** that takes bilateral imports, exports and related trade in parts and components between China and ASEAN into account.
- The dataset consists of 76,417 observations from 117 countries.

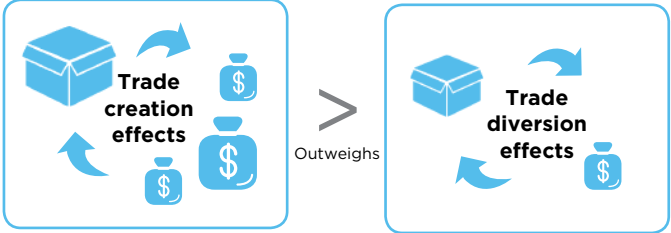
- The data is from Subramanian and Wei (2007) for the period from 1980 to 2000, and from the IMF for the period 2001-2008.



KEY FINDINGS

- The study shows that by explicitly accounting for component trade, the **predicted impact ACFTA** has on **bilateral trade** between **China and ASEAN** is **substantially higher** than **shown by previous studies** that use conventional gravity models.
- According to the study, ACFTA affects bilateral trade in parts and components via an additional channel of cross-country linkages.
- **A large share of trade flows between China and ASEAN is likely to be in parts and components**, and concentrated among a sub-group of member countries with strong industrial linkages.
- **Trade creation in component trade** between ASEAN and China **will have positive spill-over effects** to non-member countries due to their involvement in the production chain, meaning that trade creation effect dominates trade diversion effects after the establishment of ACFTA.

Under ACFTA:
Component Trade

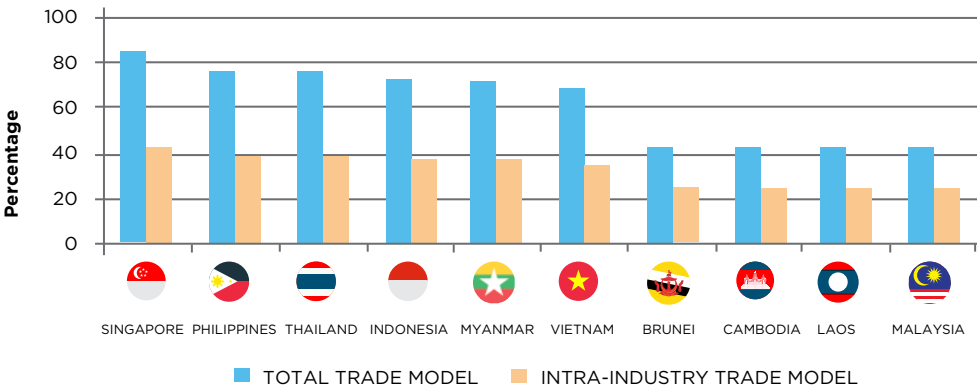


ASEAN-PRC TOTAL TRADE GROWTH (%)			
	Method of projection		
	Conventional	New	Hybrid
Total trade model	47.40	88.60	72.40
Intra-industry trade model	25.23	47.10	38.50

- ▶ Total trade model = does not differentiate between final or component trade
- ▶ Intra-industry model = specifically accounts for component trade
- ▶ Conventional method = assumes a one-off trade creation effect after the formation of an FTA
- ▶ New method = assumes a multiplicative impact of an FTA due to increased trade in parts and components from the international industrial linkages
- ▶ Hybrid method = distinguishes between final and component goods

- The new and hybrid methods project **a larger trade increase than the conventional method**, showing that **ACFTA will increase trade more than what the traditional gravity model predicts**.
- Although ACFTA will have a positive impact on trade growth with all ASEAN member countries, the **impact will be uneven among members**. **Singapore's** trade with China is projected to increase **the most** while **Malaysia's** trade is predicted to **increase the least**.

Projected ASEAN-China Trade Growth



WHY IT MATTERS

This study shows that ACFTA's impact on trade is larger than previously thought if trade in parts and components are included in the projection. This is good news for members of ACFTA as a large part of trade between ASEAN and China is in components and parts. The study also shows that ACFTA can even increase members' trade with the rest of the world due to their involvement in the production chain. Policy makers and the business community should take these findings into account when formulating their policies and strategies involving ACFTA.

Title of study: Enhancing the Effectiveness of CMIM and AMRO: Selected Immediate Challenges and Tasks

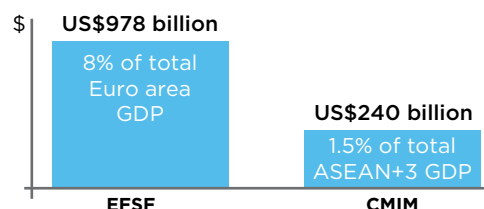
By Reza Siregar and Akkharaphol Chabchittrchaidol | Published in: Asian Development Bank Institute (ADBI) Working Paper Series no. 403, January 2013

BACKGROUND

Research objective:

To explore the challenges of the Chiang Mai Initiative Multilateralisation (CMIM) and the ASEAN+3 Macroeconomic Research Office (AMRO) and to suggest possible areas in which their effectiveness can be improved.

- The **CMIM is a multilateral currency swap between the ASEAN+3 countries**. It was established in March **2010** with a pool of **US\$120 billion**, which was **increased to US\$240 billion in May 2012**.
- Despite the doubling of the amount, the fund has been criticised for being insufficient. In comparison, the **European Financial Stability Facility (EFSF)** of 750 billion euros (US\$978 billion) in 2011 is about 8% of aggregated GDP of the Eurozone, while the CMIM is only about 1.5% of the total ASEAN+3 GDP.
- In May 2012, it was decided that the ASEAN+3 Finance Ministers Meeting should henceforth include Central Bank Governors, creating a more comprehensive and integrated regional financial cooperation as both fiscal and monetary authorities oversee and decide on CMIM matters.
- Several other major new commitments were announced during the May 2012 meeting:



	PREVIOUS		ANNOUNCED MAY 2012
Size of swap facility	US\$120 billion	➡	US\$240 billion
IMF de-linked portion	20%	➡	30%
Maturity (full amount)	90 days	➡	12 months, with 2 renewals
Scope of facilities	Crisis resolution	➡	Crisis resolution + Crisis prevention

IMF de-linked portion: Any drawing below this percentage does not require countries to submit to IMF guidelines.

CMIM Contributions and access to maximum swap amounts.

Countries		Financial Contribution (US\$ billion)		Share (%)		Purchasing Multiple	Maximum Swap Amount (US\$ billion)
Plus Three		192.00		80.00			117.30
Japan		76.80		32.00		0.5	38.40
China	Mainland	76.80	68.40	32.00	28.50	0.5	34.20
	Hong Kong		8.40		3.50	2.5	6.30
South Korea		38.40		16.00		1	38.40
ASEAN		48.00		20.00			126.20
Indonesia		9.104		3.793		2.5	22.76
Thailand		9.104		3.793		2.5	22.76
Malaysia		9.104		3.793		2.5	22.76
Singapore		9.104		3.793		2.5	22.76
Philippines		9.104		3.793		2.5	22.76
Vietnam		2.00		0.833		5	10.00
Cambodia		0.24		0.10		5	1.20
Myanmar		0.12		0.05		5	0.60
Brunei		0.06		0.025		5	0.30
Laos		0.06		0.025		5	0.30
Total		240.00		100			243.50

- AMRO, a surveillance office for the CMIM, was established in May 2011 and is based in Singapore.
- Since December 2011, AMRO has released a quarterly set of surveillance reports, which have been identified as the key factor behind the decision to double the total swap facility and to increase the IMF de-linked portion.





METHODOLOGY

- The paper explores the history of the CMIM and AMRO, and highlight some of their recent developments and commitments. It then discusses the challenges that these agencies face and suggests responses to overcome them.



KEY FINDINGS

- Despite the limited size of the swap facility of only US\$240 billion, there are a number of measures that can be adopted in order to enhance the effectiveness of the CMIM framework. The paper focuses on two key areas:

1

COORDINATION BETWEEN BILATERAL AND MULTILATERAL SWAP FACILITIES

- There are **several existing bilateral swap agreements** between the ASEAN+3 nations, some with **larger maximum swap facility** than the CMIM.
- The ASEAN+3 countries could agree upon a common framework in a joint memorandum of understanding (MoU), in which the **two facilities could coordinate with each other** to avoid either facility being undermined by the other.
- The CMIM could be the **coordinating body**, in charge of evaluating applications.
- If a requested amount is larger than the CMIM has available, the bilateral swap can provide additional funds.
- Benefits of coordination:
 - The recipient country can receive a higher swap amount that is available under the CMIM.
 - The providing country does not have to shoulder the risk of the full amount and it can rely on the surveillance process of the CMIM

2

DESIGN OF THE CMIM DISBURSEMENT

- Despite the stigma regarding conditionalities of IMF loans following the Asian crisis, some conditionalities are needed for the CMIM to function.
- Conditionalities for the CMIM facility must be as flexible and accessible as possible, while still safeguarding the pool of funds from moral hazard practices.
- The CMIM should establish a framework for conditionality with full CMIM ownership that is large enough to be useful, with related conditionalities that are strict enough to protect lenders' interest while supporting the economy of the borrower.
- The framework should include relevant policy adjustments in the borrowing economy, focused on addressing the cause of the crisis and ensure that funds will be repaid.

- The credible surveillance work done by AMRO is crucial for an effective CMIM. This has been established at the numerous semi-annual meetings.
- Given the relatively small size and budget of AMRO, the office needs to leverage on the benefits and synergies of being a small office in **close contact with regional policy makers**.
- AMRO needs to **strengthen its research capacities** to support the surveillance team, and to establish a **centralised and integrated surveillance approach** that encompasses these two areas of coverage:
 1. Bilateral and multilateral surveillance
 2. Macroeconomic and financial sector surveillance



WHY IT MATTERS

The CMIM has so far remained off-limits to its members, mostly due to the IMF restrictions and the limited size of the swap agreement. It is important to find ways to increase the effectiveness of the CMIM and make it an attractive option for the member countries, for it to become a regional financial safety net for the ASEAN+3 economies. This paper suggest that this can be done by coordinating with bilateral swap agreements, but it also warns that it has to be done without leading to moral hazard issues by including some conditionalities on the loans.

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