

**(Final Report)**

**Research Paper and Policy Recommendation on**

**Ways to Promote Trade Settlement Denominated  
in Local Currencies in East Asia: Case Studies of  
Thailand, Singapore, EU and NAFTA**

**Commissioned by the ASEAN Secretariat**

**ASEAN +3 Research Study Group**

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## **Ways to Promote Trade Settlement Denominated in Local Currencies in East Asia: Case Studies of Thailand, Singapore, EU and NAFTA**

### **Executive Summary**

This study examines the patterns of currency denomination in international trade of Thailand and Singapore focusing on the factors influencing firms' choices of vehicle currencies based on industry characteristics: type of industry; market size; regional production networks; transaction costs of currencies, macroeconomic stability; exchange rate volatility; and firms perceptions on regional cooperation. Some observations on the lessons of the North American and European experiences for "ways to promote foreign trade settlements denominated in local currencies in East Asia" are also discussed.

#### **The case of Thailand**

The case study of Thailand comprises two parts. The first part analyzes the patterns of trade settlement currencies used in Thailand's trade for the period 2001-2008. The second part consists of a survey of price setting, settlement currencies and practices of listed and unlisted exporting firms in Thailand. Main results from analysis of country-level settlement currencies are as follows: (i) less than 7 % of exports are denominated in Thai Baht, differing substantially between industries; this percentage fell during the period 2001-2008, both on export and import transactions; (ii) the fraction of imports denominated in Thai Baht is lower than that for exports; (iii) the increase in the use of the Euro stems from both increased trade with EU member countries and as a vehicle currency (a third country's currency), (iv) as a vehicle currency, the use of U.S. dollar was more prevalent than the Euro, but the Euro's share increased in both export and import transactions during the period of study.

Findings from the firm-level survey of 16 sample firms are as follows: (i) The same currency is largely used for price setting, invoicing and settlement of exports to third parties; (ii) All firms use the same currency for price setting and invoicing for all their export revenues from third parties; (iii) Invoicing currency could differ from the price setting currency because of a "request from the customer"; (iv) The U.S. dollar was the main alternative for exports; (v) Currency choice is similar for exports of intra-firm and inter-firm. Much international trade is conducted intra-firm; (vi) The increase in the use of the Euro stems from both increased trade with EU member countries, but also as a vehicle currency. As a vehicle currency, the use of the U.S. Dollar has been greater than the Euro since 2001; (vii) Firms change prices in 3 times per year on average; (viii) Negotiations are important in setting invoicing currency; (ix) Use of the customer's currency does not depend on large destination markets or large orders; (x) To minimize the risk of price deviations across countries a limited set of currencies is used for setting prices; (xi) An objective of risk management is to minimize the variability of cash flow. The Thai Baht's share in Thailand's export has increased in line with the increase in Thailand's trade with other ASEAN countries; this implies that increases in intra-ASEAN trade would encourage increases in use of local currencies- the Baht in the case of Thailand.

The costs of the dependence on currencies outside of the region for the settlement of trade in the region results in cost for changing currencies for trade settlement; the instability in export prices in response to exchange rate changes and costs of hedging exchange rate risks. In contrast, the merits of using the local currencies for trade settlement reveals encouraging efficiency in trade and investment transactions; lowering the above mentioned costs;

enhancing export competitiveness arising from cost effectiveness; and promoting trade and investment at the firm, country and regional levels .

The policy recommendations can be summarized as follows: removal of the restrictions on capital flow so as to establish a secure trade settlement system; encouragement of bilateral and regional trade and investment under ASEAN plus 3 and Closer Economic Relations (CER) countries; adoption of foreign exchange regulation policy and regulations to foster the use of local and regional currencies in trade and investment; introduction of new trade payment systems to facilitate more use of local currencies at firm, national and regional levels; development of sound financial markets; promotion of strategic intra-regional production and trade networks in major export industries and engaging in financial cooperation programs and monetary coordination in the region.

### **The case of Singapore**

Case Study of Singapore seeks to understand the practice of currency invoicing in Singapore. First, to provide context, a general picture of the foreign trade structure of Singapore is presented. We then present findings from structured interviews with 15 Singapore-based exporters and importers. The interviews gathered information about the company's profile, choice of invoice and settlement currency, exchange rate risk management strategies, and views on ways to promote local currency settlements in the region in the future.

On the pattern of invoicing, findings led us to draw two main conclusions. Firstly, while foreign exporters' and importers' currencies are used quite significantly to settle trades with Singapore-based firms, it seems that the trading country currency is more prevalent in imports to than exports from Singapore. Secondly, the findings relevant to Asia seem to suggest that other than the US dollar, the yen and Singapore dollar are also accepted, albeit to a small but significant extent. Further questioning shed light on the reasoning process that the respondents use in invoice currency selection. The main reasons for their choice were identified to be customer needs, transaction cost, ease of accounting and management, parent company influence, and supplier's choice of currency.

Results from questions about respondents' views of future prospects of using local currencies suggest a lukewarm attitude towards greater use of the local currency. Although some respondents were enthusiastic, others seemed to be some sceptical and hesitant about the proposed strategies to promote foreign trade settlements denominated in local currencies in the region. Rationales given include reluctance to use non-liquid means of trade settlement, and that regional initiatives take a long time to materialize due to reasons such as a lack of political will and poor implementation. From a policy perspective, one possible implication of this finding is that changing attitudes should be an important aspect in efforts to promote the use of local currencies in trade settlement.

The results from our study suggest that Singapore exporter's/importer's negative attitudes and relations with overseas counterparts (e.g., foreign parent company influence, follow foreign supplier's currency, foreign customer needs) are the main impediments to using the local currency in foreign trade settlement. Restrictions on capital flows is not an issue in

Singapore as the Monetary Authority (MAS) does not require any exchange control formalities or approvals for all forms of payments or capital transfers.

Hence, to encourage the use of the Singapore dollar, it would be most crucial to firstly change the attitudes of exporters/importers. It is suggested in the country firm level studies that there is considerable resistance and inertia towards using regional currencies for trade settlement. The Singapore case found that firms are generally pessimistic and reluctant about using more of the Singapore dollar. Not only do the respondents feel that it is not feasible because their customers would not accept it, they also have concerns about their ability to deal with the ramifications of using a more diverse range of currencies, such as higher transaction costs and accounting difficulties. This suggests that there needs to be firm level educational initiatives to create awareness and persuade businesses of the advantages of using local currency denominated systems. This would help gain the support and cooperation of the private sector. Capacity building initiatives would also be important to address the help firms adapt to any shifts.

Secondly, since for some Singapore exporters/importers choice of settlement currency is not independently decided by them but influenced by their foreign parent company/supplier/customer, promoting the use of the Singapore dollar would require cooperation with other trading countries. Specific bilateral and regional cooperation initiatives that might be effective are trade settlement/payment systems that link up financial institutions in the involved countries; monetary coordination; and cooperation on liberalizing foreign exchange transactions.

### **Experience of EU and NAFTA**

The relevance for East and Southeast Asia of the experiences of the NAFTA and EU countries in invoicing practices in international must be considered in the context of overall trends in regional trade and monetary integration. Although there have investigations of the determinants of currency invoicing decisions, in North America this subject is not central to debates on either economic integration or monetary policy. Economic integration in North America, unlike Europe, has proceeded primarily as a result of market forces. North American trade is predominantly US dollar trade, both as the unit of account and basis of settlement. There is little discussion of the desirability of diversifying invoicing and selling foreign trade transactions away from the US dollar—indeed advocacy has been in the opposite direction.

Unlike North America economic integration in Europe has proceeded in stages, driven by political vision. The creation of the Euro was strengthen Europe's role within the global monetary system and by vision of creating a single European market. The increasing role for the Euro over the past decade has been associated primarily with intra-European trade, and between members of the Euro zone and countries on the periphery. Overall the dollar remains the predominant global vehicle currency, including for trade in homogeneous within Europe, and especially for trade with countries with currencies pegged to the US Dollar.

In Asia regional trade and investment has grown very rapidly in the past two decades, and there is a strong stated desire to expand regional integration through institutional

arrangements. The emergence of an effective regional currency would depend on its attractiveness as a medium of exchange, store of value and unit of account. This in turn would depend on creating liquid markets with low transactions costs, and would be associated with full convertibility on both current and capital accounts.

The lessons of the North American and European experiences present a number of policy implications for ASEAN and for its member states. Significantly, initiatives to encourage the increased use of regional currencies of foreign exchange settlements may take place at both the national the regional levels. More generally, regional integration can progress both in response to market forces and through proactive leadership to develop regional institutional mechanisms. The probability of success of the latter will depend on having a clear shared vision with well-defined objectives, and a realistic step-by-step implementation plan that builds experience and credibility over time.

Foremost, authorities need to take measures to encourage the development of liquid foreign exchange markets with low transactions costs. This can be accomplished by supporting the development and deepening of financial markets and encouraging the further liberalization of foreign exchange transactions on both current and capital accounts. Decisions to experiment with bilateral settlement mechanisms to reduce specific foreign exchange risks should be made with due consideration of their potential longer-term impacts on market liquidity and confidence.

## **Chapter 1: Ways to Promote Trade Settlement Denominated in Local Currencies in East Asia: Case Study of Thailand**

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### **Executive Summary**

The factors influencing firms' choice of vehicle currencies are examined focusing on industry characteristics and country's macroeconomic performance. The study is divided into two parts. The first part analyzes the patterns of trade settlement currencies used in Thailand's trade for the period 2001-2008. The second part consists of a survey of price setting, settlement currencies and practices of listed and unlisted exporting firms in Thailand. The emphasis is on whether invoicing patterns of Thailand have changed in response to the introduction of Euro Dollar in 2001 and how the currency denomination of exports differs from that of imports. Finally we examine the correlation between share of the U.S. Dollar denominated Thailand's exports and its determinants such as share of Thailand exports to the U.S. against her total exports, the ratio of Thailand's GDP/US's GDP, and the transaction cost of currency.

Main results from analysis of country-level settlement currencies are as follows: (i) less than 7 % of exports are denominated in Thai Baht differing substantially between industries; this percentage fell during the period 2001-2008 both on export and import transactions; (ii) the fraction of imports denominated in Thai Baht is lower than that for exports; (iii) the increase in the use of the Euro stems from both increased trade with EU member countries and as a vehicle currency (third country's currency), (iv) as a vehicle currency, the use of U.S. dollar was more prevalent than the Euro, but the Euro's share increased in both export and import transactions during the period of study.

Findings from firm-level survey of 16 sample firms are as follows: (i) The same currency is largely used for price setting, invoicing and settlement of exports to third parties; (ii) All firms use the same currency for price setting and invoicing for all their export revenues from third parties; (iii) Invoicing currency could differ from the price setting currency because of a "request from the customer"; (iv) The U.S. dollar was the main alternative for exports; (v) Currency choice is similar for exports of intra-firm and inter-firm. Much international trade is conducted intra-firm; (vi) The increase in the use of the Euro stems from both increased trade with EU member countries, but also as a vehicle currency. As a vehicle currency, the use of the U.S. Dollar has been greater than the Euro since 2001; (vii) Firms change price in 3 times per year on average; (viii) Negotiations are important in setting choice of invoicing currency; (ix) Use of the customer's currency does not depend on large destination markets or large orders; (x) To minimize the risk of price deviations across countries a limited set of currencies is used for setting prices; (xi) An objective of risk management of firms is to minimize the variability of cash flow.

The Thai Baht's share in Thailand's export has increased with increase in Thailand's trade with other ASEAN countries, which supports one of the objectives outlined under the

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ASEAN Economic Community (AEC) Blue Print. The implication is that increases in intra-ASEAN trade would encourage increases in use of local currencies- the Baht in the case of Thailand.

The costs of the dependence on currencies outside of the region for the settlement of trade in the region results in cost for changing currencies for trade settlement; the instability in export prices in response to exchange rate changes and costs of hedging exchange rate risks. In contrast, the merits of using the local currencies for trade settlement reveals encouraging efficiency in trade and investment transactions; lowering the above mentioned costs; enhancing export competitiveness arising from cost effectiveness; and promoting trade and investment at the firm, country and regional levels .

The policy recommendations can be summarized as follows: removal of the restrictions on capital flow so as to establish a secure trade settlement system; encouragement of bilateral and regional trade and investment under ASEAN plus 3 and Closer Economic Relations (CER) countries; adoption of foreign exchange regulation policy and regulations to foster the use of local and regional currencies in trade and investment; introduction of new trade payment systems to facilitate more use of local currencies at firm, national and regional levels; development of sound financial markets; promotion of strategic intra-regional production and trade networks in major export industries and engaging in financial cooperation programs and monetary coordination in the region.

## **1-1. Introduction**

This study focuses on the role of currency denomination in international trade transactions of Thailand. It sheds some light on the issues that could support settlement in local currencies in East Asia with special reference to Thailand. The analysis is based on both country-level information on use of local and vehicle currencies in trade settlement in Thailand for the period 2001-2008, and company-level exploration using survey data on price setting, trade settlement practices, strategies towards risk management, and firms' perception on regional policy coordination. The report is divided in two parts. The first part analyzes the patterns of trade settlement currencies used in Thailand's trade for the period 2001-2008. The second part analyses survey data of price setting; settlement currencies; and practices of large exporting firms in Thailand.

## **1-2. Objectives**

The primary objectives of the research are as follows:

- (i) To examine the relationship between choice of currency for invoicing and settlement (payment) transactions in the presence of economic and monetary integration in other region, in particular, since the introduction of Euro in 2001;
- (ii) To identify the factors which could promote transactions in local currencies, thus contributing to further integration of regional trade and financial markets;
- (iii) To propose appropriate settlement currencies to secure safe and efficient foreign trade and production in East Asia in the perspective of theoretical and empirical studies;
- (iv) To suggest possible/necessary policy measures at national or at regional level under the ASEAN +3 regional cooperation process.

## **1-3. Research questions**

The research questions can be summarized as follows:

- (i) Is one currency largely used for price setting, invoicing and settlement for exports to third parties?
- (ii) How does currency denomination of exports differ from that of imports?
- (iii) What factors govern a company's choice of currencies?
- (iv) Are there any correlation between 'currency used' and its determinants such as share of Thailand exports to the U.S. against her total exports, the ratio of Thailand's GDP/U.S.'s GDP, and transaction cost of currency?
- (v) What strategies are employed to minimize the exchange rates?

The paper is organized as follows. Section 1-4 reviews the relevant literature; Section 1-5 discusses the research methodology; Section 1-6 reports patterns of major currencies used for trade settlement in Thailand; Section 1-7 provides an analysis of exchange rates and invoicing patterns; Section 1-8 investigates empirically the determinants of Dollar invoicing; and Section 1-9 summarizes the findings. The implications of study are summarized in Section 1-10, while the policy recommendations are provided in Section 1-11. Section 1-12 concludes.

## **1-4. Literature Review**

The previous studies on price setting and currency invoicing are mainly based on the transactions cost, profit function of firms, size of export market, industry structure, regional

production networks, negotiations in use of settlement currency, macroeconomic stability and volatilities of exchange rates. These studies are summarized in the following section.

Swoboda (1968,1969) finds the benefits of using currencies associated with low transaction costs. Rey (2001) develops a three-country general equilibrium model to explain the role of transaction cost of currency. McKinnon (1979) argues, from the point of view of industry characteristics that industries producing homogeneous goods and trading in specialized markets are likely to have transactions invoiced in a single low-cost currency. Since many currencies could potentially serve as the reference currency in these markets, the inertia could play a role. Krugman (1980) argues that once a currency is established as the dominant one in a market, a particular firm has no incentive to invoice in an alternative currency because it would lead to higher transaction cost and more volatiles sales. Friberg and Wilander (2007) explain, using partial equilibrium approach, the existence of low transactions costs and high transaction volumes in dollars occur because the dollar is a vehicle currency.

Baron (1976) and Giovannini (1988) investigate the role of variability of shocks on both producer's profit function and use of currencies in trade transactions. Wilander (2006) finds a role for exchange rate volatility in the invoicing of Swedish exporters.

Bacchetta and vanWincoop (2005) emphasize the role of industry structures and the convexity of production costs. They argue that an exporter has an incentive to stabilize the prices in the customers' currencies when demand is highly elastic and marginal costs are increasing.

Devereuxetal (2004) examines the effects of monetary fluctuations on the invoicing decisions using a general equilibrium setup in a two-country world. They show that exporters set their prices in the currency of the country where monetary shocks are the least volatile. Engel (2006) employs a similar setup to highlight the choice of invoicing in the presence of sticky prices and the optimal degree of exchange rate pass-through under flexible prices. Donnenfeld and Haug (2001) comment on pricing and invoicing decisions for Canadian trade transactions with a higher volatility of exchange rate encouraged by local currency pricing or a vehicle currency, given that goods are not substitutable. Frankel and Rose (1998) suggest that two countries with a common currency, on average, triple or more their bilateral trade; the effects are much stronger with one fixed exchange rate. Fukuda and Ji (1994) find in their empirical study that Japanese machinery exporters adjust their prices in U.S. dollar in the U.S. and leads to changes in pass-through in terms of import of East Asian importers. Sato (2001) investigates the currencies invoicing of Japan's exports to East Asia by applying the theory of pricing-to-market. The pass-through effects are compared across industries focusing on short-run adjustment in error-correction model of export prices and finds that Japanese electric machinery industry stabilize the export price.

Donnenfeld and Haug (2003) discuss Canadian invoicing and Oi et al (2004), Japanese. Recently, evidence has become available for euro-area and accession countries in the study of Kamps (2006) reviewing the international use of the euro.

### **1-5 Research methodology**

Research methodology includes an empirical study of determinants of currency invoicing based on country-level practices and firm-level study using interview method; statistical analysis and comparative study of political economies of East Asia and EU/NAFTA.

## Section 1: Country-level study on the currency choice for denominating exports

### 1-6. The use of dollars and other currencies in international trade

#### 1-6-1 Silent features of direction of trade of Thailand

Thailand's exports to the U.S. declined from 20.2% of total export to 11.4% in 2008, in comparison, her exports to EU-27 fell from 16.7 percent of total exports to 13.1% in 2008<sup>2</sup>. However, Thailand's exports to the ASEAN-3 increased from 19.3% of total exports to 22.6% in 2008 while her exports to other new members of ASEAN rose from 3.2% to 5.3% of total exports in 2008. Similar patterns exist in her import from above mentioned countries, in particular, Thailand's import from the U.S. declined from 11.2% of total imports in 2001 to 6.3% in 2008 while her imports from EU-27 declined from 12.8% of total imports in 2001 to 11.9% in 2008.

Table 1.1: Direction of Trade of Thailand (in Per cent)

	2001	2002	2003	2004	2005	2006	2007	2008
<b>Exports</b>								
Japan	15.26	14.60	14.19	13.98	13.60	12.63	11.78	11.30
United States	20.25	19.82	16.99	16.06	15.32	14.99	12.62	11.4
EU (27) 1/	16.74	15.54	15.26	14.97	13.61	13.88	14.1	13.16
EU (15)	16.19	14.99	14.68	14.31	12.88	13.01	12.9	11.96
ASEAN 3/	19.33	19.91	20.6	22.01	21.99	20.83	21.31	22.59
Cambodia	0.72	0.76	0.86	0.75	0.83	0.95	0.88	1.15
Lao PDR	0.63	0.58	0.57	0.6	0.7	0.78	0.85	1
Myanmar	0.55	0.48	0.55	0.63	0.64	0.58	0.62	0.75
Viet Nam	1.23	1.39	1.58	1.94	2.13	2.37	2.47	2.82
Total exports	100	100	100	100	100	100	100	100
<b>Imports</b>								
Japan	22.30	23.04	24.09	23.71	22.03	19.93	20.28	18.76
United States	11.6	9.57	9.45	7.66	7.35	7.45	6.78	6.39
EU (27) 1/	12.66	11.29	10.34	10.01	9.14	8.73	8.54	8.02
EU (15)	12.26	10.96	10	9.65	8.86	8.34	8.28	7.77
ASEAN 3/	16.22	16.84	16.64	16.84	18.3	18.33	17.91	16.59
Cambodia	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.05
Lao PDR	0.14	0.14	0.14	0.12	0.19	0.4	0.34	0.35
Myanmar	1.3	1.4	1.2	1.43	1.51	1.8	1.64	1.89
Viet Nam	0.53	0.37	0.44	0.46	0.75	0.7	0.79	0.81
Total imports	100	100	100	100	100	100	100	100

Source: Bank of Thailand, Bangkok.

<sup>2</sup> EU-15 includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom, while EU-27 covers also Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria and Romania.

Thailand's import from ASEAN-3 remained constant, however, her imports from new members of ASEAN increased from 1.9% in 2001 to 3.1% in 2008. Thailand's export to Japan fell from 15.3% of her total exports to 11.3% in 2008, while her import from Japan also declined from 22.3% in 2001 to 18.7% in 2008.

### 1-6-2 The invoicing currencies of Thailand

The share of invoicing in the U.S. dollar, Thai Baht and other major currencies: Euro, U.K. £, Japanese Yen and others are shown in Table 1.2. Several aspects emerge. First, the U.S. dollar is the primary invoice currency of choice for both exports and imports. Second, the use of the U.S. dollar in Thailand's exports declined from 86% in 2001 to 81% in 2008, while the use of the Thai Baht in her exports increased from 4% in 2001 to 7% in 2008. The Yen's share in Thailand's exports was constant of 6% and the use of Euro in Thailand exports increased slightly from 2% in 2001 to 3% in 2008.

The use of the U.S. dollar in Thailand's imports increased from 78% in 2001 to 81% in 2008 while the use of the Yen declined slightly from 10% in 2001 to 9% of total imports in 2008. The use of the Euro and Thai Baht remained constant at about 4% each of total imports during the period of study. The use of U.K.£ in Thailand's exports increased from an insignificant proportion to 1% in 2008. Figures 1.1 and 1.2 clearly show the trend towards less use of the dollar, especially on the export side but also on import side.

The legal basis for exchange control in Thailand is described in the Exchange Control Act (1942) and Ministerial Regulation No. 13 (1954) issued under the Exchange Rate Control Act.

Table 1.2: Invoicing Currencies of Thailand's Trade (World)  
(Per cent)

Year	Export						Import					
	US\$	Yen	Euro	UK£	Baht	Other	US\$	Yen	Euro	UK£	Baht	Other
2001	86	6	2	0	4	2	78	10	4	1	4	4
2002	85	6	3	0	4	2	77	10	5	0	4	3
2003	84	6	3	0	5	2	76	11	4	0	6	3
2004	82	7	3	0	6	2	76	12	5	0	5	3
2005	82	6	3	0	7	2	78	11	4	0	5	3
2006	82	6	3	0	7	2	79	10	4	0	5	3
2007	81	6	3	1	7	3	80	9	4	0	4	3
2008	81	6	3	1	7	3	81	9	4	0	4	2

Source: Bank of Thailand, Bangkok.

Figure 1.1: Invoicing Currency of Thailand's Export  
(Per cent)

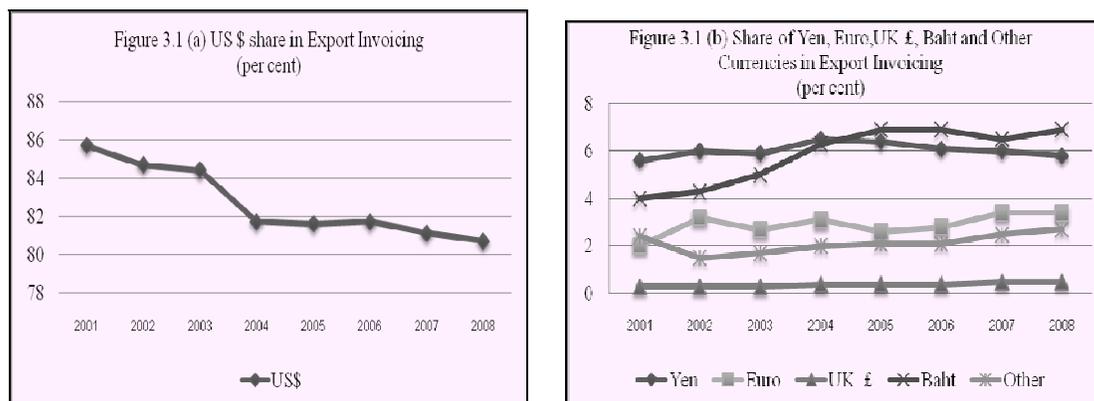
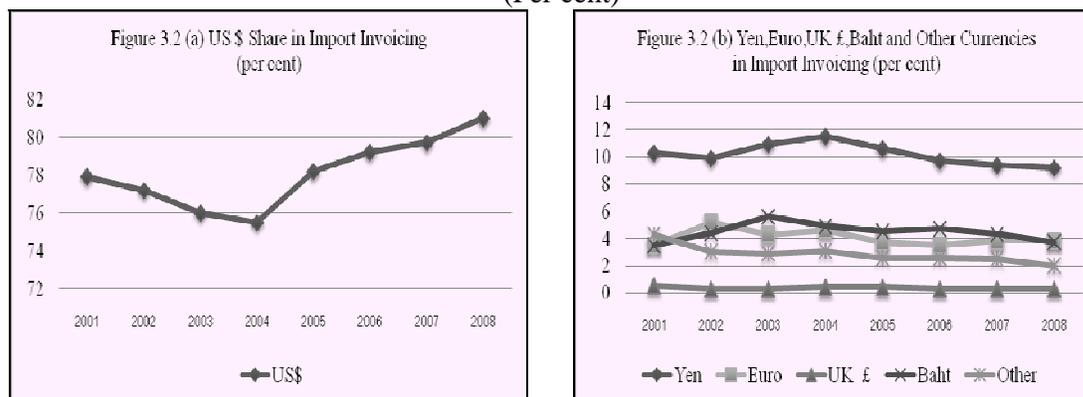


Figure 1.2: Invoicing Currency of Thailand's Import  
(Per cent)



### 1-6-3. The invoicing currencies of Thailand by region

The use of the U.S. Dollar in Thailand's trade varies substantially across countries. It is used in about 97.5% of exports to the U.S., and 46.6% of imports from the U.S. In contrast, the dollar remains a dominant currency in the invoicing of both exports and imports by countries both outside of Euro-area. The U.S. dollar is also used in Thailand's trade with other ASEAN countries and accounted for more than 82% of trade transactions. The Japanese Yen are used at lesser percentage showing less than 6% for export and 9% for import transactions. Foreign currencies appear more prominently in the invoicing of Thailand's trade with the EU and Japan. About 19 % of Thailand's exports to EU countries are invoiced in Euros; 1.5% of imports are invoiced in Yen, and 12% of exports to ASEAN are invoiced in Baht.

By contrast, about 46 % of Thailand imports from EU are invoiced in Euros; 3.2% of imports are invoiced in Pound sterling, and 1.6% of imports are invoiced in Yen.

Table 1.3: Invoicing Currencies of Thailand's Export (by Region)

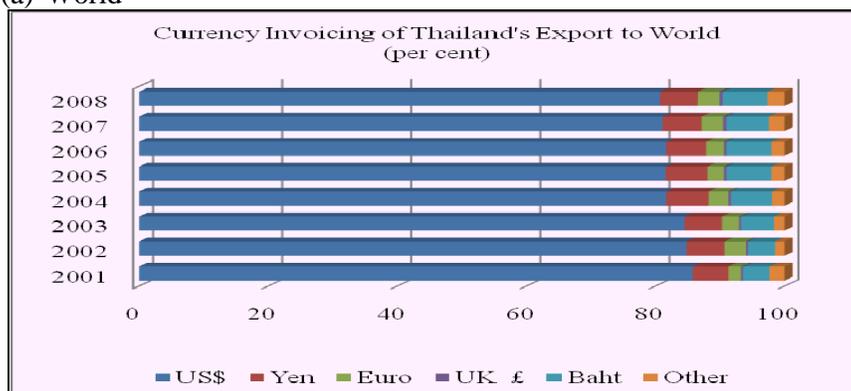
Year	US					
	US\$	Yen	Euro	UK £	Baht	Other
2001	97.10	0.30	0.00	0.00	2.60	0.00
2002	96.40	0.40	0.00	0.00	3.20	0.00
2003	95.80	0.30	0.00	0.00	3.80	0.10
2004	97.00	0.60	0.00	0.00	2.00	0.40
2005	96.60	0.80	0.00	0.00	2.30	0.30
2006	96.10	0.80	0.00	0.00	2.90	0.20
2007	95.90	0.80	0.00	0.00	2.90	0.40
2008	95.80	0.70	0.00	0.00	3.20	0.30

Year	EU					
	US\$	Yen	Euro	UK £	Baht	Other
2001	75.70	0.00	13.80	1.40	1.40	7.70
2002	73.00	0.00	22.90	2.10	1.30	0.70
2003	73.80	0.00	20.10	3.10	1.80	1.20
2004	71.40	0.00	17.80	2.40	6.20	2.20
2005	71.90	0.00	16.20	2.50	6.50	2.90
2006	70.80	0.00	17.70	2.70	6.90	1.90
2007	70.40	0.00	18.80	3.20	5.60	2.00
2008	69.30	0.00	18.90	3.70	6.70	1.40

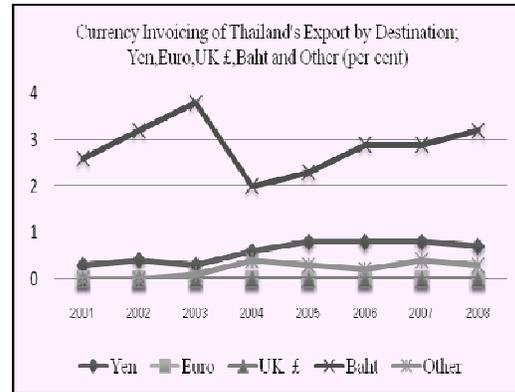
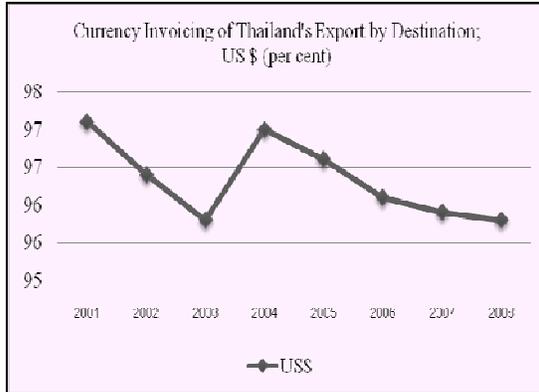
Year	ASEAN					
	US\$	Yen	Euro	UK £	Baht	Other
2001	89.30	1.70	0.00	0.00	5.90	3.10
2002	89.00	1.90	0.00	0.00	6.10	3.00
2003	89.60	1.70	0.00	0.00	6.30	2.40
2004	84.20	1.40	0.00	0.00	10.80	3.60
2005	83.90	1.40	0.00	0.00	11.80	2.90
2006	84.30	1.20	0.00	0.00	11.70	2.80
2007	84.10	1.40	0.00	0.00	11.60	2.90
2008	82.60	1.50	0.00	0.00	12.20	3.70

Figure 1.3: Currency Invoicing of Thailand's Export by Destination (Per cent)

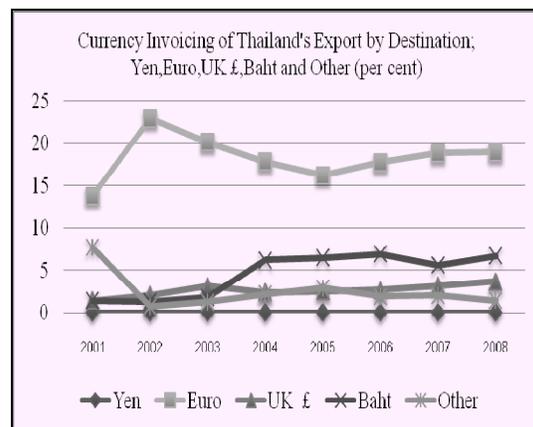
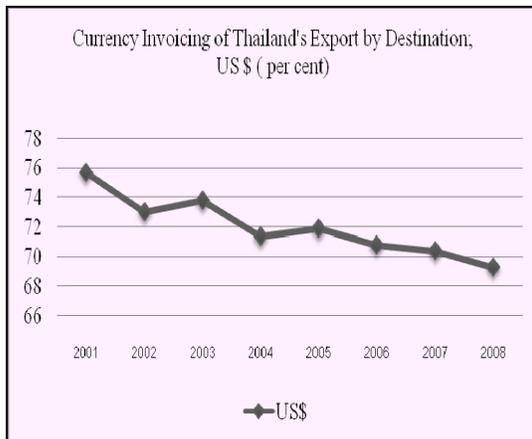
(a) World



(b) U.S



(c) EU



(d) ASEAN

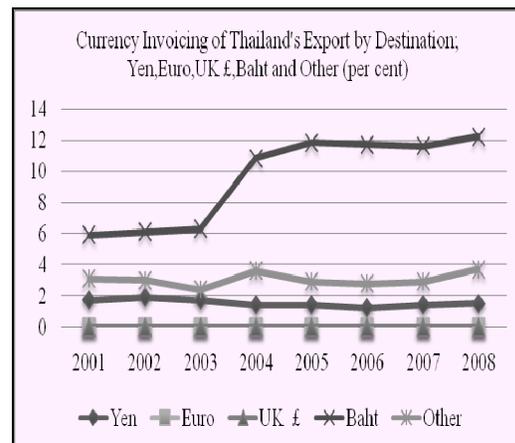


Table 1.4: Invoicing Currencies of Thailand's Import by Region

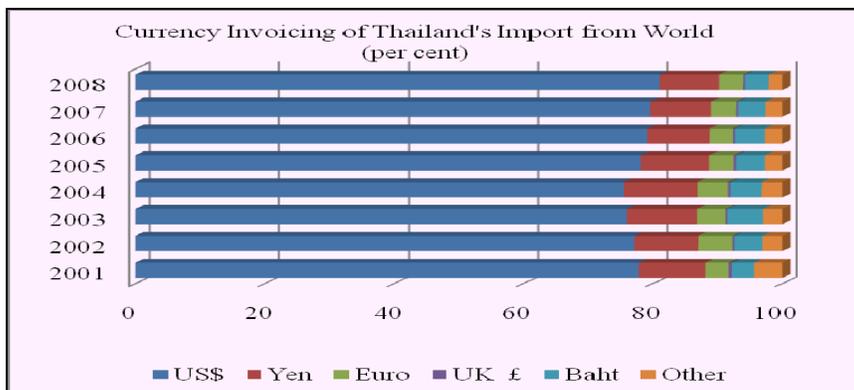
Year	US					
	US\$	Yen	Euro	UK £	Baht	Other
2001	99.1	0.1	0.0	0.0	0.6	0.2
2002	97.9	0.4	0.0	0.0	0.8	0.9
2003	97.4	0.5	0.0	0.0	1.0	1.1
2004	95.9	0.5	0.0	0.0	2.0	1.6
2005	96.4	0.3	0.0	0.0	2.1	1.2
2006	95.4	0.3	0.0	0.0	2.6	1.7
2007	94.9	0.4	0.0	0.0	2.8	1.9
2008	95.7	0.4	0.0	0.0	2.3	1.6

Year	EU					
	US\$	Yen	Euro	UK£	Baht	Other
2001	57.4	0.0	22.4	4.0	4.1	12.1
2002	57.2	0.0	31.6	2.6	6.6	2.0
2003	59.0	0.0	29.7	2.8	6.7	1.8
2004	51.1	0.0	36.8	3.8	5.4	2.9
2005	52.2	0.0	34.8	3.9	6.0	3.1
2006	50.8	0.0	35.1	3.5	6.8	3.8
2007	46.8	0.0	38.6	3.6	8.4	2.6
2008	46.6	0.0	38.8	3.2	9.0	2.4

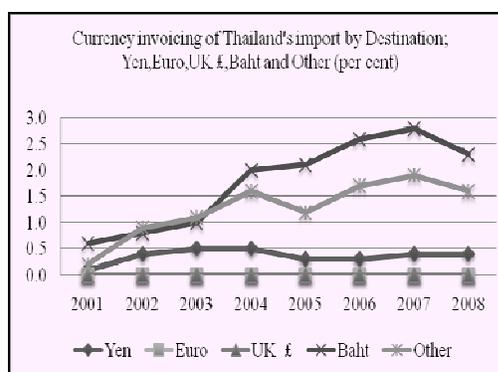
Year	ASEAN					
	US\$	Yen	Euro	UK £	Baht	Other
2001	89.5	2.6	0.0	0.0	4.0	3.9
2002	87.2	1.9	0.0	0.0	5.5	5.4
2003	85.2	1.4	0.0	0.0	7.3	6.1
2004	86.7	1.6	0.0	0.0	5.5	6.2
2005	88.0	1.2	0.0	0.0	5.6	5.2
2006	88.0	1.2	0.0	0.0	5.9	4.9
2007	88.0	1.5	0.0	0.0	6.0	4.5
2008	88.7	1.6	0.0	0.0	4.6	5.1

Figure 1.4: Currency Invoicing of Thailand's Import by Destination  
(Per cent)

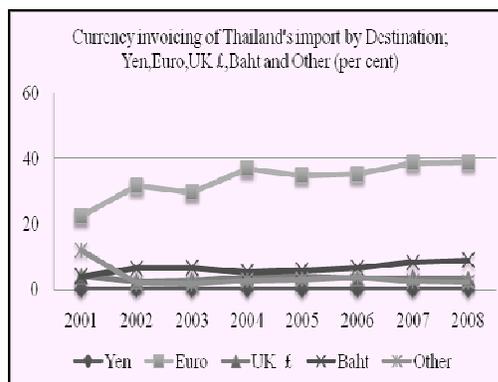
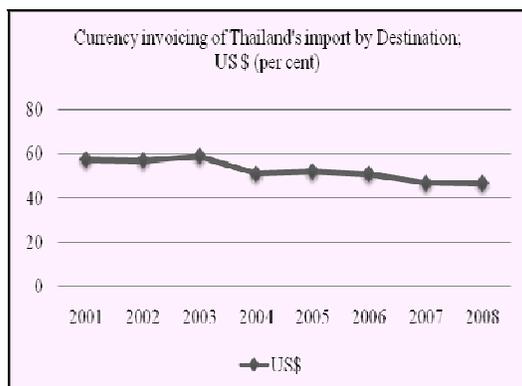
(a) World Total



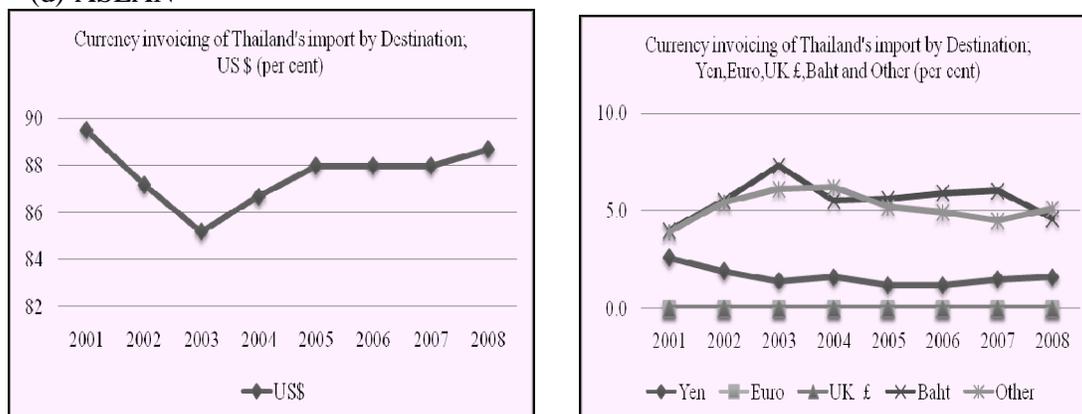
(b) US



(c) EU



## (d) ASEAN



The receipts from the U.S. Dollar invoicing of exports were relatively larger than that of import settlements of the US Dollar. In comparison, the Yen used for import settlements was larger than that of receipt of U.S. Dollar export in the period of study. The structures of export and import receipts by type of currency are reported in Tables 1.5a and 1.5b respectively.

Table 1.5a: Structure of Export Receipts Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
U.S. dollar	80.7	81.1	81.7	81.6	81.7	84.4	84.7	85.7
Baht	6.9	6.5	6.9	6.9	6.3	5.0	4.3	4.0
Japanese yen	5.8	6.0	6.1	6.4	6.5	5.9	6.0	5.6
Deutsche mark	-	-	-	-	-	-	-	0.8
Pound sterling	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3
Euro	3.4	3.4	2.8	2.6	3.1	2.7	3.2	2.0
Singaporean dollar	0.6	0.5	0.4	0.5	0.5	0.3	0.3	0.3
Others	2.1	2.0	1.7	1.6	1.5	1.4	1.2	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok.

Table 1.5b: Structure of Import Receipts Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
U.S. dollar	81.0	79.7	79.2	78.2	75.5	76.0	77.2	77.9
Baht	3.7	4.3	4.7	4.5	4.9	5.6	4.4	3.5
Japanese yen	9.2	9.4	9.7	10.6	11.5	10.9	9.9	10.3
Deutsche mark	-	-	-	-	-	-	0.1	1.6
Pound sterling	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.5
Euro	3.8	3.8	3.5	3.7	4.6	4.3	5.2	3.5
Singapore dollar	0.5	0.6	0.6	0.6	0.8	0.7	0.7	0.7
Others	1.5	1.9	2.0	2.0	2.3	2.2	2.2	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok.

Table 1.6a: Structure of Export Receipts from Japan Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
Japan								
U.S. dollar	59.6	59.9	58.7	59.7	60.1	69.9	71.0	71.8
Japanese yen	33.1	32.2	32.3	32.3	33.4	21.5	20.9	20.5
Baht	6.7	7.1	8.5	7.3	6.2	8.1	7.4	7.3
Others	0.6	0.8	0.5	0.7	0.3	0.5	0.7	0.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok

Table 1.6b: Structure of Import Receipts from Japan Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
Japan								
U.S. dollar	49.5	51.0	46.8	47.1	43.0	49.8	52.9	51.8
Japanese yen	43.1	41.8	44.1	44.1	44.5	40.3	36.5	38.5
Baht	6.8	6.5	8.4	7.6	9.5	8.4	6.8	5.9
Others	0.6	0.7	0.7	1.2	3.0	1.5	3.8	3.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok

Table 1.7a: Structure of Export Receipts from ASEAN Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
ASEAN: Exports								
U.S. dollar	82.6	84.1	84.3	83.9	84.2	89.6	89.0	89.3
Japanese yen	1.5	1.4	1.2	1.4	1.4	1.7	1.9	1.7
Baht	12.2	11.6	11.7	11.8	10.8	6.3	6.1	5.9
Singapore dollar	2.2	1.5	1.3	1.5	2.0	1.2	1.3	1.1
Malaysian ringgit	0.6	0.6	0.7	0.6	0.6	0.2	0.1	0.1
Others	0.9	0.8	0.8	0.8	1.0	1.0	1.6	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
ASEAN: Imports								
U.S. dollar	88.7	88.0	88.0	88.0	86.7	85.2	87.2	89.5
Japanese yen	1.6	1.5	1.2	1.2	1.6	1.4	1.9	2.6
Baht	4.6	6.0	5.9	5.6	5.5	7.3	5.5	4.0
Singapore dollar	1.9	1.7	1.8	2.0	2.8	2.2	2.5	2.7
Malaysian ringgit	2.0	2.2	2.5	2.6	2.7	2.6	1.6	0.3
Others	1.2	0.6	0.6	0.6	0.7	1.3	1.3	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *Ibid.*

#### 1-6-4. Transaction costs and choice of currencies

Transaction costs in foreign-exchange markets are proxied by the pattern of bid–ask spreads of each currency vis-à-vis the U.S. Dollar, Euro, and the Pound using monthly data for the period 2001-2008. In particular, transaction cost measures are calculated as the spread between bid and ask exchange rates divided by the average of these two rates and are used to indicate rankings of transaction costs by currency pair and overtime. The result reveals that the U.S. Dollar is typically the lowest transaction cost currency followed by the Pound sterling, Euro, Yen and Yuan in the foreign-exchange markets under study.

Table 1.8: Bid – Ask Spread of Thai Baht against US\$, UK£, Euro, Yen and Yuan

Year	US \$	UK £	EURO	YEN	YUAN
2002	0.00016	0.00020	0.00038	0.00045	0.00233
2003	0.00017	0.00018	0.00030	0.00043	0.00232
2004	0.00018	0.00016	0.00026	0.00041	0.00281
2005	0.00018	0.00016	0.00026	0.00042	0.00289
2006	0.00020	0.00017	0.00028	0.00048	0.00291
2007	0.00028	0.00019	0.00031	0.00061	0.00292
2008	0.00031	0.00024	0.00031	0.00059	0.00280
2009	0.00032	0.00031	0.00034	0.00056	0.00274

Source: Calculation of the author based on Bank of Thailand Statistics.

### Section 2: Firm-level study on the currency choice for denominating exports, Survey results

#### 1-6-5. Sample size and characteristics of firms

A firm level study on price setting, currency invoicing and trade settling was conducted from October 2009 to January 2010, using stylized questionnaires. The personal interviews were conducted at 16 sample firms out of 50 firms that earn an annual revenue about 1000 billion Baht. The survey response rate was 32%. These sample firms are classified as six groups as follows: 1. Agriculture and Food, 2. Automobiles, 3. Electronic Components, 4. Machinery, 5. Energy and 6. Chemical. The survey gives us the opportunity to focus on firm-specific determinants of current currency invoicing. Finally, the questionnaire allows us to deduce invoicing patterns.

Table 1.9: Type of Industry under Survey

Industry Group	Number of Respondent
Agriculture and Food Industry	6
Automobile	2
Electronic Component	4
Machinery	1
Energy	1
Chemical	2
Total number of firms	16
Survey response rate	32%

### 1-6-6. Production networks and basic policy on exchange rate risk

The production networks of these firms are mainly domestic base indicating 100 per cent of sample firms, of which 40 per cent of firms' production depend on overseas base. Moreover, about a quarter of firms uses the local trading companies to distribute their products.

In examining 'basic policy on exchange rate risk management' five dimensions of policy are investigated and the reasons for firms' policy choices on invoicing currencies are provided in Table 1.10. The invoice currency is used as the settlement currency in all sample firm while 46.6 % of firms consider that choice of an invoice currency is an importance tool to manage exchange rate risks.

Table 3.10: Basic Policy on Exchange Rate Risk Management

Policy Choice of Firm	Per cent
Choice of an invoice currency is an importance tool to manage exchange rate risks	46.67
Invoice currency is used as the settlement currency	100.00
Difference of choice of the invoice currency exist between inter-and intra-firm trade	25.00
Exports affect the choice of the invoice currency	20.00
Product differentiation affects the choice of the invoice currency	7.14

In the survey we also examine the factors influencing firm's choice of invoice currency in line with previous theoretical and empirical studies. The possible 15 factors are provided in the questionnaires and the firms are asked to rate the importance of these factors by assigning a score from 1 (least important) to 5 (most important). The results are reported in Table 1.11 below.

### 1-6-7 Factors affecting choice of invoice currency

An estimated portion of 62.5 per cent of firms comment that monetary stability potentially plays a role followed by 'economic size of market destination' as rated by 50 per cent of firms. Other factors such as network externality, market share, and strategies of competitors are considered to be of highest importance, as rated by 42.8 per cent of firms. Transaction costs, herding motives, hedging motives, transaction volume and inertia are considered as important as rated by more than 33 per cent of firms. About 28.5 per cent of firm's choice of invoice currency depend on 'producers' currency choices'

Table 1.11: Factors Affecting Choice of Invoice Currency  
(Score 1: least important to score 5: most important)  
(Per cent)

Factors	Scores				
	1	2	3	4	5
Economic size of market destination	16.6	-	33.33	-	50.00
Transaction cost	25.0	-	25.00	12.50	37.50
Herding motives	50.0	-	-	16.67	33.33
Hedging motives	28.5	-	14.29	28.57	28.57
Inertia	33.3	16.6	-	16.67	33.33
External Networks	14.2	28.5	-	14.29	42.86
Market share	28.5	-	14.29	14.29	42.86
Strategies of competitors	14.2	-	14.29	28.57	42.86
Development of financial market	28.5	14.2	-	28.57	28.57
Transaction volume	12.5	-	25.00	37.50	25.00
Homogenous goods	33.3	-	33.33	-	33.33
Profit function/motive	22.2	22.2	11.11	11.11	33.33
Producer currency choices	28.5	-	-	42.86	28.57
Monetary stability	12.5	-	12.50	12.50	62.50
Third country's choice	14.2	-	42.86	14.29	28.57

#### 1-6-8. Invoicing and type of industry

To determine whether invoicing patterns vary across industries, firms are classified into five categories: agriculture and food, automobiles, electronics, machinery and chemical industries. In invoicing of electronic and chemical product exports, only the U.S. dollar is used in general. The empirical evidence on currency use is often based on denomination of currency for payments.

With respect to frequency of price change, firms were asked how often prices change. About 15.4 per cent of firms responded that they changed prices daily, while same numbers of firm changed their export prices every 3 month on average. Among these firms, about 15.4% of firms adjust prices; none of these firm adjust costs alone but 7.7% of firms adjust both prices and costs within a year. In addition, about a quarter of firms stated that “there is a relationship between product differentiation and the frequency of price changes indicating the existence of ‘pricing to market’”.

The information on firms use of instruments of hedging foreign exchange rates is provided in Table 1.12.

#### 1-6-9. Methods of hedging foreign exchange rate risk

Risk management is performed by within a company and the results are given by Table 1.12. Four methods of hedging foreign exchange rate risks in sample firms are analyzed and the results are presented in Table 1.1. About 53.8% of firms use the spot transactions, while 58.3% of firms apply forward swap transactions. The use of Foreign exchange option transactions and Non-deliverable forward transactions comprise 25% and 8.3 % respectively. As expected, methods of hedging vary across industries. The auto industry allows management team to decide how merger and hedging are performed within the company's Head Office. The electronics industry uses spot, forward swap and non-deliverable forward transactions. About 60% of agricultural firms employed

the spot transaction and forward swap transaction while 40% of such agricultural firms used foreign exchange options as method for hedging exchange rates. All auto firms applied forward swap transaction, in comparison, half of energy firms employed spot and foreign exchange options. In addition, about one third of electrical and electronics firms used spot, forward swap and non-deliverable forward transactions.

Table 1.12: Methods/instruments of Hedging Foreign Exchange Rate Risk  
(more than one method could be chosen)

Methods	Per cent						
	Agri	Auto	Elec	Mac	Ene	Che	All
1. Spot transactions	60.0	50.0	33.3	-	-	100.0	53.8
2. Forward swap transactions	60.0	100.0	33.3	-	50.0	0.0	58.3
Extent of coverage of whole exposure	-	-	-	-	-	-	-
Length of period (months)	4.5	1	3	-	6	-	-
3. Foreign exchange option transactions	40.0	50.0	0.0	-	50.0	0.0	25.0
Extent of coverage of whole exposure	-	-	-	-	-	-	50.0
Length of period (months)	4.5	-	-	-	-	-	2.0
4. Non-deliverable forward transactions	0.0	-	33.3	-	-	0.0	8.3
Extent of coverage of whole exposure	-	-	-	-	-	-	-
Length of period (months)	-	-	3	-	-	-	-

Table 1.13: Hedging Strategies Used for Managing Exchange Rate Risk  
(more than one method could be chosen)

Hedging Strategy	Per cent						
	Agri	Auto	Elec	Mac	Ene	Che	All
1. Establishment of "Global Treasury" (GT) to manage exchange rate risk and settlement of payments across regions and countries	20.0	50.0	0.00	-	0.0	-	7.69
2. Authority to decide hedging strategy for exchange rate risks	60.0	100.0	0.00	-	100.0	-	41.67
3. Status of merger and hedging within the company's home office (within the finance division in the home office or GT)	20.0	50.0	0.00	-	100.0	-	27.27
4. Status of usage of forward exchange and currency options	0.0	0.00	100.0	-	0.0	-	27.27
Extent of coverage of whole exposure	-	-	-	-	-	-	-
Length of period (month)	-	-	-	-	-	-	-

In examining ‘hedging strategies’ used for managing exchange rate risks, the auto industry applied ‘authority to decide hedging strategy for exchange rate risks’ and half of firms used ‘establishment of “Global Treasury” (GT)’ and ‘status of merger and hedging within the company’s home office’. In comparison, about 60 per cent of agricultural firms employed ‘authority to decide hedging strategy for exchange rate risks’, while 20 per cent of firms used ‘establishment of GT’ and ‘status of usage of merger and hedging within the company’s home office’. All electronics industry chooses ‘status of usage of forward exchanges and currency options’, while all firms under energy employed strategies on ‘authority to decide hedging strategy for exchange rate risks’ and ‘status of usage of merger and hedging within the company’s Head Office’.

With respect to question on ‘the invoicing currency is largely determined through negotiation. under reasons for firm’s choice of invoice currency, 69.2 per cent of firms agree with. About 31 per cent of firms stated that ‘company uses dollar because company sells differential products’. In addition, most firms stated that ‘compensation is not provided to customers subject to exchange rate changes’. Our company uses dollar because company sells differential products. It is also found that the exchange rates matter little for currency choice of firms.

Table 1.14: Reasons for Firm’s Choice of Invoice Currency

Major Reasons	Per cent						
	Agri	Auto	Elec	Mac	Ene	Che	All
The invoicing currency is largely determined through negotiation.	40.0	50.0	100.0	0.0	100.0	100.0	69.23
The customer’s currency is used if it presents large export market and large order.	0.0	0.0	100.0	0.0	0.0	0.0	30.77
Currency choice is not a central concern for the company.	40.0	50.0	50.0	0.0	0.0	0.0	38.46
The exchange rates matter little for currency choice.	20.0	0.0	25.0	0.0	0.0	100.0	23.08
Company uses dollar because company sells differential products.	20.0	0.0	50.0	0.0	0.0	100.0	30.77
Company uses dollar as their main currency for smaller amount of exports.	20.0	50.0	50.0	0.0	0.0	100.0	38.46

Table 1.15: Firms' Opinion on Most Relevant Invoice Currency in Future

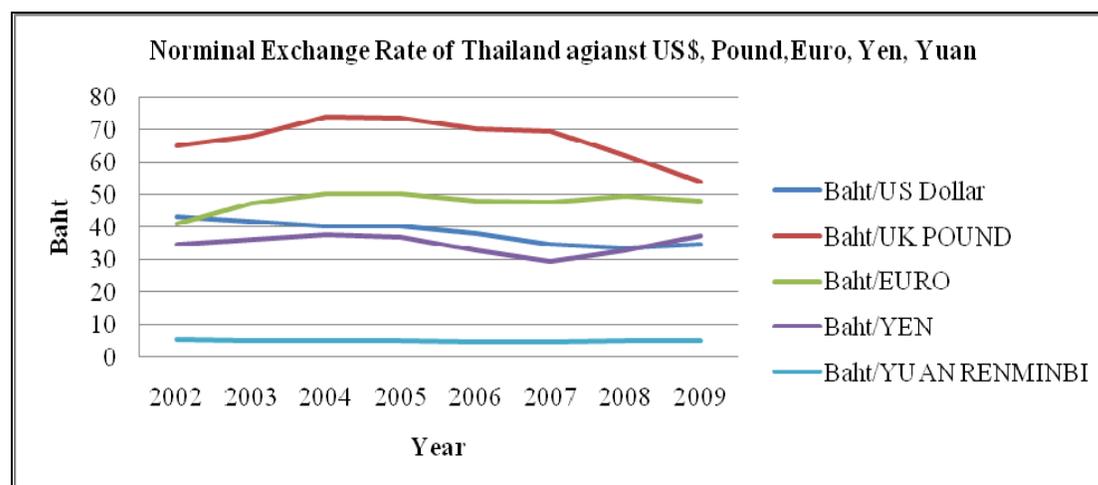
Major Currencies	Scores				
	1	2	3	4	5
US dollar	20.00	10.00	0.00	0.00	70.00
Japanese Yen	12.50	25.00	25.00	37.50	0.00
Chinese Yuan	22.22	22.22	44.44	11.11	0.00
Own local currency	12.50	25.00	12.50	25.00	25.00
A common currency basket such as Euro	60.00	10.00	10.00	20.00	0.00

As far as firms' opinion on most relevant invoice currencies in future, about 70 per cent of firms rated the U.S. Dollar giving the highest scores followed by Japanese Yen, Baht and a common currency such as Euro. Details can be seen in Table 1.15.

### 1-7. An analysis of exchange rates and invoicing patterns

This section attempts to examine the links between invoicing patterns and exchange rates. The analysis stresses a "coalescing" effect among exporters, with a particular firm's invoicing in line with competitors in order to limit the movement relative to price.

Figure 1.7 Movements of major currencies used in international trade of East Asia.



In summarizing this section, the following scenarios can be found. There is greater inter-firm trade is larger than Intra-firm. About 60 per cent of firms conduct their trade with different groups (inter-firm), while about 53.3 per cent of firms conducted trade within a group of firms (intra-firm).

## 1.8. Determinants of currency invoicing

This section examines the determinants of share of invoiced currency in total invoiced currencies based on available data. The correlation between share of the U.S. Dollar denominated Thailand's exports and its determinants such as share of Thailand exports to the U.S. against her total exports, and the ratio of Thailand's GDP/US's GDP, would lead to an increase in the share of U.S. dollar used in Thailand's trade with the U.S. In contrast, a rise in bid-ask spread of currency would lead to a decline in the use of the U.S. Dollar.

**Table 1.16 Correlation coefficient between 'currency used' and its determinants**

Y	1.0000	0.9481	0.2638	-0.8322
X <sub>1</sub>	0.9481	1.0000	0.4627	-0.8162
X <sub>2</sub>	0.2638	0.4627	1.0000	-0.3140
X <sub>3</sub>	-0.8322	-0.8162	-0.3140	1.0000

where Y = share of Thailand's exports that are invoiced in the U.S Dollar

X<sub>1</sub> = share of Thailand' export to the U.S. as a destination currency in country total exports

X<sub>s</sub> = the ratio of Thailand's GDP/US's GDP

X<sub>2</sub> = X<sub>1</sub> \* X<sub>s</sub>

X<sub>3</sub> = pip= bid-ask spread exchange rates<sup>3</sup>

= (bid – ask Exchange rate)/[(bid+ ask Exchange rate) /2]

The correlation between share of Thailand's exports which are invoiced in the U.S. dollar and its determinants such as share of Thailand export in her total exports, ratio of Thailand's GDP to U.S.'s GDP, and bid-ask exchange rate spread are reported in Table 1.11. The results suggest that increases in both share of U.S. dollar denominated export in Thailand and ratio of Thailand's GDP/U.S.'s GDP, would lead to an increase in share of U.S. dollar used in Thailand's trade with the U.S. In contrast, a rise in bid-ask spread exchange rate would lead to a decline in the use of U.S. dollar.

The role of swap facility under ASEAN trade and finance cooperation, which was developed in the Chiang Mai initiative, the role of Asian bond market, and macroeconomic alignments, monetary and financial coordination among ASEAN members should be included in further studies in this area. In addition, the strategic development of trade settlement/payment systems at firm, national and regional levels is worthwhile in a process of economics of integration.

## 1.9. Summary of findings

Main results from analysis of country-level settlement currencies are as follows:

- (i) less than 7 % of exports are denominated in Thai Baht differing substantially between industries; this percentage fell during the period 2001-2008 both on export and import transactions;
- (ii) the fraction of imports denominated in Thai Baht is lower than that for exports;

<sup>3</sup> The term pip is used for listed equity security to exhibit the smallest amount by which a price can move in a market.

- (iii) the increase in the use of the Euro stems from both increased trade with EU member countries and as a vehicle currency (third country's currency);
- (iv) as a vehicle currency, the use of U.S. dollar was more prevalent than the Euro, but the Euro's share increased in both export and import transactions during the period of study.

Findings from firm-level the survey of 16 sample firms are as follows:

- (i) The same currency is largely used for price setting, invoicing and settlement of exports to third parties;
- (ii) All firms use the same currency for price setting and invoicing for all their export revenues from third parties;
- (iii) Invoicing currency could differ from the price setting currency because of a "request from the customer";
- (iv) The U.S. dollar was the main alternative for exports;
- (v) Currency choice is similar for exports of intra-firm and inter-firm. Much international trade is conducted intra-firm;
- (vi) The increase in the use of the Euro stems from both increased trade with EU member countries, but also as a vehicle currency. As a vehicle currency, the use of the U.S. Dollar has been greater than the Euro since 2001;
- (vii) Firms change price in 3.5 times per year on average;
- (viii) Negotiations are important in setting choice of invoicing currency;
- (ix) Use of the customer's currency does not depend on large destination markets or large orders;
- (x) To minimize the risk of price deviations across countries a limited set of currencies is used for setting prices;
- (xi) An objective of risk management is to minimize the variability of cash flow.

### **1-10. Implications of the study**

The results from the survey have implications for several issues. The same currency is used to a very large extent in pricing, invoicing and settling payment simplifying international comparisons of the currency denomination in international trade. The above results, combined with the finding that average prices are changed frequently, potentially also has macroeconomic implications. If the invoicing currency is also the pricing currency, there is a clear link between invoicing and exchange rate pass-through.

First, for most of the sample firms, less than 7% of all exports are denominated in local currency. The U.S. dollar is more widely used for denominating exports than for imports even though for some industries the fraction of payments denominated in Baht is roughly equivalent for exports and imports. We can also note that the use of the Dollar is falling while Thailand's trade in Euro-area is increasing. Interestingly, since 2001, when the Euro was introduced, the use of the Euro has become larger for both import and exports.

The findings clearly show the trend towards less use of dollar, especially for exports, but also for imports. This implication is potentially important; if both exports and imports have similar currency denominations, changes in net exports will lead to changes in demand for the local currency, especially if domestic firms do not immediately (or ever) convert foreign currency payments to the domestic currency. It points to the importance of the liquidity of the local or regional currency. This increase has come at the expense of local currency, and not the Dollar. Nonetheless, the use of the U.S. Dollar as a vehicle currency is larger than the use

of the Euro. One possibility could be that international payments in Euro can be conducted at less cost than international payments in other currencies as shown in Table 1.8.

The evidence suggests that Thai exporters adjust prices, and there is strong evidence of pricing-to-market behaviour. The degree of pass-through will vary by choice of invoicing currency, given products and markets as expected by 'law of one price' and exchange rate pass-through. This implies that the choice of invoicing currency constitutes an important strategic pricing decision of a firm. In addition, the findings incorporate other findings that exporters who perform effectively price-discriminate between markets, and take destination-specific market conditions into consideration when setting prices.

Increase in use of Thai baht share in Thailand's exports are found since her trade with ASEAN countries, which supports to one of objectives outlined under ASEAN Economic Community (AEC) Blue Print. The implication is that increases intra-ASEAN trade would encourage the increases in use of local currencies that Baht in the case of Thailand.

### **1-11. Policy recommendations**

The costs of the dependence on currencies outside of the region for the settlement of trade in the region results in cost for changing currencies for trade settlement; the instability in export prices in response to exchange rate changes and costs of hedging exchange rate risks. In contrast, the merits of using the local currencies for trade settlement reveals encouraging efficiency in trade and investment transactions; lowering the above mentioned costs; enhancing export competitiveness arising from cost effectiveness; and promoting trade and investment at the firm, country and regional levels.

The policy recommendations can be summarized as follows: removal of the restrictions on capital flow so as to establish a secure trade settlement system; encouragement of bilateral and regional trade and investment under ASEAN plus 3 and Closer Economic Relations (CER) countries; adoption of foreign exchange regulation policy and regulations to foster the use of local and regional currencies in trade and investment; introduction of new trade settlement/payment systems to facilitate more use of local currencies at firm, national and regional levels; development of sound financial markets; promotion of strategic intra-regional production and trade networks in major export industries and engaging in financial cooperation programs and monetary coordination in the region.

### **1-12. Conclusion**

This analysis highlights that the dollar is the most widely used currency in international trade transactions of Thailand in which the use of U.S. dollar constitutes about 95 per cent of Thailand's trade with the U.S. and 4 per cent of Thailand's trade with the Euro areas. This role of the Dollar as a transaction currency in international trade has elements of industry coalescing based on a single currency. The findings also point out that the Dollar is used in invoicing trade for the purpose of hedging. The use of the Euro as an invoicing currency is linked primarily with Thailand trade with the euro-area, or direct participation in the Euro-area. The use of euros in this trade invoicing is small, accounting for 5%. With respect to coordination of exchange rate policy within Asian countries, 'easing the foreign exchange regulation and capital control' was considered as an important policy by 30 per cent of firms, in comparison, about 18 per cent of firms selected 'the local currencies denominated Asian bond market' as a priority option in policy coordination.

In conclusion, this study analytically examines evidence on factors influencing settlement currency choice in international trade based on a case study of Thailand, which in turn sheds light on policy measures required at firm, national and regional level in drafting appropriate settlement currencies in East Asia. These factors comprise the transactions cost of currency, size of export market, industry structure, regional production networks, negotiations of trade partners in use of settlement currencies, macro economic stability, the liquidity of local currency and volatilities of exchange rates, provided that the regulatory framework exists, and the role of Asian bond markets.

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## Chapter 2: Currency Invoicing of Foreign Trade: Case Study of Singapore

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### Executive Summary

This paper seeks to understand the practice of currency invoicing in Singapore. First, to provide context, a general picture of the foreign trade structure of Singapore is presented. We then present findings from structured interviews with 15 Singapore-based exporters and importers. The interviews gathered information about the company's profile, choice of invoice and settlement currency, exchange rate risk management strategies, and views on ways to promote local currency settlements in the region in the future.

On the pattern of invoicing, findings led us to draw two main conclusions. Firstly, while foreign exporters' and importers' currencies are used quite significantly to settle trades with Singapore-based firms, it seems that the trading country currency is more prevalent in imports than exports from Singapore. Secondly, the findings relevant to Asia seem to suggest that other than the US dollar, the yen and Singapore dollar are also accepted, albeit to a small but significant extent. Further questioning shed light on the reasoning process that the respondents use in invoice currency selection. The main reasons for their choice were identified to be customer needs, transaction cost, ease of accounting and management, parent company influence, and supplier's choice of currency.

Results from questions about respondents' views of future prospects of using local currencies suggest a lukewarm attitude towards greater use of the local currency. Although some respondents were enthusiastic, others seemed to be some sceptical and hesitant about the proposed strategies to promote foreign trade settlements denominated in local currencies in the region. Rationales given include reluctance to use non-liquid means of trade settlement, and that regional initiatives take a long time to materialize due to reasons such as a lack of political will and poor implementation. From a policy perspective, one possible implication of this finding is that changing attitudes should be an important aspect in efforts to promote the use of local currencies in trade settlement.

The results from our study suggest that Singapore exporter's/importer's negative attitudes and relations with overseas counterparts (e.g., foreign parent company influence, follow foreign supplier's currency, foreign customer needs) are the main impediments to using the

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local currency in foreign trade settlement. Restrictions on capital flows is not an issue in Singapore as the Monetary Authority (MAS) does not require any exchange control formalities or approvals for all forms of payments or capital transfers.

Hence, to encourage the use of the Singapore dollar, it would be most crucial to firstly change the attitudes of exporters/importers. It is suggested in the country firm level studies that there is considerable resistance and inertia towards using regional currencies for trade settlement. The Singapore case found that firms are generally pessimistic and reluctant about using more of the Singapore dollar. Not only do the respondents feel that it is not feasible because their customers would not accept it, they also have concerns about their ability to deal with the ramifications of using a more diverse range of currencies, such as higher transaction costs and accounting difficulties. This suggests that there needs to be firm level educational initiatives to create awareness and persuade businesses of the advantages of using local currency denominated systems. This would help gain the support and cooperation of the private sector. Capacity building initiatives would also be important to address the help firms adapt to any shifts.

Secondly, since for some Singapore exporters/importers choice of settlement currency is not independently decided by them but influenced by their foreign parent company/supplier/customer, promoting the use of the Singapore dollar would require cooperation with other trading countries. Specific bilateral and regional cooperation initiatives that might be effective are trade settlement/payment systems that link up financial institutions in the involved countries; monetary coordination; and cooperation on liberalizing foreign exchange transactions.

## **2-1. Introduction**

Externally-oriented and open, Singapore's economy has historically been dependent on international trade. Economic strategy has developed from entrepot trade before 1960s, to export-oriented industrialisation in the 1960s-70s, to capacity building and economic diversification in the 1980s-90s, and to the current focus on moving up the value chain towards more knowledge-intensive activities. In the period 2004-2008, total trade amounted to about 3.5 times of GDP, and net exports were about 27 percent of GDP (MTI, 2008). The country's major export partners besides US and Europe include China (about 10.0% of non-oil domestic exports in 2008), Malaysia (9.2%), Indonesia (7.2%), Hong Kong (7.3%), and Japan (6.7%) (Singapore Statistics, 2009a).

Given this, exploring the Singapore case would be valuable to the present study for at least two reasons. First, the relatively high level of intensity and advancement of exporting and importing activities in Singapore provides a rich context to examine how the type of currencies used in trade settlement influences businesses. Second, Singapore's strong links with its neighbouring East Asian counterparts suggests that its role in the regional market is significant. Indeed, Singapore accounted for about 28% of total ASEAN trade in 2008, making it the biggest contributor among the member states (ASEAN, 2009). Hence, understanding the situation in Singapore would be relatively important for any trade promotion effort in East Asia.

This section first gives a general picture of the foreign trade structure of Singapore. Then, to provide a deeper understanding of the practice of currency invoicing, we present findings from structured interviews with 15 Singapore-based exporters and importers. The interviews, which were conducted between October to December 2009, gathered information about the company's profile (production and sales structure), choice of invoice and settlement currency, exchange rate risk management strategies, and views on ways to promote local currency settlements in the region in the future. The majority of interviews were conducted face-to-face or over the phone with a representative from the company's accounting or finance department.

## **2-2. External trade of Singapore**

Although figures for invoicing currencies were not available at the time of research, we present below the shares of exports and imports value by destination and source regions to map out the trade structure of Singapore. This information may have important implications to efforts to promote more home currency invoicing in Singapore. From tables 1 and 3, we can see that both exports and imports have increased constantly from 1998 to 2008. We also see that Asia has consistently accounted for about three quarters of total exports and imports. Further, the growth in Asian exports and imports far exceeds those of America and Europe. To illustrate, while exports to America increased 33.2% and exports to Europe rose 56.5% from 1998 to 2008, exports to Asia increased a whopping 230.4% in the same period. This suggests a shift in trade activity from the West to the East. However, from the data gathered in the interviews with Singapore-based exporters and importers, it seems that the dominant

currency in trades with Asia is the US dollar. This suggests that there is considerable potential in the area of trades with Asia to promote the use of home currency invoicing in Singapore.

Table 2.1: Exports by major region

Region/Country	1998	2003	2004	2005	2006	2007	2008
Total	183,763	278,578	335,615	382,532	431,559	450,628	476,762
America*	40,574	41,049	45,812	48,380	54,821	54,740	54,030
Asia	100,967	185,791	224,278	260,919	296,495	314,076	333,564
Europe	33,218	37,504	46,236	48,766	51,516	51,501	51,992
Oceania	6,566	10,985	15,403	19,687	22,529	23,346	27,142
Africa	2,438	3,249	3,886	4,780	6,198	6,965	10,034

\*America consists of Brazil, Canada and United States

Source: Singapore Statistics, 2009b

Table 2.2: Exports by East Asian countries

Region/Country	1998	2003	2004	2005	2006	2007	2008
China	6,794	17,638	25,972	32,909	42,061	43,549	43,818
Malaysia	27,999	39,672	46,073	50,612	56,372	58,100	57,638
Indonesia	na	27,482	32,139	36,817	39,504	44,320	50,299
Hong Kong, China	15,418	25,116	29,807	35,849	43,335	47,155	49,526
Japan	12,090	16,875	19,533	20,874	23,589	21,663	23,487
Taiwan	7,929	12,012	14,075	14,938	15,065	13,771	13,411
Thailand	7,037	10,711	13,078	15,662	17,945	18,653	18,612
South Korea	4,291	10,550	12,482	13,412	13,877	15,960	17,318

Source: Singapore Statistics, 2009b

Table 2.3: Imports by major region

Region/Country	1998	2003	2004	2005	2006	2007	2008
Total	169,863	237,316	293,338	333,191	378,924	395,980	450,893
America*	34,130	34,257	38,802	43,663	53,460	55,410	63,779
Asia	105,052	162,317	204,643	236,503	267,510	276,406	310,485
Europe	27,004	34,965	43,443	45,496	49,492	56,805	67,177
Oceania	2,546	4,401	4,479	5,488	6,555	5,542	7,712
Africa	1,131	1,377	1,971	2,042	1,907	1,817	1,740

\*America consists of Brazil, Canada and United States

Source: Singapore Statistics, 2009b

Table 2. 4: Imports by East Asian countries

Region/Country	1998	2003	2004	2005	2006	2007	2008
China	8,123	19,276	27,357	34,170	43,194	48,013	47,595
Malaysia	26,252	37,528	42,202	45,527	49,481	51,809	53,814
Indonesia	na	14,505	16,444	17,400	23,426	22,068	24,827
Hong Kong, China	4,759	5,380	6,172	7,009	6,507	5,805	4,908
Japan	28,434	26,808	32,267	32,034	31,640	32,423	36,580
Taiwan	6,517	11,263	15,827	19,720	24,207	23,306	23,195
Thailand	8,118	9,587	11,330	12,516	13,856	12,797	15,923
South Korea	5,087	8,637	11,851	14,323	16,636	19,254	25,335

Source: Singapore Statistics, 2009b

## 2-3. Findings from interviews with Singapore-based importers/exporters

### 2-3-1. Profile of respondents

The 15 sample firms were selected based on the objective of achieving variation in firm size and industry type. Based on staff strength, there is a more or less even representation of small (less than 10 workers), medium (10-40 workers) and large enterprises (more than 40 workers). Also, a diversity of goods and services trading industries are represented, including

communications/media, electronics, food, shipping, plastics, wood, construction, transport, and hardware.

Four of the 15 companies are local subsidiaries of foreign parent companies, and the rest are locally founded and headquartered. Four firms have traded products manufactured in Singapore, and 10 firms have goods produced overseas. Eight firms are trading companies, i.e. they do not deal in manufacturing, only in buying and selling/marketing the final goods. The relatively low representation of local manufacturing and substantial proportion of trading companies in the sample reflect the shifting emphasis in almost every developed economy from manufacturing to services. Although Singapore's manufacturing sector remains strong, it has shifted towards higher value-added manufacturing, replacing low-end productions that have migrated to cheaper locations.

### 2-3-2. Pattern of currency invoicing

The majority of the sample firms export to Asia (13 out of 15 respondents) and Europe (8/15). Asian destinations include countries in Southeast Asia (Thailand, Indonesia, Malaysia, Vietnam and Philippines), North Asia (China, Korea, Japan, Hong Kong and Taiwan), and India. The other export countries/regions are US (3/15), Middle East (4/15), Russia (2/15), Africa (4/15), and Oceania (4/15). Imports of the sample firms come mainly from Asian countries (7/15), namely China, Malaysia, Japan and Hong Kong. Some firms also import from US (1/15), Europe (3/15), and Oceania (1/15).

Tables 2.5 and 2.6 show the currency invoicing in exports from Singapore to various overseas destinations, and tables 7 and 8 show the currency invoicing for imports to Singapore. In these tables, the figures represent the number of sample firms that use each currency as the main invoice currency for each destination. No figures in some boxes mean that no firms trade with that certain destination using that certain currency.

Table 2. 5: Dominant invoicing currency for exports by destination country/region in the world

	US	EU	Asia	Middle East	Oceania	Russia	Africa
USD	3	3	8	4	3	2	4
EUR		4					
JPY			1				
SGD (Singapore Dollar)		1	3				
AUD (Australian Dollar)					1		

Source: Answers through interviews with 15 Singapore-based importers/exporters

Table 2.6: Dominant invoicing currency for exports by destination in Asia

	China	Thai	Indonesia	Malaysia	Korea	Japan	Hong Kong	Tai wan	India	Viet Nam	Philip pines
USD	7	6	6	6	4	5	4	4	5	5	7
JPY		1	1			1			1		1
SGD (Singapore Dollar)		2	2	2	1	1	2	1	2	1	1

Source: Answers through interviews with 15 Singapore-based importers/exporters

Table 2.7: Dominant invoicing currency for imports by country/region in the world

	US	EU	Asia	Middle East	Oceania
USD	1		3		
EUR		3			
JPY			3		
SGD (Singapore Dollar)			1		
AUD (Australian dollar)					1

Source: Answers through interviews with 15 Singapore-based importers/exporters

Table 2.8: Dominant invoicing currency for imports by country/region in Asia

	Malaysia	China	Japan	Hong Kong
USD		2		
JPY			3	
MYR (Malaysian Ringgit)	2			
SGD (Singapore Dollar)		1		
HKD (Hong Kong Dollar)				1

Source: Answers through interviews with 15 Singapore-based importers/exporters

Two main conclusions can be drawn from the data. Firstly, while foreign exporters' and importers' currencies are used quite significantly to settle trades with Singapore-based firms,

it seems that the trading country currency is more prevalent in imports than exports from Singapore. To illustrate, 4 out of 8 firms that export to Europe use the Euro mainly as the invoice currency; 1 out of 6 firms that export to Japan use the yen; and 1 out of 4 firms that export to Oceania use the Australian dollar. The majority of the other exports are settled in US dollar. In comparison, most importers in the sample identify the exporter's currency as the main invoice currency. The only exception is China, where instead of the yuan, the US dollar and Singapore dollar are the main choices. This is interesting as it seems Singapore-based firms are quite comfortable with settling imports in the exporter's currency, but less willing or able to use local currencies to settle exports.

Secondly, the findings relevant to Asia (Table 6 and 8) seem to suggest that other than the US dollar, the yen and Singapore dollar are also accepted, albeit to a small but significant extent. The Singapore dollar is mainly used by 1 out of the 8 firms that export to Europe, and 3 out of 13 firms that export to Asia. However, this still represents a small proportion of trades, suggesting that there could be obstacles to the use of Singapore dollar.

### **2-3-3. Factors behind currency invoicing**

Although the interviews utilized structured questionnaires, a certain degree of openness was allowed to capture more detailed information about the companies' policy and behaviour with regards to the choice of invoice currency and managing exchange rate risk. Table 9 presents the main reasons guiding the choice of currency as distilled from the interview transcripts, and the number of sample firms that indicated each reason. Table 10 shows the number of firms that make a strategic response to changes in exchange rates by either changing the product price, production costs, or both. It also shows the number of firms that make specific provisions in contracts with trading partners to address changes in exchange rate, as well as the number of firms that have incentive to stabilize their product price.

Table 2.9: Main reasons for choice of invoice currency

Main reasons	No. of respondents
<p>Customer needs</p> <p>(e.g., currency is determined by negotiation between buyer and seller; weak bargaining power due to high level of competition; customer accounts for large export market or places a large order)</p>	9
<p>Transaction cost</p> <p>(e.g., the transaction costs of USD is lowest among currencies)</p>	1
<p>Ease of accounting and management</p> <p>(e.g., The company uses USD because company sells differential products, or has many clients with small orders, or has clients all over the world)</p>	1
<p>Parent company influence</p> <p>(e.g., The company is a local subsidiary in which the overseas parent company has a high equity participation in, and hence has to follow the parent company's practice; To gather exchange rate risk management into the overseas head office with the ability of exchange rate risk management.)</p>	4
<p>Follow supplier's choice of currency</p> <p>(e.g., The company uses the same currency it uses to pay its suppliers to charge its customers to reduce exchange rate risk)</p>	5

*Source:* Answers through interviews with 15 Singapore-based importers/exporters

Table 2.10: Exchange rate management and price setting behaviour of firms

Price/ Cost Adjustments	No. of respondents
Undertook strategic response to a sharp change in the exchange rate	
(i) Adjust price only	2
(ii) Adjust cost only	0
(iii) Adjust both price and cost	3
(iv) Not Adjust	10
Contracts with trading partners	1
There is a relationship between the degree of product differentiation and the frequency of the price change	1
There is incentive to stabilize the export price in terms of the importer's currency	4
There is incentive to stabilize the export price in terms of the importer's currency (the group companies)	1
There is incentive to stabilize the export price in terms of the importer's currency (non-group companies)	3

*Source:* Answers through interviews with 15 Singapore-based importers/exporters

From the above findings, it seems that the main determinant of invoice currency choice is customer needs. Feedback from interviewees indicates that most overseas customers are insistent on trading with internationally recognized currencies, such as the US dollar, Euro and yen. The fact that the findings show that less internationally recognized currencies such as the Singapore dollar and other local currencies are used less often suggests that some of the sample firms have little bargaining power. An extension of this customer-focused approach could be found in the 3 firms that indicated an incentive to stabilize their export price in terms of their customers' currency.

As one interviewee said: "Due to my position as a supplier and exporter, it is in my interests to mitigate any of my customer's loss, to ensure a consistent volume of trade and to keep my customers." One respondent, however, said it depends: "Some buyers are more willing to factor in exchange rate risks, some small companies cannot afford to have a change in their buying price, so they are less willing to accept a change in price of our exports due to exchange rate changes."

Another respondent said that the choice of currency is extremely important as "any wrong decision will generate losses". Hence, "it is always prudent and recommended to trade in the same currencies of the supplier and the buyer". While trading in the buyer's currency can

help promote sales, trading in the supplier's currency could help reduce exchange rate risks by minimizing fluctuations in cost-price difference.

Another factor that came up in interviews was the transaction cost of converting currencies. Some respondents revealed that the burden of transaction cost is completely on them, which may partially explain their choice of the currency with the cheapest transaction cost – the US dollar.

Some respondents also brought up the effect of the choice of currency on accounting and management. They expressed the convenience and ease of using a single internationally accepted currency so as to keep accounts and manage exchange rate risks, for example through adjusting product price. This reason was especially emphasized by companies that deal with a wide diversity of customers, products and/or countries/regions.

The final factor influencing choice of invoice currency is parent company influence. The four sample firms that mentioned this reason correspond to the four that are local subsidiaries of foreign parent companies. These firms choose their currency based on instruction from their parent company. Mostly, the currency choice is either an internationally recognized currency or the currency of the country the parent company is based in. This could be a strategy to consolidate exchange rate risks to the head office where there is greater ability to manage the risks.

One point worth bringing out here is that none of the respondents mentioned any regulatory influence on their choice of currency. In 1978, the Exchange Control Act was abolished. This means that since then, no exchange control formalities or approvals are required for all forms of payments or capital transfers in Singapore.

#### **2-3-4. Views on future prospects of using local currencies**

When asked whether using the Singapore dollar for trade settlements is better than foreign currencies, only 5 out of the 15 interviewees responded 'yes', reflecting a lukewarm attitude towards greater use of the local currency. Many interviewees said their company is content with the current practice of currency invoicing. The main rationale given was that while using the Singapore dollar might reduce the effect of exchange rate fluctuations, their customers might not accept or be willing to use it. One respondent said: "My experience from negotiating which type of currency to use is that overseas clients will always want to use their own currency or some internationally accepted currency. It is extremely difficult to get them to pay in Singapore dollar."

Although some respondents were enthusiastic, others seemed to be some sceptical and hesitant about the proposed strategies to promote foreign trade settlements denominated in local currencies in the region. Firstly, there is some reluctance to use non-liquid means of trade settlement (e.g., bonds). Not only do some of the firms prefer to deal with cash, they are also uncertain about whether their trading partners would accept them. "This might be complicated as they are third products," said one of the interviewees. "Also, it is not only up to us but our buyers, whether they are comfortable with it. Actually, we ourselves would not

be so comfortable with it, we would rather deal with cash.” Second, there seems to be a widely-held view that regional initiatives take a long time to materialize due to reasons such as a lack of political will and poor implementation.

The attitudes described above perhaps provide a plausible explanation for the overwhelming opinion that the US dollar would still be the most relevant invoice currency in the future (10 out of 15 respondents). Only two respondents predicted that the yuan might take centerstage, and another two, the Singapore dollar.

### **2-3-5. Policy recommendations**

The results from our study suggest that Singapore exporter's/importer's negative attitudes and relations with overseas counterparts (e.g., foreign parent company influence, follow foreign supplier's currency, foreign customer needs) are the main impediments to using the local currency in foreign trade settlement. Restrictions on capital flows is not an issue in Singapore as the Monetary Authority (MAS) does not require any exchange control formalities or approvals for all forms of payments or capital transfers.

Hence, to encourage the use of the Singapore dollar, it would be most crucial to firstly change the attitudes of exporters/importers. It is suggested in the country firm level studies that there is considerable resistance and inertia towards using regional currencies for trade settlement. The Singapore case found that firms are generally pessimistic and reluctant about using more of the Singapore dollar. Not only do the respondents feel that it is not feasible because their customers would not accept it, they also have concerns about their ability to deal with the ramifications of using a more diverse range of currencies, such as higher transaction costs and accounting difficulties. This suggests that there needs to be firm level educational initiatives to create awareness and persuade businesses of the advantages of using local currency denominated systems. This would help gain the support and cooperation of the private sector. Capacity building initiatives would also be important to address the help firms adapt to any shifts.

Secondly, since for some Singapore exporters/importers choice of settlement currency is not independently decided by them but influenced by their foreign parent company/supplier/customer, promoting the use of the Singapore dollar would require cooperation with other trading countries. Specific bilateral and regional cooperation initiatives that might be effective are trade settlement/payment systems that link up financial institutions in the involved countries; monetary coordination; and cooperation on liberalizing foreign exchange transactions.

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**Chapter 3: Some Observations on the  
Lessons of the North American and European Experiences  
for  
“Ways to Promote Foreign Trade Settlements Denominated in Local Currencies in East  
Asia”**

**ASEAN +3 Research Study Group**

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**Executive Summary**

The relevance for East and Southeast Asia of the experiences of the NAFTA and EU countries in invoicing practices in international must be considered in the context of overall trends in regional trade and monetary integration. Although there have investigations of the determinants of currency invoicing decisions, in North America this subject is not central to debates on either economic integration or monetary policy. Economic integration in North America, unlike Europe, has proceeded primarily as a result of market forces. North American trade is predominantly US dollar trade, both as the unit of account and basis of settlement. There is little discussion of the desirability of diversifying invoicing and selling foreign trade transactions away from the US dollar—indeed advocacy has been in the opposite direction.

Unlike North America economic integration in Europe has proceeded in stages, driven by political vision. The creation of the Euro was strengthen Europe's role within the global monetary system and by vision of creating a single European market. The increasing role for the Euro over the past decade has been associated primarily with intra-European trade, and between members of the Euro zone and countries on the periphery. Overall the dollar remains the predominant global vehicle currency, including for trade in homogeneous within Europe, and especially for trade with countries with currencies pegged to the US Dollar.

In Asia regional trade and investment has grown very rapidly in the past two decades, and there is a strong stated desire to expand regional integration through institutional arrangements. The emergence of an effective regional currency would depend on its attractiveness as a medium of exchange, store of value and unit of account. This in turn

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would depend on creating liquid markets with low transactions costs, and would be associated with full convertibility on both current and capital accounts.

The lessons of the North American and European experiences present a number of policy implications for ASEAN and for its member states. Significantly, initiatives to encourage the increased use of regional currencies of foreign exchange settlements may take place at both the national the regional levels. More generally, regional integration can progress both in response to market forces and through proactive leadership to develop regional institutional mechanisms. The probability of success of the latter will depend on having a clear shared vision with well-defined objectives, and a realistic step-by-step implementation plan that builds experience and credibility over time.

Foremost, authorities need to take measures to encourage the development of liquid foreign exchange markets with low transactions costs. This can be accomplished by supporting the development and deepening of financial markets and encouraging the further liberalization of foreign exchange transactions on both current and capital accounts. Decisions to experiment with bilateral settlement mechanisms to reduce specific foreign exchange risks should be made with due consideration of their potential longer-term impacts on market liquidity and confidence.

### **3-1. Introduction**

This note reflects on the relevance of the experiences of the NAFTA and EU countries. The underlying premise is that trends in invoicing practices in international trade need to be understood in the context of the economic and policy situations prevailing. Therefore the note considers recent evidence about invoicing practice in the context of overall trends in regional trade and monetary integration.

The comments are for consideration as the ASEAN-plus-3 Research Study Group thinks about policy options for increasing the practice of invoicing and settling trade in the region in local currencies. A key theme is that the circumstances in other regions of the world are fundamentally different from those in East and Southeast Asia. So too have been the nature of the policy challenges and debates. Thus it would be inappropriate to consider practices in Europe or North America as models that could be directly applied in the Asian context. The need will be for “Made in Asia” solutions.

Nevertheless the experiences of other regions may yield some useful insights for policy choices and strategies, notably with respect to the importance of the fundamentals required to create highly- liquid foreign exchange markets. The US dollar remains the dominant and the most important vehicle currency precisely because of its liquidity and its relatively low transactions costs. Thus Asian economies regions wish to promote the use of a regional currency for trade settlements they will need to focus carefully on the steps required to create a safe, convenient and low-cost vehicle.

### **3-2. The North American Experience**

#### **3-2-1. Overall Context**

Although there have been both theoretical and empirical investigations of the determinants of currency invoicing decisions, in North America this subject is not particularly pertinent to debates on either economic integration or monetary policy. Rather in North America the broad discussion of foreign exchange regimes has generally revolved around the desirability of alternate arrangements, including a currency union. There is little, if any discussion of the desirability of diversifying invoicing and selling foreign trade transactions away from the US dollar per se—indeed the limited advocacy has been in the opposite direction.

Enterprises cope with foreign exchange risk on a daily basis, and North American executives, like their counterparts elsewhere in the world, regularly complain about exchange rates being either too high or too low. But there is no evidence of a sustained effort underway within the business community to advocate seriously for anything fundamentally different from current practices.

Thus the monetary union debate has largely been among Canadians, and is primarily of academic rather than practical interest. As the dominant economy in the region the United States has been well served by the status quo, though recently there has been more frequent

discussion of the probability of a diminished role for the dollar in the future. In Mexico the pressing policy issues have typically revolved around achieving overall macroeconomic stability.

### **3-2-2. Background on North American Trading Relationships**

It is important to note that economic integration North America, unlike Europe but like Asia, has proceeded primarily as a result of market forces rather than institutional arrangements. That said market-driven economic integration proceeded quite strongly in the 1980s and 1990s (though it has arguably slowed in the present decade), and as a result in many respects the North American economies are highly integrated in practice.

But the institutional framework supporting this integration is quite modest. The principal instrument consists of a free trade agreement among three sovereign national governments. While there are complex and subtle mechanisms for cooperation at many levels (including among sub-national jurisdictions) there is no appetite in any of the three North American countries for the creation of supranational institutions, such as those that exist in Europe. Given the disparity in the size and levels of development among the NAFTA partner this situation is unlikely to change.

While there is a history of bilateral trading arrangements between Canada and the United States that dates back to the nineteenth century, the seminal modern development was the negotiation of the Canada-United States Free Trade Agreement, which took effect in 1989. In 1994 Canada, the United States and Mexico signed the North American Free Trade Agreement. While quite comprehensive in coverage, neither agreement goes beyond traditional trade and investment liberalization. Both agreements are now fully implemented, and while the case is made for moving to deeper institutionalized economic integration, there has been no political will to do so. Indeed, in the United States and to some extent Mexico, NAFTA remains unpopular. Commitments to resolve unfinished business from the original negotiations have not been taken up, e.g. extending commitments on government procurement to become binding on sub-national jurisdictions.

Despite this somewhat minimalist institutional framework there is extensive trade within North America, much of it intra-industry or intra-firm in nature, based on integrated production and supply chains. There is an extensive empirical literature on the intensity of Canada US trade based on the gravity model. The literature shows that while there is (as would be expected) a very intensive trading relationship between the two countries, significant “border effects” remain that impose costs on international transactions. Thus, while much is made of the fact that the Canada-US trade remains the largest bilateral trading relationship in the world (despite the rise of China in recent years as a source of North American imports) it is also the case that bi-national North American regions far from being true single markets. Similar conclusions apply to the Southwestern United States and the border regions of Mexico, where there are serious barriers to trade facilitation as a result of

the border, e.g. restrictions that impose transshipping requirements on Mexican trucks entering the United States, despite commitments to the contrary in NAFTA.

### **3-2-3. International Trade Settlements in North America**

North American trade is predominantly US dollar trade, both as the unit of account and basis of settlement. In part because of preponderance of transactions between related firms, trade in North America is frequently conducted on the basis of supplier invoices without the use of letters of credit. Intra-firm trade is often conducted in a single currency, i.e. dollars. There is also significant trade in non-differentiated commodities in North America, which typically is conducted in US dollars worldwide. As Canada is a resource-abundant country it is not at all surprising that the share of exports that are differentiated products is lower than the corresponding share of imports. But interestingly, a similar pattern also applies to the United States. Kamps (2006) estimates the shares of differentiated as follows in 2004:

Canada Exports: 54.9 % Imports: 77.5 %

United States Exports: 64.1 % Imports: 75.3 %

Kamps (2006) estimated that 70 per cent of Canadian exports were invoiced in US dollars in 2001, compared to 23 per cent in Canadian dollars. Over ninety per cent of US imports were invoiced in US dollars in 2003, as compared to a mere 2 per cent in Euros. Figures were not reported for Mexico, but it is safe to say that a very large percent age of its trade is invoiced in dollars.

### **3-2-4. Exchange Rate Regime and Macroeconomic Stability**

Canada has had no limits on either current or capital account transactions for decades. The Canadian dollar became convertible in 1945. There are well-developed forward markets to manage foreign exchange risks and sufficient liquidity so that transactions costs of dealing in Canadian dollars are comparatively low.

The history of Canada's exchange rate regime is unique among major currencies. Canada experienced exchange rate instability in the late 1940s that resulted in a decision to let its dollar float in 1950. This was the first significant example of a flexible exchange rate regime, and ran counter to the Bretton Woods system. From 1962 to 1970 the Canadian dollar was again, pegged, but Canada has had a floating exchange rate regime since that time. Thus Canadian exporters and importers are used to operating with a degree of uncertainty.

There has been periodic discussion of pegging the exchange rate to the US dollars and more significantly of moving to monetary union in North America, but this is largely confined to academia. Indeed, there has been a vocal and articulate case made by a number of Canadian economists (most notably Robert Mundell) advocating monetary union with the United States. But this seems implausible, given the limited extent to which goods and factor markets are formally integrated. The Bank of Canada has remained firm in its view that Canada is subject to different economic shocks than the United States due to the structure of its economy (i.e. that North America is not an optimum currency area), and that consequently that a floating

exchange regime with an independent monetary policy provides the best option for assuring monetary stability in Canada.

One line of argument often used by advocates of monetary union is that the Canada is already effectively dollarized. But this is most emphatically not the case; it is rare that domestic transactions are conducted other than in Canadian dollars. In a recent review highlighting the glaring lack of evidence of any significant trend towards dollarization in Canada, the Bank of Canada noted the following concerning foreign sales:

“... sales involving homogeneous primary commodities, such as oil, minerals, and forest products, are almost always priced in U.S. dollars. These practices, coupled with the dominant role that the U.S. dollar plays more generally, suggest that Canadian exports and imports would rarely be priced in Canadian dollars. This would not be evidence of any new trend towards dollarization, however, or a new-found preference for U.S.

dollars, but simply the continuation of a practice that has existed since the U.S. dollar replaced the pound sterling as the principal international currency. (Murray and Powell 2002, p. 10).”

The same article reported on company-level survey results indicating that 53 per cent of the 100 firms surveyed priced their foreign sales in U.S. dollars, 23 per cent in Canadian currency, with another 7 per cent using a different currency and 17 per cent a combination. However the authors noted that the sample size of the survey was quite small and that the share of US-dollar denominated invoicing appeared to be surprisingly low (p.11).

The experience of recent years gives some credence to Mundell’s original articulation of Canada’s macroeconomic policy dilemma. High commodity prices have led to an appreciation of the Canadian dollar, putting severe competitive pressure on manufacturing industries in central Canada. While there has been significant internal migration, labour markets in booming western Canada became extremely tight prior to the 2008-09 global economic crisis while unemployment existed in the east. During the downturn, however, Canada suffered relatively little fallout compared to the United States. Output and employment declined, to be sure, primarily in the manufacturing regions. But final domestic demand held up comparatively well, and there was no systemic threat to the financial system.

For its part Mexico experienced a currency and financial crisis in the 1990s that foreshadowed what was to occur in Asia at the end of the decade. Despite having made major progress towards liberalizing its economy, Mexico found the peso under extreme pressure as a result of capital flight. The result was a severe domestic recession and the end of the pegged exchange rate.

### **3-2-5. Empirical Evidence of Canadian Trade Invoicing Practices**

The principal empirical study of invoicing practices for Canada's international trade, and indeed one of a mere handful of econometric investigations of the subject in the worldwide literature, was by Donnenfeld and Huag (2003). The authors tested the hypotheses that choice the choice of invoicing currency was dependent on market structure (i.e. the presence of a downward sloping demand curve indicative of differenced products) and exchange rate risk, with the latter influenced by the relative size of the trading pattern and the distance from the Canadian market. The data set consisted of imports by 12 Canadian industries at the six digit level, covering 24 quarters.

The average share of imports invoiced in Canadian currency diverged dramatically across industries, from just 2% to 82%. The reported import shares weighted by value often diverged from the unweighted averages, based on transaction counts. The propensity to invoice in Canadian dollars increased markedly when trade with the United States (which accounted for over three quarters of Canadian imports) was excluded. The reported empirical estimates were based on a logit model and were claimed to support the underlying theoretical hypotheses. Certainly the signs of the coefficients were correct in the majority of cases reported. However, given the limited sample size, there was a notable problem in demonstrating statistical significance.

### **3-3. The European Experience**

#### **3-3-1. Overall Context**

Unlike North America economic integration in Europe has proceeded in stages, driven by the political vision of a united Europe, and supported by increasingly ambitious institutional arrangements and sophisticated supranational institutions. European monetary integration, specifically the creation of the Euro zone, was driven both by the desire to strengthen Europe's role within the global monetary system and by vision of creating a single European market.

These have obvious parallels to the more recent initiatives in Asia, including the explicit desire to create a counterforce to the US dollar, which is obviously has not been a motive whatsoever in the North American case. On the other hand, it is also fair to say that Asia's progress towards regional economic integration to date has been primarily market- driven, which is more like the North American than the European experience.

The European Monetary System (EMS) began in 1979 as network of pegged exchange rates among eight members of the European Union. Despite major differences in domestic economic conditions among its members, the system gained credibility during the 1980s, and added three new members, bringing the total to eleven. However, in the early 1990s the system suffered a serious setback. Both Britain and Italy left the EMS, while the remaining members had to resort to wider exchange bands of plus or minus 15 per cent.

During the initial decade of its existence the EMS experienced frequent internal currency realignments. Some members maintained controls on capital flows. The system also relied on arrangements for the provision of emergency credit by hard currency members. More

fundamentally, the pegging of currencies in effect tied all of Europe's macroeconomic stabilization to the anti-inflationary policies of the Bundesbank. A major debate related to the establishment of the Euro Zone concerned how the new European Central Bank would conduct monetary policy to balance the needs among its economically-diverse membership.

Despite the setback of the early 1990s, the Europeans continued to move steadily in the direction of monetary union, spurred on by the commitment taken in the mid-1980s to create a single market by 1992. The Maastricht Treaty envisaged the creation of a single European currency and central bank. Remaining controls on the movement of capital were rapidly phased out. The Euro debuted in 1999, replacing the national currencies of 11 (now 15) countries, based on achieving strict macro-economic convergence criteria.

But debate continues as to whether Europe is an optimum currency area, and what have been the effects of monetary union on the ability of its members to manage adjustments to economic shocks. The evidence is decidedly mixed. Intra-European trade has grown, but it is still proportionately lower than is the internal trade within the United States. Labour mobility is also noticeably less, despite the formal creation of a single European market. Finally, the global financial crisis of the past two years has triggered economic catastrophe in some member states, notably countries on the periphery in Eastern Europe. Thus, as has been the case in financial crisis in Asia, Latin America and Russia over the past two decades, the experience of Europe fails to make the case unequivocally that the discipline inherent in such an arrangement will avoid periodic crises.

### **3-3-2. Impact of the Introduction of the Euro on Foreign Trade Invoicing and**

#### **Settlement Practices**

The Euro has now been operating for a decade, and the settlement of intra-European trade has shifted away from the dollar (and also sterling) to the Euro. Indeed the Euro has grown in importance not only for international trade transactions, but also for denominating financial assets.

Data on actual invoicing practices are quite scarce. The most comprehensive data was that compiled by Goldberg and Tille (2008). But a recent study for the European Central Bank has significantly expanded the available evidence on current global practice, by constructing a database covering 42 countries. In that study Kamps (2006) reported that membership (or the possibility of future membership) has been an important determinant of the likelihood of invoicing in Euros, and that the use of the Euro as an invoicing currency had increased significantly since its introduction.

Goldberg (2008) has reported precisely the same trends. The increasing role for the Euro has been associated primarily with intra-European trade, and between members of the Euro zone and countries on the periphery. Overall the dollar remains the predominant global vehicle currency, including for trade in homogeneous within Europe, and especially for trade with countries with currencies pegged to the US Dollar.

### **3-4. The Critical Need for Additional Information**

It is striking that, despite the considerable theoretical on the determinants of the choice of invoicing currency, the availability of evidence on actual practices continues to be very limited. Basic data are lacking, and consequently so too are empirical studies that have tested the theoretical models. Moreover, the datasets that are available, such as the one reported in suggest that used by Donnenfeld and Huag (2003), suggest there are significant variations in behavior at sub-national (industry and firm) levels. Thus there is a rich, but as yet under-investigated opportunity for research on the microeconomic foundations of aggregate behavior.

Data are limited on practice throughout the world. The availability of survey data from Japan, Indonesia, Thailand and Singapore as a result of the work of the ASEAN + 3 Research Study Group is a significant development, but much more needs to be done to understand what is actually talking place in the real world.

### **3-5. Implications of Experience Elsewhere for East and Southeast Asia**

The situations in North America and in Europe are notably different than those in East and Southeast Asia. In North America the regional economy is dominantly by a very large economy whose currency is the preeminent vehicle for global commodity trade. At least in the case of Canada, the partner country has a currency with reasonably liquid spot and forward markets, and with comparatively low transactions costs. There has been a long history of full convertibility, and a track record of running an effective monetary policy under a flexible exchange rate regime. Foreign trade invoicing is already predominantly in a currency from the region. Debates about of exchange risk occur primarily in the context of discussions of the appropriate exchange rate regime and the conduct of monetary policy in the periphery country.

In Europe there has now been 10 years of experience with a monetary union under strict rules. Despite the underlying challenges the system has worked. The Euro has developed considerable credibility, and it has emerged as a significant vehicle for intra-regional trade and trade with countries in proximity to the Euro zone. The challenge going forward will continue to be how to execute an effective monetary policy across the Euro-zone in the light of differing economic shocks among the member countries.

In Asia regional trade and investment has grown very rapidly in the past two decades, there is a strong stated desire to continue the process of regional integration, moving from a period where linkages shave developed by market forces to one where they will increasingly be formalized through institutional arrangements. The emergence of an effective regional currency would depend on its attractiveness as a medium of exchange, store of value and unit of account. This in turn would depend on creating liquid markets with low transactions costs, and would be associated with full convertibility on both current and capital accounts.

### 3-6. Policy recommendations

The lessons of the North American and European experiences present a number of policy implications for ASEAN and for its member states. Significantly, initiatives to encourage the increased use of regional currencies of foreign exchange settlements may take place at both the national the regional levels. More generally, regional integration can progress both in response to market forces and through proactive leadership to develop regional institutional mechanisms. The probability of success of the latter will depend on having a clear shared vision with well-defined objectives, and a realistic step-by-step implementation plan that builds experience and credibility over time.

Foremost, authorities need to take measures to encourage the development of liquid foreign exchange markets with low transactions costs. This can be accomplished by supporting the development and deepening of financial markets and encouraging the further liberalization of foreign exchange transactions on both current and capital accounts. Decisions to experiment with bilateral settlement mechanisms to reduce specific foreign exchange risks should be made with due consideration of their potential longer-term impacts on market liquidity and confidence.

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(continued)

Portugal								
US dollar	56.6	46.6	42.6	50.4	47.7	56.0	74.1	60.5
Pound sterling	0.2	0.3	-	-	-	-	-	-
Deutsche mark	-	-	-	-	-	-	0.7	15.7
Baht	6.5	4.0	7.4	7.0	8.3	1.7	0.2	-
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	35.0	47.9	46.9	41.3	43.7	41.4	24.9	15.1
Others	1.7	1.2	3.1	1.3	0.3	0.9	0.1	8.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Spain								
US dollar	66.5	63.8	61.8	61.4	59.5	60.7	81.4	88.9
Pound sterling	0.1	0.1	-	-	-	0.1	0.2	-
Deutsche mark	-	-	-	-	-	-	0.1	3.0
Baht	6.1	4.2	8.1	8.4	8.2	1.1	0.4	0.4
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	26.5	29.9	28.8	28.0	32.0	37.7	17.7	7.4
Others	0.8	2.0	1.3	2.2	0.3	0.4	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sweden								
US dollar	66.5	62.3	66.1	68.2	67.6	79.3	88.7	67.9
Pound sterling	0.1	-	-	-	-	-	0.1	1.8
Deutsche mark	-	-	-	-	-	-	-	0.6
Baht	6.1	14.4	10.1	8.7	7.8	5.4	4.3	1.7
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	26.5	15.9	12.9	9.8	10.0	1.2	1.2	0.4
Others	0.8	7.4	10.9	13.3	14.6	14.1	5.7	27.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United Kingdom								
US dollar	64.2	68.0	66.4	70.5	71.4	86.4	88.5	92.1
Pound sterling	20.8	18.8	13.2	12.8	11.2	7.5	6.8	5.0
Deutsche mark	-	-	-	-	-	-	-	0.1
Baht	7.8	6.4	8.0	7.9	7.1	3.5	2.1	1.3
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	6.4	5.8	11.8	6.5	8.8	2.3	2.4	0.9
Others	0.8	1.0	0.6	2.3	1.5	0.3	0.2	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok.







(continued)

Portugal								
US dollar	48.1	45.6	68.9	69.3	49.7	69.3	54.5	75.4
Pound sterling	1.0	1.2	0.3	0.8	1.1	-	-	-
Deutsche mark	-	-	-	-	-	-	3.4	14.4
Baht	6.0	13.4	0.7	0.3	1.1	-	-	-
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	43.8	39.5	29.9	29.1	47.9	30.7	42.1	9.4
Others	1.1	0.3	0.2	0.5	0.2	-	-	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Spain								
US dollar	47.5	44.0	56.4	60.5	61.8	69.9	72.3	66.5
Pound sterling	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.1
Deutsche mark	-	-	0.5	0.3	0.4	-	-	1.8
Baht	4.6	5.5	3.7	1.5	1.0	0.3	0.2	0.2
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	45.7	47.6	37.6	35.3	35.6	28.7	26.6	27.9
Others	2.0	2.6	1.6	2.2	0.9	0.9	0.6	3.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sweden								
US dollar	48.2	47.9	53.4	49.4	42.3	61.4	59.3	66.4
Pound sterling	0.2	0.1	0.1	0.1	0.2	-	1.2	0.1
Deutsche mark	-	-	0.4	0.1	0.1	-	-	0.2
Baht	14.2	16.4	15.5	19.6	24.3	15.9	19.9	16.4
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	27.2	23.7	19.7	17.1	17.9	10.5	10.2	3.9
Others	10.2	11.9	10.9	13.7	15.2	12.2	9.4	13.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United Kingdom								
US dollar	60.1	56.5	58.7	55.0	60.7	83.4	83.2	74.2
Pound sterling	22.9	26.6	26.5	30.9	26.4	10.8	11.4	20.7
Deutsche mark	-	-	-	0.1	0.1	-	0.2	0.4
Baht	11.2	10.3	8.5	8.0	7.2	3.1	2.8	2.5
French franc	-	-	-	-	-	-	-	-
Italian lira	-	-	-	-	-	-	-	-
Euro	4.3	4.8	4.6	4.3	4.0	2.2	2.1	0.5
Others	1.5	1.8	1.7	1.7	1.6	0.5	0.3	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok.

Appendix Table 3: Structure of Export Receipts from NAFTA Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
NAFTA								
US dollar	95.6	95.9	96.0	96.3	96.6	95.8	96.4	97.1
Japanese yen	0.9	0.8	0.8	0.8	0.6	0.3	0.4	0.3
Baht	3.1	2.8	2.9	2.5	2.4	3.6	3.0	2.5
Canadian dollar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Others	0.3	0.4	0.2	0.3	0.3	0.2	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada								
US dollar	95.4	96.1	96.3	95.8	96.1	97.0	97.3	97.3
Japanese yen	0.6	0.3	0.2	0.2	0.1	-	0.2	-
Baht	2.5	2.1	2.0	2.2	2.3	0.3	0.3	0.2
Canadian dollar	0.9	1.0	1.1	1.3	1.0	1.6	1.8	2.0
Others	0.6	0.5	0.4	0.5	0.5	1.1	0.4	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mexico								
US dollar	92.3	95.6	93.0	89.5	83.4	97.2	98.1	99.7
Japanese yen	6.0	3.0	1.1	1.5	1.4	-	-	-
Baht	1.2	0.9	5.4	8.7	15.0	0.2	0.2	0.2
Canadian dollar	-	-	-	-	-	-	-	-
Others	0.5	0.5	0.5	0.3	0.2	2.6	1.7	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States								
US dollar	95.8	95.9	96.1	96.6	97.0	95.8	96.4	97.1
Japanese yen	0.7	0.8	0.8	0.8	0.6	0.3	0.4	0.3
Baht	3.2	2.9	2.9	2.3	2.0	3.8	3.2	2.6
Canadian dollar	-	-	-	-	-	-	-	-
Others	0.3	0.4	0.2	0.3	0.4	0.1	-	-
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok.

Appendix Table 4: Structure of Export Receipts from NAFTA Classified by Currency  
(Per cent)

	2008	2007	2006	2005	2004	2003	2002	2001
NAFTA								
US dollar	95.6	94.8	95.0	95.8	95.4	96.7	97.2	98.7
Japanese yen	0.5	0.5	0.4	0.4	0.7	0.6	0.5	0.1
Baht	2.2	2.7	2.6	2.2	2.2	1.1	0.9	0.6
Canadian dollar	0.3	0.2	0.4	0.4	0.4	0.4	0.8	0.3
Others	1.4	1.8	1.6	1.2	1.3	1.2	0.6	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada								
US dollar	93.9	92.0	88.3	87.1	88.3	84.4	81.5	88.9
Japanese yen	1.9	2.1	2.3	2.3	2.4	3.1	2.1	0.4
Baht	0.8	2.0	1.1	3.9	3.3	2.7	2.0	1.2
Canadian dollar	3.0	3.3	7.8	6.0	5.6	8.9	13.9	8.5
Others	0.4	0.7	0.5	0.7	0.4	0.9	0.5	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mexico								
US dollar	95.2	95.6	94.5	94.9	93.1	98.0	99.0	99.2
Japanese yen	0.2	0.3	0.4	0.1	0.7	0.4	-	0.1
Baht	3.3	3.2	4.2	3.2	4.8	0.7	0.2	0.1
Canadian dollar	-	-	-	-	-	-	-	-
Others	1.3	1.0	0.9	1.8	1.4	0.9	0.8	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
United States of America								
US dollar	95.7	94.9	95.4	96.4	95.9	97.4	97.9	99.1
Japanese yen	0.4	0.4	0.3	0.3	0.5	0.5	0.4	0.1
Baht	2.3	2.8	2.6	2.1	2.0	1.0	0.8	0.6
Canadian dollar	0.1	-	-	-	-	-	0.1	-
Others	1.5	1.9	1.7	1.2	1.6	1.1	0.8	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Bank of Thailand, Bangkok.

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