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Norges Handelshøyskole
Bergen, Spring 2009

US Financial Crisis Impact On Asian Economies - Does "Decoupling" Theory Hold

The case of Singapore, Thailand and Vietnam

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MSc Thesis – Major International Business

Submitted to the Department of Finance and Management Science

Norwegian School of Economics and Business Administration

Bergen

This thesis was written as part of the Master of Science in Economics and Business Administration program – Major in International Business. Neither the institution, nor the advisor is responsible for the theories and methods used, or the results or conclusions drawn, through the approval of this thesis.

Foreword

I have never imagined how difficult and time consuming to finish the thesis project, but doing this type of research, capturing ideas and narrow them down to a practical topic, finding supporting facts and data, formulating thesis structure, communicating the topic with readers, etc. have brought me uncountable valuable experiences.

Therefore, I would like to express my gratitude and thanks to my supervisor, Svein-Arne Persson, who has provided general supervisory, reading over manuscripts, giving comments and guidance on thesis formulation and structure, and correcting mistakes; to my professor in International Finance course, Lorán Chollete, who inspired me with the topic; to the librarians who supported me with finding information

I especially thank my parents, sister, aunties, who gave never-ended support, smiles and hearts; my Thai friends who gave big fun, warm and encouragement during hard time on thesis; to Renna Wang for her company and help; to many other friends in Vietnam for their care.

Last but not least, I would like to thank Norunn J. Økland, Nina Hagen, Nina Gry Stein, Astrid Foldal and other staffs in International Relations Office, who helped to make my time at Bergen the best moment ever.

Giang U. Pham

Bergen, June 2009.

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Executive summary

Until recently, many investors believed in *decoupling theory* which says that emerging countries can be resilient from the weakening of US economy and keep stable growths. In 2007, international investors observed a rise on stock markets of some emerging countries when stock price on developed markets in the US or the UK dropped dramatically. Meanwhile, they also observed prosperous economic growth in these emerging markets. This trend supported decoupling theory's proponents who argue that when emerging stock markets move against a slump on developed markets as US or UK, the economy of these countries will also grow healthily.

Since this argument is on discussion, the paper plans to find out a plausible answer for the question: if decoupling theory holds for stock market of emerging countries, will it also hold for their economies. The paper made data research on US market in relation with three other export-dependent Asian markets – Singapore, Thailand and Vietnam and will discuss two problems: (1) how is co-movement of Asian and the US stock markets from 2007 to 2009, and (2) how the economy of these markets responds in the according year. The paper expects to find that stock markets in emerging Asian countries are decoupled from US stock market and their economies also move independently.

Data showed that in 2007, there was decoupling effect between Singapore, Thailand and the US. However, from October 2008 until March 2009, stock markets of these countries tracked the movement of US market quite closely. At the same time, their macro economic indicators were on downward trend. In these Southeast Asian countries, decoupling theory just holds for a short period when world economy is in good condition and we could not find certain sign whether it will hold again in the future.

SECTION 1 - INTRODUCTION

1.1. Introduction

The paper discusses "decoupling theory" with respect to relation between the US and three Southeast Asian countries: Singapore, Thailand and Vietnam. Decoupling theory is an argument among global investors and big banks' economists that since emerging markets have developed sophisticated economies, they can insulate from the economic downturn on US market[1]. The investors believe stock markets of emerging countries and their economies are decoupled from the movement of stock market and the economy of the US. The paper investigates whether this belief holds for long period on three countries – Singapore, Thailand and Vietnam, who are said to depend heavily on their foreign trade with the US. A research of the dependence of these markets on US market would help to understand decoupling issue.

The paper uses data of stock market returns to understand co-movement of three Asian stock markets with US stocks. The paper also compares economic indicators of these countries, such as real GDP growth, import-export growth, trade-balance with those of the US economy to find out impact of economic slowdown on these countries.

Specifically, the paper compares real GDP growth of each country with US economic growth, looking into import-export balance between each country with US to understand how much a slow import from US would affect export of the other country. Basing on the findings, the paper will make conclusion about the effect of decoupling on US market and the three countries, and provide recommendation on future research.

The paper comprises of five sections. In the opening part, we provide the executive summary of research problem. Chapter 1 is an introduction to the problem discussed throughout the paper. In Chapter 2, we provide some literatures behind the research issues. Chapter 3 describes the background of decoupling theory and its challenge. In Chapter 4, we discuss more details of empirical research on three Southeast Asian countries – Singapore, Thailand

[1] "London investors buy into decoupling theory", Financial Time, October 13th, 2007

and Vietnam. In Chapter 5, we will summarize and discuss limitations and recommendation for further study. Chapter 5 will be ended with final conclusion for the paper.

1.2. Economic outlook - Singapore, Thailand and Vietnam.

Singapore maintained GDP real growth from 7%-9% in 2004-2007 period. In 2008, GDP growth dropped to as low as 1.8%. The country has highly developed harbour facilities, oil processing and telecommunication system. With the population of 4.6 millions, Singapore is one of the most export-dependent countries in Asia and the economy relies heavily on the world economic condition. Manufacturing accounts for more than 25%GDP, the other major industries are financial services and tourism. Import and export of machinery and transport equipments account for 50%-60% total value of foreign trade. At the end of 2008, Singapore has approximately 176billion US dollars foreign exchange reserve, which equal 47% GDP[2]. The state's key stock market index is Singapore Straight Time Index (STI), which comprises the top 30 main-board listed companies.

Thailand has GDP real growth of 5%-7% in 2003-2007 period. In 2008, GDP growth is at 4.7% level. Thailand has 290 million barrels of proven oil reserves and 14.8 million cubic feet of proven natural gas reserves. The country produces approximately 384,000 barrels per day and has 4 oil refineries with capacity of 729 million barrels per day. Major industries include manufacturing of computer components, automobiles, air conditioners, and service (tourism). Export accounts for 70% of GDP, consisting mostly of agricultural commodities as rice, palm oil, soybeans and natural rubber. Foreign exchange reserve of Thailand as of 2008 is 95 billion US dollars, which equal approximately 34% of GDP[3]. The country's main stock index is The Thailand SET 50 Index (BNGKS50).

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[2] Singapore – Country profile, October 5th 2008, Euromonitor International.
[3] Thailand – Country profile, December 19th, 2008, Euromonitor International.

Vietnam has GDP real growth of 7.3% - 8.5% in 2003-2007 period. In 2008, the GDP growth reduced to 6.3% level. Vietnam has 660 million barrels of proven oil reserves and 6.8 trillion cubic feet natural gas. The country has just opened the first oil refinery with capacity of 140,000 barrels per day, which is expected to start operation in 2009. Exports accounts for 70% of GDP, mainly comprising of grains, rice, coffee, seafood, natural rubber and textiles. Foreign exchange reserve of Vietnam in 2008 is 28.5 billion US dollars, which equal 32% of its GDP. The country has main stock index VN-Index, however, in the paper we will use FTVIAS$ (FTSE Vietnam All Shares $ price index), calculated and disseminated by FTSE Group for all shares on Vietnam stock market, to put into research[4].

[4] VNI-Index is not available in Thompson Datastream, therefore, we use FTVIAS$ as its proxy.

SECTION 2: LITERATURE REVIEW AND DATA COLLECTION

2.1. Decoupling theory

“Decoupling theory” discussed in the paper refers to independent movement between objects. On stock market, investors investigate co-movement of different stocks by their correlation coefficient to each other. At country level, correlation coefficient of each pair of equity index (stock market index) is used to discuss co-movement of the two markets. Correlation, measured by correlation coefficient – the degree of relation of two variables, explains the departure of two random variables from independence.

Decoupling effect at macro level is discussed by measuring the impact of a growth or a downturn of one market on the other markets. We do not use correlation to discuss the macroeconomic indicators because we only have limited number of observations (6 yearly data), which is not efficient to calculate correlation efficient. Decoupling effect between two markets happens when we observe a downturn in one market and an increase or stable movement in the other market in a period of time.

2.2. Correlation coefficient

In statistic theory, correlation coefficient (or “simply correlation”) indicates the strength and direction of a linear relationship between two random variables. The correlation cannot exceed “1” in absolute value. Correlation of “-1” expresses a decreasing linear relationship and correlation of “1” expresses an increasing linear relationship. Decoupling between two stock markets happens when stock returns on a market move independently with returns on the other market. We expect to see correlation of two markets getting closed to 0 to determine the markets are decoupled.

Correlation of two random variables X and Y, with expected value μ_X and μ_Y and standard deviations σ_X and σ_Y is calculated by:

$$\rho_{X,Y} = \frac{\mathrm{cov}(X,Y)}{\sigma_X \sigma_Y} = \frac{E((X-\mu_X)(Y-\mu_Y))}{\sigma_X \sigma_Y},$$

E expresses expected value and cov (X,Y) stands for covariance of X and Y

2.3. The international flow of goods, services and capital

This section reviews the analytical framework that links the international flows of goods and capital to domestic economic behavior. This framework consists of a set of basic macroeconomic accounting identities that link domestic spending and production to savings, consumption, investment behavior to the capital account and the current account balances. By looking at the linkage between these factors, we would identify the relation between two economies.

Gross domestic product is the measure of the economy's total production of goods and services. Rapidly growing GDP indicates an expanding economy with ample opportunity for companies to increase capacity

Domestic savings and investment and the capital account

According to Shapiro (2003), the national income and product accounts provide an accounting framework for recording the national product and showing how its components are affected by the international transactions. This framework begins with the observation that national income (or national product), is either spent on consumption or saved:

$$\text{National income} = \text{Consumption} + \text{Savings} \qquad (1.1)$$

National expenditure is total amount that the nation spends on goods and services. It can be divided into spending on consumption and spending on domestic real investment. Real investment refers to plants and equipment, research and development, and other expenditures designed to increase the nation's productive capacity:

$$\text{National spending} = \text{Consumption} + \text{Investments} \qquad (1.2)$$

If we subtract (1.2) from (1.1), we will have:

$$\text{National income} - \text{National spending} = \text{Savings} - \text{Investment} \qquad (1.3)$$

This tells us that if a nation's income exceeds its spending, savings will exceed investment, yielding capital surplus. The capital surplus must be invested overseas because if it is invested in domestic, there would not be capital surplus. In other words, savings equals domestic investment plus net foreign investment. Net foreign investment equals the nation's net public and private capital outflows plus the increase in official reserves. The net private and public capital outflows equal the capital-account deficit if the outflow is positive and capital-account surplus if the outflow is negative. The net increase in official reserves equals the balance on the official reserves account. In a freely floating exchange rate system, that is there is no government intervention and no official reserve transactions, excess savings will equal the capital-account surplus (net borrowing from abroad). This borrowing finances the excess of national spending over national income.

In short, if a nation produces more than it spends, it will save more than it invests domestically and will have net capital outflow. This capital outflow will appear as some combination of a capital-account deficit and an increase in official reserves. Conversely, the nation will have net capital inflow of it spends more than it produces. This capital inflow will appear as a combination of capital-account surplus and a reduction in official reserves.

The link between the current and capital accounts

Shapiro (2003) also explained the link between current accounts and capital accounts. If we subtract national product from spending on domestic goods and services, the remaining would equal exports:

National income – National spending = Export – Import (1.4)

Balance of export minus import is balance of current account. From (1.3) and (1.4), we see that if the nation's savings exceed its domestic investment, there would have current account surplus, and vice virsa.

Savings – Investments = Export – Import (1.5)

As mentioned previously, net of savings minus domestic investment will equal net foreign investment. Therefore, we will have from (1.5) that:

Net foreign investment = Export – Import (1.6)

So we see that, if the current account is surplus, the nation will have net capital outflow, representing claims on foreigners. In contrast, the nation will become net capital importer, which is a borrower from foreigners. Shapiro (2003) took an example of foreign trade between Japan and the US to explain **trade balance.** He said if the United State has *trade deficit* with Japan, which means the US buys goods and services from Japan more than it sells to Japan, the US invest in Japan less than Japan invests in the US. *Trade surplus* occurs when the US exports more than it imports from other nation.

In short, a nation that produces more than it spends will save more than it invests, export more than it imports and wind up with capital outflow. In reverse, the nation will import more than export and wind up with a capital inflow. This perception would be necessary to see if a country can self-finance its growth in a period of time or will expose to excess foreign capital support.

2.4. Market-value-weighted stock index

A nation's stock market index normally represents a proxy of investor sentiment on the state of its economy. According to Bodie et al. (2008), a market-value-weighted index is calculated by the total market value of the firms included in the index and the total market value of those firms in the previous day of trading. The percentage increase in the total market value from one day to the next represents the increase in the index. The rate of return of the index equals to the return rate of a portfolio investing in all firms in the index in proportion to their market values, except that the index does not reflect cash dividends paid by those firms. An example of market-value-weighted index is the Standard & Poor's Composite 500 (S&P 500). S&P 500 includes 500 firms in the US.

In order to observe the co-movement between two markets, we will compute daily returns on two markets in different time periods: before the financial crisis impacts other markets (2007) and during the time it becomes more severe and widespread (2008, 2009). We then will run regression on the returns to obtain the correlation coefficient between the markets. We will analyze the correlation coefficient of the markets to understand the independent movement. We also obtain beta value from regression outcomes to see how sensitive the emerging markets are to the movement on the US market

2.5. Data collection

Data used in the paper come from two sources: Thompson Datastream for stock price of indexes and Euromonitor International online database for economic indicators of the countries such as: GDP, import/export activities, foreign exchange reserves.

Stock price indexes include S&P500, STI, BNGKS50 and FTVIAS$. Standard and Poor's 500 Index (S&P500) is a capitalization-weighted index of 500 stocks in the US. The index is designed to measure performance of the broad domestic economy through changes in the aggregate market value of 500 stocks representing all major industries. The Straits Times Index (STI), calculated and disseminated by FTSE Group, comprises the top 30 listed companies on Singapore stock exchange selected by full market capitalization. The Thailand SET 50 Index (BNGKS50) is a capitalization-weighted index based on the top 50 stocks listed on the Bangkok SET index having high market capitalization and high liquidity. FTVIAS$ (FTSE Vietnam All Shares $ price index) is a capitalization-weighted index, calculated and disseminated by FTSE Group for all shares on Vietnam stock market. Data series for these equity indices are available in Datastream.

Economic indicators include real GDP growth, total exports, imports, and their destination and product, trade balance, and foreign exchange reserve. Data of economic indicators from 2003 to 2008 are extracted from Euromonitor International online-database.

SECTION 3: BACKGROUND OF DECOUPLING THEORY

3.1. Background of decoupling theory

Decoupling theory, a notion that emerging countries can still be resilient from the weakening of the US economy, has been raised among investors as early as 2006. Until late 2007, many investors believes that the economies of developed and developing countries are no longer closely correlated[5], since they argued slowdown in the UK or the US can be offset by high growth in Brazil, Russia, India and China. Specifically, investors observed a sharp falling on UK house price in 2007 and the UK has lowered growth forecast for the economy, FTSE 100 has risen 15% just in two months (from August 16 to October 13, 2007). We should notice that the largest 10 stocks account for 50% of the U.K market, however, the percentage of profits these companies make from the U.K is very modest since their earnings are entirely from overseas.

Meanwhile, in developing Asia, China and the rest of Asia's emerging markets continues to improve their national credit rating. High commodities prices and strong domestic demand have protected emerging markets from the malaise started with the US sub-prime crisis. Emerging countries do not have problems that industrial countries have with the financial markets since their investment in US stocks was not very widespread[6]. A survey of Fitch Ratings on August 2007 about sub-prime exposure among Asian banks found little cause for concern since direct exposure of Asian banks to American sub-prime market just accounted for very few percent on investment banks' equity capital. Double digit growth in countries such as China and India have helped the region's deal making environment, access to finance, with many domestic banks across the region left relatively unscathed with the fall out of US sub-prime crisis. Key driver of Asian growth during crisis time is a rising domestic

[5] "London investors buy into decoupling theory", Financial Time, October 13th, 2007
[6] "A World of Contrast", Shapiro, Harvey D., September 2008

consumption and investment supplement exports. Household spending has risen more than 50% from 1996 to 2006 in Malaysia, India, Singapore, the Philippines and 130% in China[7].

In a report on October 2nd, 2007, Euromonitor International implied that even though the US consumer durables market is a major export destination of Hong Kong and Singapore, the two countries would be insulated against the slowdown impact from the US thanks to their diversified export destinations. In 2006, 46% of Hong Kong export went to China, making China import demand become trend of paramount importance to Hong Kong export industries. Similarly, Singapore exported almost 42% of total export to Malaysia, Hong Kong, China and Indonesia. Stable economic growth of Asian import countries like Indonesia, Malaysia, and China would ensure continuous growth for export of other Asia economies. Macroeconomic fundamentals are much healthier now in the Far East[8] and large foreign exchange reserves makes countries less vulnerable to shocks. Moreover, budgets are in surplus or close to balance, providing more capacity for fiscal economic stimulus.

This discussion makes us enthusiastic in analyzing the debate whether the emerging economies are actually decoupled from developed markets, especially when the economic downturn has spread over continents.

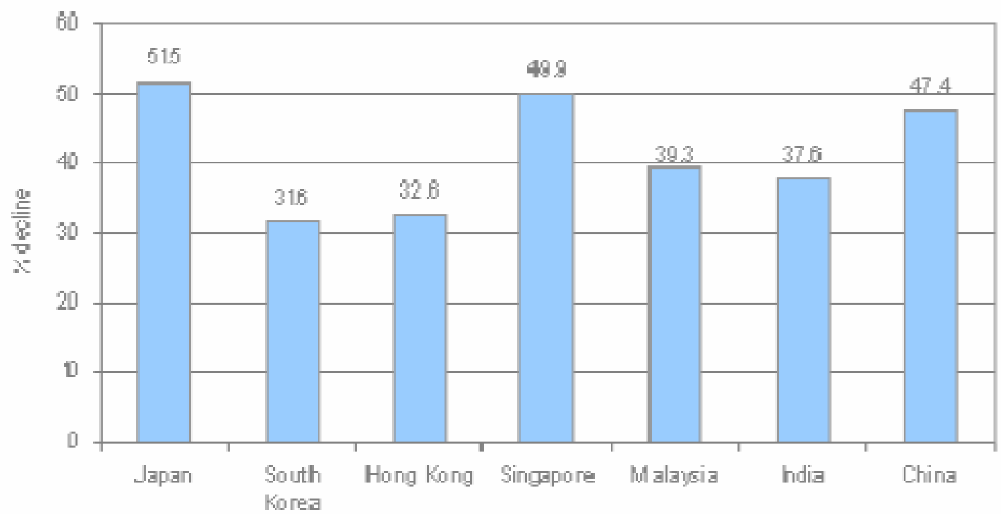
3.2. Challenge on the decoupling theory

Decoupling theory is facing very major challenge in the time of crisis. From the global balance of payment point of view, a reduction of consumption by one sector in global balance must come with a corresponding adjustment. The dependence of developing countries on US demand, as described by the US' trade deficit and developing countries' trade surplus (as a share of gross domestic product), has risen in almost an unbroken line from 1997 to 2007. This signals for more crisis to come since most of large over-consuming economies as the US,

[7] "Asia rising market spurs debate on decoupling theory", Financial Time, November 2nd, 2007
[8] "An independent streak – Decoupling 1 – Emerging Asia", The Economist, January 26th, 2008

the UK, Spain, France, Italy and Australia have been affected by crisis, which dried up debt-fuelled consumption[9].

On stock markets, investors became more pessimistic about rescue plans to stabilize the US financial system. The mess on bad debt at the core of financial crisis has been proved to take much longer time to solve. Virtually, on October 2008, Asian stock markets such as Hong Kong, Singapore, Thailand, Australia, Malaysia and India stumbled amid the dismal data about the US economy. Euromonitor International report in January 2009 has highlighted the falling of stock markets as tremendous. In the following graph, we can see that from July 2007 to December 2008 Japan Nikkei suffered more than 51% loss, followed by Singapore at 49.9% loss, China at 47.4%, Malaysia 39.3% and India at 37.6%[10].



Source: *Bloomberg*

The losses were not primarily connected with slow domestic fundamentals but with the impact of lower US demand. US imports, of which imports from Asia Pacific accounted for largest proportion (31.9% in 2008), fell by 5.6% month-on-month in October 2008. Countries in the region experienced severe decrease in growth. Japan will be worst affected with the country growth forecast at -0.2% in 2009, whereas Singapore and Hong Kong will experience

[9] "Asia faces tough 2009 as output decreases", Financial Times, December 15th, 2008
[10] "The global financial crisis : Asia Pacific not immune", Euromonitor International, January 8th, 2009

low growth of around 2% in 2008 and 2009 (down from 7% in 2008). The slow is mostly contributed by the fact that Hong Kong and Singapore financial service sector and export industries take large part in the countries income. South Korea growth also slows at 2% in 2009, down from 4% in 2008, since global demand for industrial products declines.

The global economic downturn has put many challenges on Southeast Asian economies. Falling exports will put downward pressure on export profits and result in lower manufacturing activities across the region. Countries having tourist-oriented program like Thailand, Singapore and Malaysia see income from tourism falling since tourists around the world also cut traveling expenses. Job cut and layoffs raise unemployment rate which eventually severely impacts on domestic consumption.

SECTION 4 – EMPIRICAL RESEARCH ON CASES OF SINGAPORE, THAILAND AND VIETNAM

In this section we analyze key economic data of three countries in Southeast Asia: Singapore, Thailand and Vietnam to understand international impact of US financial crisis on emerging market. In the analysis, we look at correlation of the three countries' economy with the US economy in terms of stock returns movement, import-export relationship, and foreign reserves. We expect to see that decoupling theory is true, which means the emerging markets move independently from US market.

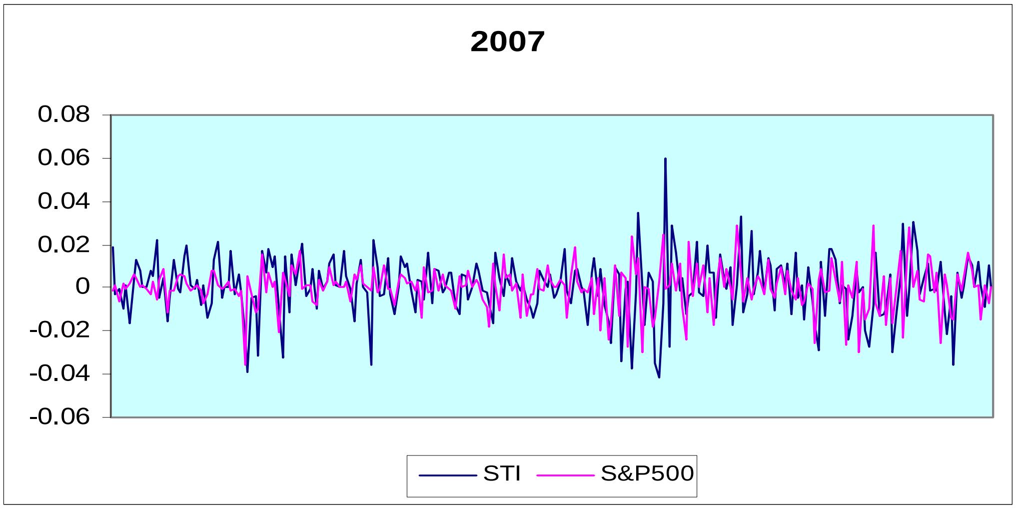
4.1. Correlation of the markets:

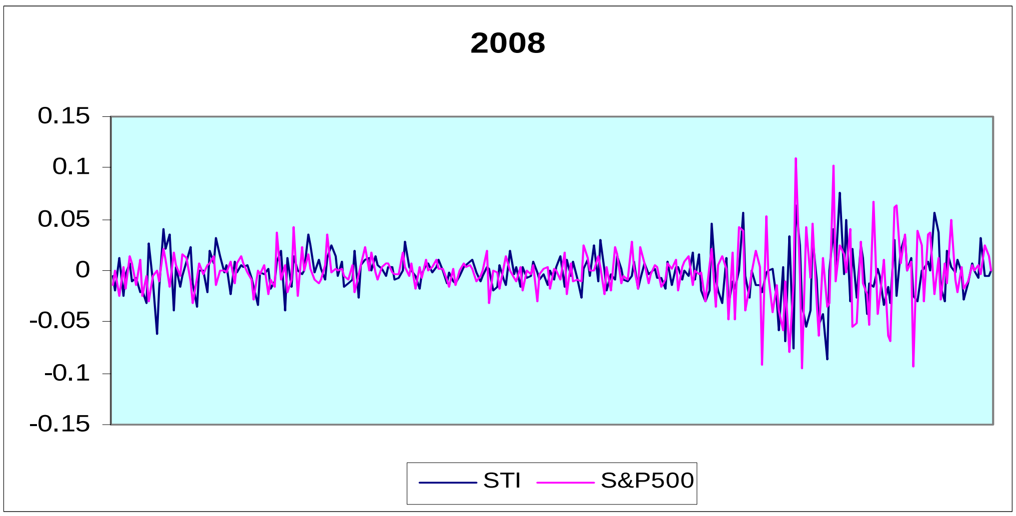
We analyze correlation of STI, BNGKS50 and FTVIAS$ indexes with S&P500 from January 1st 2007 to March 1st 2009. (For description of stock indices, please refer to section 2.4). We expect to see an independent movement of three Asian stock indices from the movement of S&P500.

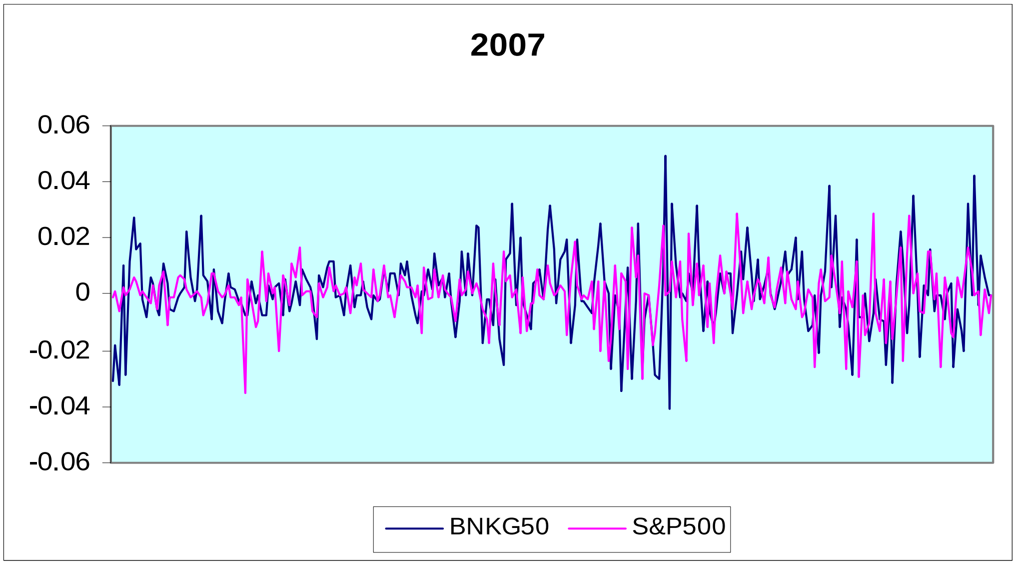
Empirical data showed that in 2007 returns on Singapore, Thailand and Vietnam stock market moved quite separately with returns on US stock market. These three markets have relatively low correlation with US stock market (Singapore and Thailand have correlation coefficient at 0,172 and 0,161. Vietnam stock market has even lower correlation coefficient at 0,097). In this year, beta value of stock on Singapore, Thailand and Vietnam markets against US stock market are 0,124, 0,115 and -0,078 respectively. We can see that movement of Asian markets was not affected much by movement of stocks on US market in 2007.

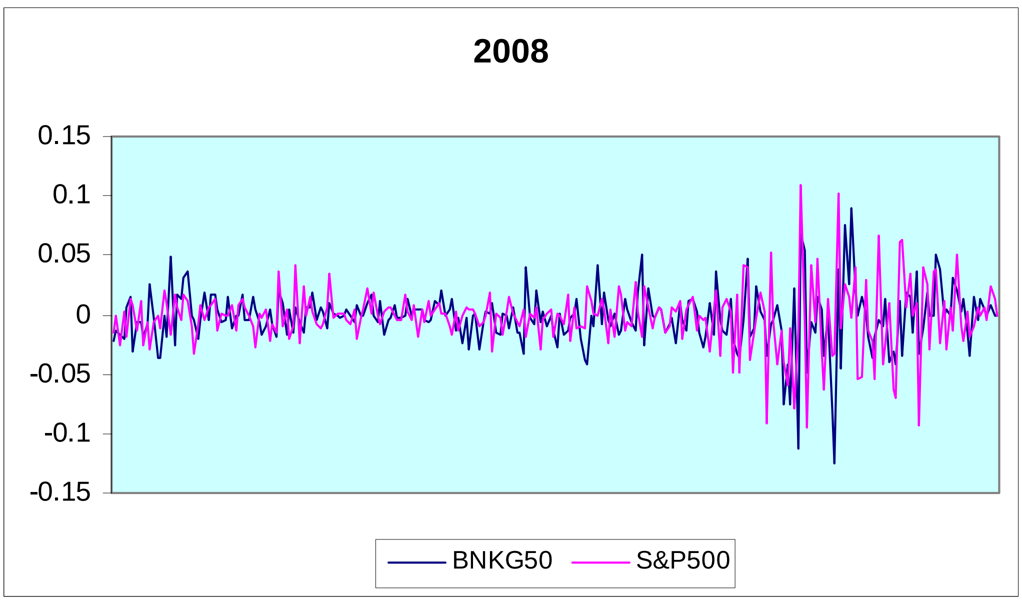
However, the data become more converged in 2008. We found that correlation coefficients of three Asian markets were higher than those in 2007 (Singapore: 0,265, Thailand: 0,316, and Vietnam: 0,104). At this point of time, the financial crisis has spread its severe impacts from America to Europe and Asia. The world saw the collapse of Bear Stern in March 2008, followed by Lehman Brother, Merrill Lynch, bail-outs of big financial institutions as Citi, AIG. These events put heavy threats on the US financial system and global economy. We also observed higher beta value of stocks on Singapore (0,221) and Thailand market (0,336), however, beta value of stocks in Vietnam became more negative (-0,1123). In the first three months of 2009, correlation of Singapore stocks and US stocks is even higher than in 2008 and reach 0,29 level, while in Thailand and Vietnam, the correlation becomes lower at 0,257 and 0,043 level. Beta values are also higher in Singapore and Vietnam market and lower in Thailand market (0,36, -0,06 and 0,29 respectively).

In general, from 2007 to 2009, Singapore stocks move more and more closely with movement of US stocks, however, Thailand and Vietnam stocks moved in different patterns, which we cannot see as consistently high correlation with US stocks.


2007
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
STI
S&P500


2008
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
STI
S&P500


2007
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
BNKG50
S&P500


2008
0.15
0.1
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0
-0.05
-0.1
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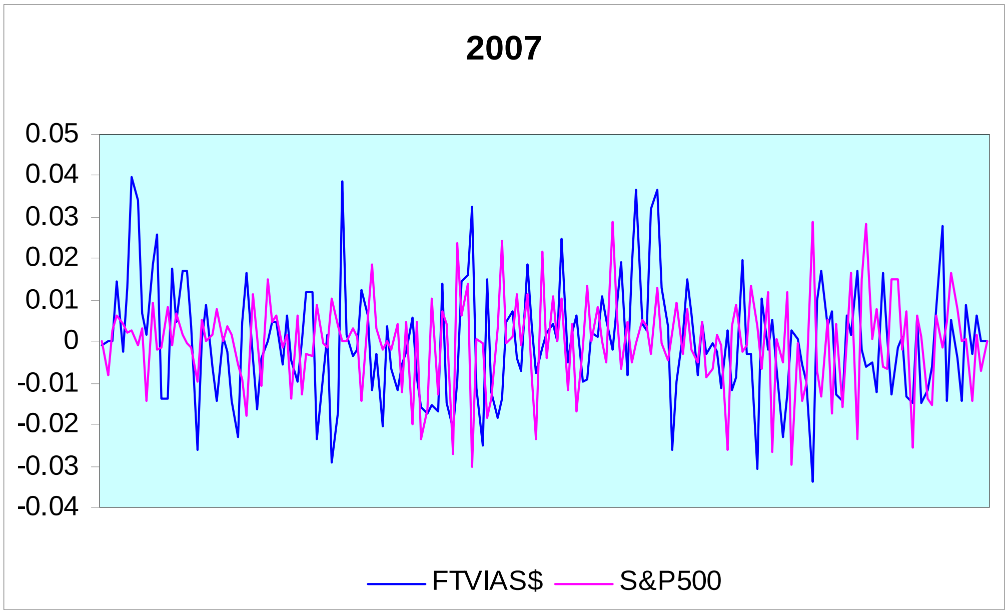
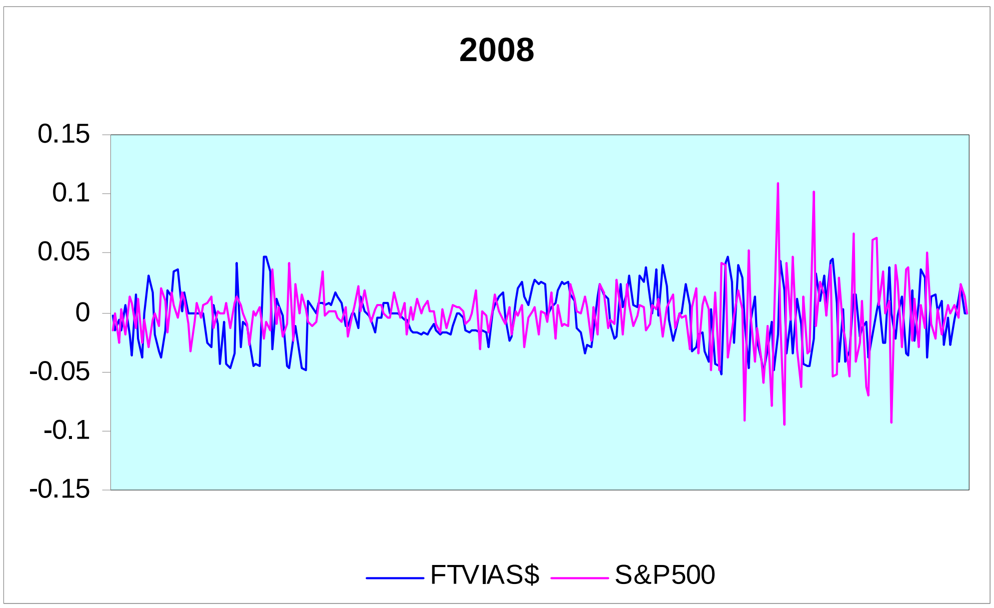
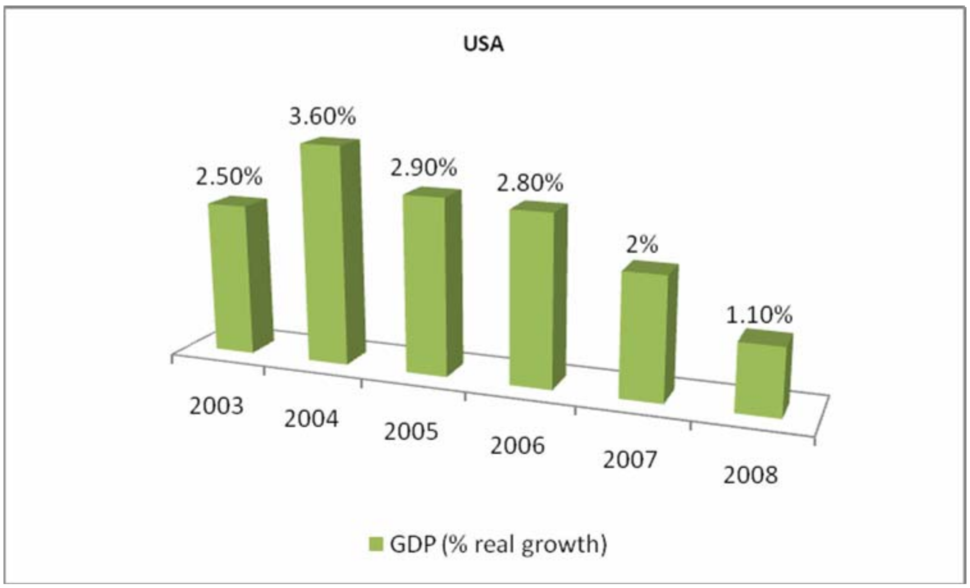
BNKG50
S&P500





4.2. Economic growth

While economic growth in USA has been slow since 2003, growth of countries in Southeast Asia region keeps stable from 4% - 8% in 2003-2007 period. Singapore and Vietnam maintain GDP growth rate at 7%-8% level from 2003 to 2007. However, the growth becomes lower in 2008, particularly Singapore's growth, which significantly dropped from 7.7% in 2007 to 1.8% in 2008. Vietnam's growth declined 26%, which went down from 8.5% in 2007 to 6.3% in 2008. Thailand has kept its growth steady at 4.7% in 2008 in comparison with 4.8% in 2007.



4.3. Foreign exchange reserve

Singapore has kept its foreign exchange reserves at stable level (40% - 50% of GDP) from 2004 to 2008, thanks to dynamic activity of exporting. At the end of 2008, Singapore has 175.87 billion US dollars in foreign exchange reserves account, which increased 8% compared with 2007. This reserve may support Singapore's plans to finance for domestic stimulation and boost economic growth.

Meanwhile, in **Thailand,** growth in foreign exchange reserve reduced by 12% in 2008 from its high level of 31% in 2007, however, the reserve still keeps proportion of 34%-35% of country GDP. At the end of 2008, Thailand has 95billion US dollars in foreign exchange reserve. In February 2009, Thailand has approved a Bt116.7bn (US$3.3bn) stimulus package in terms of supplementary budget and tax cuts and has also received cabinet approval to seek a Bt200 billion short-term credit facility for state enterprises. This action expects to encourage domestic consumption and help to rescue the economy from global crisis.

In **Vietnam**, foreign exchange reserve grew slower in 2008, at 21% as compared with 75% growth in 2007. At the end of 2008, the country has 28 billion US dollars in reserve account, which accounted for 32% of GDP.

4.4. Import – Export and Trade Balance

4.4.1. Singapore:

Singapore's export of products and services accounts for 70%-90% of the country GDP. Singapore is the only nation that has maintained trade surplus in 2003-2008, which accounts for 6%-10% of GDP. Export growth in 2007 is 10% and in 2008 is 20%. It shows that Singapore has tried to boost economic growth by generating more and more export activities. In 2008, total exports account for 97% of GDP.

Traditional markets of Singapore export industry are North America (98% of export to North America go to US market), Europe and Asia Pacific region. Singapore's trade with North America accounts for 12% - 15% of total trade. Europe is also a large market (14% - 17% total exports). Overall, consumption from North America and Europe accounts for more than 30% of Singapore exports. Trade of Singapore with Asia Pacific region is as high as 50% - 60% of its total, in which China, Malaysia, Hong Kong and Indonesia are key markets (Table 3).

We found that exports to US market of Singapore dropped 3.54% in 2007 and 1,54% in 2008 while in previous years Singapore increased amount of export to US market from 10% to 15% annually. At the same time, Singapore imports from US increased 8.28% and 18.12%, which caused large trade deficit with US market in these two years. Meanwhile, we see increases in other markets as Europe (17%), Latin America (51%), Australasia (34%), and Vietnam (50%).

The drop in export to US market marks significant impact on the economy of Singapore, which dragged economic growth from more than 7,7% to 1,8% just in one year. However, increases in exports to other markets shows that Singapore has found alternative destinations for its products and services. If new markets grow healthily in next few years, we think Singapore economy can revert into growth momentum.

Our conclusion for Singapore case is that since Singapore stocks track US stocks closely and the economy also follows this trend, Singapore is not decoupled from the movement of US market during research period. However, since the country has shifted its export strategy to new markets, and the economy has been supported by strong foreign exchange reserves, this status may not hold in future time.

4.4.2. Thailand

Thailand has kept steady export growth from 2006 to 2007 at 17% - 19% level, however import increased significantly from 2007 to 2008 (from 9% to 31%), which created large trade deficit in 2008. Thailand economy is less dependent on exports than Singapore's, evidenced by its total exports accounting for 60%-65% of GDP. Among the destinations of country's products and services, US market accounts for 12%-16% and Europe market accounts for

18%-19%. In total, these two markets will take approximately 25% of Thailand's exports. Besides, Asia-Pacific countries have major proportion in the country's foreign trade (55%-60% of total exports and 63% - 65% of total imports), in which China, Hong Kong, Malaysia, Singapore and Australasia are major buyers and China, Malaysia and South Korea are major sellers.

Thailand export to US market decreased -1.91% in 2007 after a growth of 15.79% in 2006, but in 2008 it increased again at 6.85%. This shows us that even the US economy was slowing down in 2008, it still absorbed more product from Thailand than the year before. In 2008, Thailand also increased its import from USA by 13% while in 2007, this number is minus 1.31%. This caused significant trade deficit in foreign trade with USA since growth of import from USA (13%) is much higher than growth in export to USA (6.85%). If this deficit happens in long term, the economy may have large burden on national saving, which eventually can create weak foreign exchange reserve and more debts.

Thailand has decreased export to other markets and increased export to USA (6.85%), Autralasia (30.12%) and Vietnam (26.75%). We think that this strategy helped to keep Thailand economic growth at 4.7% level, which is not very different from 2007 growth.

Observation for Thailand case is that economic slow down in the US has little impact on Thailand macro economy in research period, however its stock market tracked US stocks more closely in 2008 and 2009. In other words, decoupling theory is true in this particular case.

4.4.3. Vietnam

Vietnam's exports grew steadily from 2005 to 2007 at 22% per year. In 2008, it increased even higher, at 29% growth rate. In the same period, we also see Vietnam's imports rose as high as 37% - 39%. Trade deficit is a problem of Vietnam economy from 2003 until present, especially in 2008, trade deficit accounted for 25% of the country GDP.

Vietnam exports products mostly to Asia Pacific (40%), North America (22%) and European (24%) countries. In bilateral trade with the US, Vietnam exports 18% of total products to the US and imports 4% from this country. However, export to US market has been slower over years, for instance, in 2006, export to US market grew 32% compared to 18% growth in 2005, but in 2008, the growth is only 12% compared to 29% growth in 2007. This fact makes us believe that the US financial crisis has affected Vietnam's income from export to US market severly.

Exports to other markets as India, China, Malaysia and Indonesia also decreased, however, exports to Singapore, Thailand and Hong Kong increased at 42%, 37% and 48%. We think this movement helped the country's total export increased 29% in 2008.

Conclusion for Vietnam is that even though Vietnam stock market is decoupled from US markets, evidenced by reducing of correlation to 0 from 2007 to 2009, slowdown of US economy made significant impact on the growth of Vietnam economy. In other words, decoupling theory does not apply to the case of Vietnam during research period.

SECTION 5 – SUMMARY, LIMITATION AND RECOMMENDATION FOR FUTURE RESEARCH

5.1. Summary

In this paper, we discuss about decoupling issue between emerging countries and the US. The theory proponents believe on independent movement of emerging markets with US market. The paper analyzed data of stock market and macroeconomic indicators of Singapore, Thailand and Vietnam in relation to US economy to find explanation for this belief. We use regression tool to obtain correlation and beta value of stocks based on daily returns of Singapore, Thailand, and Vietnam stock indexes in connection with S&P500. Data from 2007 to 2009 showed that Singapore and Thailand stock market moved more and more closely with US stock, while Vietnam stock market moved quite independently against US stocks. Analysis on macroeconomic data revealed that economic slowdown in the US impacted heavily on Singapore and Vietnam trade activities with US, but the impact is minor to Thailand economy.

Conclusion whether decoupling theory is reliable is obvious in the case of Singapore, Thailand and Vietnam. The phenomenon that one market moves against the slide of US stocks will imply an improvement in macroeconomic of that country is not certain. We observed the theory is true with Thailand but not true with Singapore and Vietnam. The theory's proponents believe strong domestic demand in emerging economies will help to absorb the loss from developed markets, but so far, global trade is so connected and US has been large market for the emerging countries in many years.

5.2. Limitation

The paper faces two limitations: centralization of markets put into research and research period of time. We made analysis limited to data of three markets in South-East Asia from 2007 to first quarter of 2009 while debate about decoupling of emerging market was discussed on global basis. Larger amount of markets put into research will give us more information about reaction of other emerging economies in South America, Eastern Europe and other parts of Asia to the fluctuation of US market.

The research was done during crisis and we obtained data until March 2009 to put into analysis, however, crisis impact on global economy still exists as of the time of writing. The fact that decoupling theory will earn its merit depends largely on economic strategy of governments aiming to boost domestic consumption by stimulus packages and gain back consumer confidence. This process may take longer time (until 2010) to see results.

5.3. Future research

As mention in 5.2, geography of selected markets in research is centralized in Southeast Asia. We recommend expanding research's geography to other emerging markets as Eastern Europe, Middle East, South America and East Asia to obtain a big picture of the issue. Large population nations as India, Brazil, Russia and China can also provide valuable resource to the research since we expect to see strong economic stimulation from increasing domestic consumption in these countries. Further research can also expand to related question: how difficult an export-dependent economy can turn into domestic consumption-focus strategy, but still be resourceful for international consumption when global economy recovers.

5.4. Conclusion:

The paper discussed decoupling theory among three Southeast Asian countries - Singapore, Thailand and Vietnam - with US economy. Decoupling theory believes in strong resilient of emerging markets to movement of developed world, for instance US or UK. Our research expects to find out whether the belief holds in long term. More specifically, we would like to find the answer whether these Asian economies will move against economic downturn in the US if their stock markets showed an independently movement with US stocks. We found that decoupling theory is true with Thailand but does not apply to Singapore and Vietnam.

However, our research faces two problems. Firstly, our sample is limited to three South-East Asian countries. Limitation on number of sample and geography may jeopardize research results on global perspective. Secondly, we have done analysis for data until March 2009 while the global crisis is not over and many governments are trying to stimulate domestic demand as well as seeking for international cooperation to solve the crisis and re-energize the world economy.

For that reason, we have recommendations for further research. We think future research can be done on wider geography, not limited to Asia but expanded to Eastern Europe, Middle East, and South America. Populous and fast growing nations as India, China, Brazil and Russia would be very resourceful for further research results. In addition, we recommend opening research topic to related discussion, which is how difficult an export-dependent economy can turn into domestic-consumption-focus strategy but still be resourceful for international demand after global economy re-gains its growth.

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Data sources:

Thompson Datastream contains financial data and time series of developed and developing markets, covering stocks, indexes, funds, and macroeconomic time series.

Global Market Information Database (Euromonitor International) contains collection of data and market reports produced by Euromonitor from worldwide markets.

Appendix

Singapore							
Categories (US$ million)	Descriptions	2003	2004	2005	2006	2007	2008
GDP	Real growth	3.5%	9.0%	7.3%	8.2%	7.7%	1.8%
	TOTAL	282,381.12	311,818.52	330,962.50	345,022.05	367,185.19	371,195.19
Export	TOTAL	144,181.00	198,637.00	229,649.00	271,807.00	299,272.00	358,486.80
	-Growth		38%	16%	18%	10%	20%
	-%GDP		64%	69%	79%	82%	97%
Import	TOTAL	127,939.00	163,854.00	200,047.00	238,710.00	263,155.00	336,660.40
	-Growth		28%	22%	19%	10%	28%
	-%GDP		53%	60%	69%	72%	91%
Trade balance	TOTAL	16,242.00	34,783.00	29,602.00	33,097.00	36,117.00	21,826.40
	%GDP		11%	9%	10%	10%	6%
FX Reserve	TOTAL	95,474.40	111,845.00	115,712.00	135,814.00	162,517.00	175,868.50
	%GDP		36%	35%	39%	44%	47%

(Table 1 – Macroeconomic performance of Singapore. Source: Euromonitor International)

Singapore							
Trade account	**Destinations**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Africa and the Middle East	3%	3%	3%	3%	3%	3%
	Asia-Pacific	63%	68%	69%	70%	71%	72%
	Europe	17%	16%	14%	14%	14%	13%
	Latin America	2%	2%	2%	2%	3%	3%
	North America	15%	12%	11%	10%	10%	8%
Import	Africa and the Middle East	9%	9%	10%	10%	10%	12%
	Asia-Pacific	57%	59%	61%	61%	60%	58%
	Europe	18%	18%	15%	15%	16%	17%
	Latin America	1%	1%	1%	1%	1%	2%
	North America	15%	13%	12%	13%	13%	12%
Trade account	**Products**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Mineral fuels	8%	10%	12%	13%	13%	
	Chemicals	12%	12%	11%	11%	12%	
	Basic manufactures	4%	4%	5%	4%	4%	
	Machinery and transport equipment	61%	61%	59%	58%	57%	
	Miscellaneous manufactured goods	8%	8%	7%	7%	6%	
	Other goods	6%	6%	6%	7%	7%	
Import	Mineral fuels	13%	15%	18%	19%	20%	
	Chemicals	6%	6%	6%	6%	6%	
	Basic manufactures	7%	7%	7%	7%	8%	
	Machinery and transport equipment	59%	58%	56%	55%	54%	
	Miscellaneous manufactured goods	9%	9%	8%	7%	7%	
	Other goods	6%	5%	5%	6%	6%	

(Table 2 – Singapore - Proportion of geography and commodity category in total export / import. Source: Euromonitor International)

Singapore							
Categories	**Destinations**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export/to	China	10%	13%	14%	15%	15%	14%
	Hong Kong	15%	14%	15%	16%	16%	15%
	India	3%	3%	4%	4%	5%	6%
	Indonesia	16%	16%	15%	14%	15%	16%
	Malaysia	23%	22%	21%	20%	20%	18%
	Philipinnes	3%	3%	3%	3%	3%	3%
	South Korea	6%	6%	6%	5%	5%	6%
	Thailand	6%	6%	7%	7%	6%	6%
	Vietnam	2%	3%	3%	3%	3%	4%
	Australasia	5%	6%	7%	7%	7%	7%
Import/from	China	15%	17%	19%	21%	22%	20%
	Hong Kong	4%	4%	4%	3%	3%	2%
	India	2%	3%	4%	4%	4%	5%
	Indonesia	11%	10%	10%	11%	10%	10%
	Malaysia	28%	26%	25%	24%	24%	24%
	Philipinnes	4%	4%	4%	4%	4%	3%
	South Korea	7%	7%	8%	8%	9%	12%
	Thailand	7%	7%	7%	7%	6%	7%
	Vietnam	1%	1%	2%	1%	2%	1%
	Australasia	3%	3%	3%	3%	3%	3%

(Table 3 – Singapore - Proportion of import/export within Asia Pacific. Source: Euromonitor International)

Thailand							
Categories (US$ million)	Descriptions	2003	2004	2005	2006	2007	2008
GDP	Real growth	7.1%	6.3%	4.5%	5.1%	4.8%	4.7%
	TOTAL	142,640.10	161,339.90	176,419.70	206,703.20	245,350.60	276,877.40
Export	TOTAL	80323.6	96248.2	110178	130803	153100	179593.7
	-Growth		20%	14%	19%	17%	17%
	-%GDP		60%	62%	63%	62%	65%
Import	TOTAL	75824.3	94409.8	118158	128723	140795	185129.4
	-Growth		25%	25%	9%	9%	31%
	-%GDP		59%	67%	62%	57%	67%
Trade balance	TOTAL	4,499	1,838	(7,980)	2,080	12,305	(5,536)
	%GDP		1%	-5%	1%	5%	-2%
FX Reserve	TOTAL	40965.1	48497.5	50502	65147.1	85110.1	95091.6
	%GDP		30%	29%	32%	35%	34%
	-Growth		18%	4%	29%	31%	12%

(Table 4 - *Macroeconomic performance of Thailand. Source: Euromonitor International)*

Thailand							
Trade account	**Destinations**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Africa and the Middle East	5%	6%	6%	6%	7%	7%
	Asia-Pacific	56%	57%	58%	57%	57%	60%
	Europe	19%	18%	17%	18%	19%	18%
	Latin America	1%	2%	2%	2%	3%	3%
	North America	18%	17%	16%	16%	13%	12%
Import	Africa and the Middle East	11%	13%	14%	16%	15%	16%
	Asia-Pacific	63%	64%	64%	63%	65%	65%
	Europe	14%	14%	13%	12%	12%	11%
	Latin America	2%	2%	2%	1%	2%	2%
	North America	10%	8%	8%	8%	7%	6%
Trade account	**Products**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Food and live animals	14%	12%	11%	11%	10%	
	Chemicals	7%	7%	8%	8%	8%	
	Basic manufactures	12%	12%	12%	13%	13%	
	Machinery and transport equipment	44%	44%	45%	45%	46%	
	Miscellaneous manufactured goods	13%	13%	12%	11%	10%	
	Other goods	11%	11%	11%	13%	13%	
Import	Mineral fuels	12%	14%	18%	20%	21%	
	Chemicals	11%	11%	10%	10%	10%	
	Basic manufactures	17%	19%	19%	18%	18%	
	Machinery and transport equipment	43%	41%	38%	36%	35%	
	Miscellaneous manufactured goods	6%	5%	6%	6%	6%	
	Other goods	10%	10%	10%	9%	9%	

(Table 5 – Thailand - Proportion of geography and commodity category in total export / import. Source: Euromonitor International)

Thailand							
Categories	**Destinations**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export/to	China	14.0%	14.1%	15.4%	17.3%	18.4%	18.6%
	Hong Kong	10.6%	9.8%	10.4%	10.6%	10.8%	10.3%
	India	1.6%	1.8%	2.6%	2.7%	3.3%	3.4%
	Indonesia	5.6%	6.4%	6.7%	4.9%	5.9%	7.0%
	Malaysia	9.5%	10.5%	9.8%	9.8%	9.7%	9.6%
	Philippines	4.0%	3.6%	3.5%	3.8%	3.6%	3.6%
	Singapore	14.4%	13.9%	12.9%	12.3%	11.8%	10.8%
	South Korea	3.9%	3.7%	3.8%	3.9%	3.7%	3.5%
	Vietnam	3.1%	3.7%	4.0%	4.5%	4.7%	5.4%
	Australasia	6.0%	5.6%	6.2%	7.2%	7.9%	9.2%
Import/from	China	14.4%	15.5%	17.0%	19.1%	20.6%	19.9%
	Hong Kong, China	2.6%	2.5%	2.3%	2.2%	1.8%	2.8%
	India	2.1%	2.2%	1.9%	2.3%	2.6%	2.6%
	Indonesia	4.2%	4.4%	4.8%	4.8%	5.1%	6.4%
	Malaysia	10.8%	10.5%	12.3%	11.9%	11.0%	10.2%
	Philippines	3.2%	2.9%	2.9%	3.0%	2.7%	2.5%
	Singapore	7.8%	7.9%	8.2%	8.0%	8.0%	10.0%
	South Korea	6.9%	6.8%	5.9%	7.2%	6.7%	6.9%
	Vietnam	0.8%	0.8%	1.4%	1.3%	1.4%	1.3%
	Australasia	4.3%	4.6%	5.3%	5.2%	5.4%	6.0%

(Table 6 – Thailand - Proportion of import/export within Asia Pacific. Source: Euromonitor International)

Vietnam							
Categories (US$ million)	Descriptions	2003	2004	2005	2006	2007	2008
GDP	Real growth	7.30%	7.80%	8.40%	8.20%	8.50%	6.30%
	TOTAL	39,552.50	45,427.90	52,917.40	60,913.30	71,076.70	89,185.20
Export	TOTAL	20,149.30	26,485.00	32,442.00	39,605.00	48,302.00	62,366.70
	-Growth		31%	22%	22%	22%	29%
	-%GDP	51%	58%	61%	65%	68%	70%
Import	TOTAL	25,255.80	31,968.80	36,978.00	44,410.00	60,869.00	84,714.70
	-Growth		27%	16%	20%	37%	39%
	-%GDP	64%	70%	70%	73%	86%	95%
Trade balance	TOTAL	(5,107)	(5,484)	(4,536)	(4,805)	(12,567)	(22,348)
	%GDP	-13%	-12%	-9%	-8%	-18%	-25%
FX Reserve	TOTAL	6,222.00	7,041.00	9,049.70	13,382.50	23,471.80	28,516.50
	%GDP	16%	15%	17%	22%	33%	32%
	-Growth		13%	29%	48%	75%	21%

(Table 7 - Macroeconomic performance of Vietnam. Source: Euromonitor International)

Vietnam							
Trade account	Destinations	2003	2004	2005	2006	2007	2008
Exports	Africa and the Middle East	2%	2%	2%	2%	1%	1%
	Asia-Pacific	43%	44%	45%	42%	40%	34%
	Australasia	7%	7%	9%	10%	8%	7%
	Europe	24%	23%	20%	23%	24%	24%
	Latin America	1%	1%	2%	2%	0%	0%
	North America	20%	20%	19%	21%	22%	19%
Imports	Africa and the Middle East	2%	2%	2%	1%	1%	1%
	Asia-Pacific	64%	65%	67%	69%	71%	63%
	Australasia	1%	2%	2%	3%	2%	3%
	Europe	16%	15%	13%	12%	12%	10%
	Latin America	1%	1%	1%	1%	1%	1%
	North America	5%	4%	3%	3%	3%	5%
Trade account	**Products**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Food and live animals	22%	21%	21%	20%	20%	
	Chemicals	21%	20%	19%	19%	19%	
	Basic manufactures	7%	7%	7%	7%	7%	
	Machinery and transport equipment	9%	9%	9%	9%	9%	
	Miscellaneous manufactured goods	36%	37%	38%	39%	39%	
	Other goods	6%	6%	6%	6%	6%	
Import	Mineral fuels	11%	10%	10%	10%	10%	
	Chemicals	14%	14%	14%	14%	14%	
	Basic manufactures	26%	27%	27%	27%	28%	
	Machinery and transport equipment	32%	32%	32%	32%	33%	
	Miscellaneous manufactured goods	6%	6%	6%	6%	5%	
	Other goods	11%	11%	11%	11%	11%	

(Table 8: Vietnam/*Proportion of geography and commodity category in total export / import. Source: Euromonitor International)*

Vietnam							
Categories	**Destinations**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export/to	China	21.8%	25.1%	22.4%	19.6%	17.5%	18.6%
	Hong Kong	4.3%	3.3%	2.4%	2.7%	3.0%	3.6%
	India	0.4%	0.7%	0.7%	0.8%	0.9%	0.9%
	Indonesia	5.4%	3.9%	3.2%	5.8%	5.8%	6.1%
	Malaysia	5.3%	5.4%	7.1%	7.6%	7.3%	7.2%
	Philippines	3.9%	4.3%	5.7%	4.7%	5.0%	4.5%
	Singapore	11.9%	12.8%	13.3%	10.9%	11.5%	10.4%
	South Korea	5.7%	5.3%	4.6%	5.1%	6.5%	6.3%
	Thailand	3.9%	4.5%	6.0%	5.6%	5.4%	5.6%
Import/from	China	19.4%	22.0%	23.9%	24.0%	29.1%	30.2%
	Hong Kong	6.1%	5.1%	5.0%	4.7%	4.5%	5.4%
	India	2.8%	2.8%	2.4%	2.9%	3.2%	2.6%
	Indonesia	3.4%	3.2%	2.8%	3.3%	3.1%	3.0%
	Malaysia	5.7%	5.8%	5.1%	4.8%	5.3%	4.0%
	Philippines	0.9%	0.9%	0.8%	1.1%	1.0%	0.8%
	Singapore	17.8%	17.3%	18.1%	20.4%	17.7%	20.2%
	South Korea	16.2%	16.0%	14.5%	12.7%	12.4%	10.1%
	Thailand	7.9%	8.9%	9.6%	9.9%	8.7%	9.6%

(Table 9 – Vietnam/Proportion of import/ export within Asia Pacific. Source: Euromonitor International)

Singapore - US $ millions						
Trade account	**Categories**	**2003**	**2004**	**2005**	**2006**	**2007**
Export	Food and live animals	1,899.90	2,195.70	2,320.10	2,522.60	2,663.90
	Beverages and tobacco	909.80	1,118.60	1,213.10	1,407.20	1,525.90
	Crude materials exc. Fuels	968.40	1,252.40	1,348.00	1,748.20	1,931.00
	Mineral fuels	13,567.00	19,865.50	28,005.60	35,656.00	40,352.10
	Oils and fats	267.50	281.60	253.60	286.40	284.50
	Chemicals	18,455.10	23,022.90	26,135.10	30,837.60	34,607.80
	Basic manufactures	6,636.60	8,234.40	10,450.60	11,577.50	12,444.60
	Machinery and transport equipment	97,859.60	120,305.40	134,880.10	156,779.50	170,725.50
	Miscellaneous manufactured goods	13,410.00	15,519.10	15,582.80	17,742.00	19,177.20
	Other goods	5,989.30	6,836.90	9,463.30	13,243.70	15,343.60
	TOTAL	**159,963.20**	**198,632.50**	**229,652.30**	**271,800.70**	**299,056.10**
Import	Food and live animals	3,488.90	3,783.70	4,010.60	4,281.20	4,503.70
	Beverages and tobacco	991.80	1,177.50	1,315.10	1,460.40	1,606.20
	Crude materials exc. Fuels	983.40	1,177.50	1,304.00	1,635.90	1,785.10
	Mineral fuels	18,291.20	25,805.30	35,494.30	44,794.00	51,605.20
	Oils and fats	271.00	314.70	287.80	324.10	345.90
	Chemicals	8,828.50	10,888.50	12,453.60	14,299.60	16,003.40
	Basic manufactures	9,309.90	11,927.90	14,972.20	17,537.30	20,150.70
	Machinery and transport equipment	79,883.00	101,242.60	111,607.60	130,501.10	140,805.40
	Miscellaneous manufactured goods	11,987.90	14,936.40	15,910.70	17,416.80	18,810.80
	Other goods	2,228.70	2,327.10	2,694.50	6,453.70	7,074.20
	TOTAL	**136,264.30**	**173,581.20**	**200,050.40**	**238,704.10**	**262,690.60**

(Table 10: Singapore imports/exports by commodities – Source: Euromonitor International)

Singapore - US $ millions							
Trade account	**Geography**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Africa and the Middle East	4,360.40	5,401.10	7,983.90	8,779.30	10,234.70	12,312.20
	Asia-Pacific	97,669.20	121,940.30	143,615.70	173,836.60	195,062.40	231,888.20
	China	10,134.20	15,391.70	19,751.80	26,513.80	28,927.20	32,253.20
	Hong Kong	14,422.70	17,646.50	21,570.20	27,570.50	31,335.00	35,883.80
	India	3,091.80	4,174.40	5,896.70	7,672.90	10,000.20	13,139.10
	Indonesia	15,776.80	19,019.70	22,109.10	24,901.30	29,466.80	36,850.00
	Malaysia	22,793.20	27,280.30	30,405.00	35,537.20	38,626.30	42,779.80
	Philippines	3,235.90	3,916.10	4,185.30	5,079.60	6,130.50	7,655.00
	South Korea	6,058.10	7,386.70	8,053.20	8,736.10	10,609.10	13,077.60
	Thailand	6,156.50	7,756.60	9,431.30	11,312.70	12,390.30	13,478.20
	Vietnam	2,412.00	3,178.80	4,420.50	5,458.70	6,517.40	9,840.20
	Australasia	5,254.20	7,559.00	9,592.90	11,579.70	12,749.00	17,174.50
	Europe	25,116.50	31,491.60	33,003.30	38,441.70	40,515.10	47,558.70
	Latin America	2,797.90	3,515.10	4,833.30	6,262.30	7,904.70	12,002.90
	North America	21,003.10	23,845.90	24,397.50	28,441.70	28,628.70	28,188.50
	Canada	433.10	563.70	517.20	819.60	1,985.40	1,950.40
	USA	20,570.00	23,282.20	23,880.30	27,622.10	26,643.30	26,238.10
	TOTAL	**144,181.00**	**198,637.00**	**229,649.00**	**271,807.00**	**299,272.00**	**358,486.80**

(Table 11: Singapore imports/exports by geographies – Source: Euromonitor International)

Singapore – US $ millions							
Trade account	**Geography**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Import	Africa and the Middle East	11,747.60	15,096.80	20,906.40	24,456.10	26,310.60	40,462.90
	Asia-Pacific	75,843.90	96,249.40	109,069.80	129,262.40	142,060.40	168,382.50
	China	11,072.60	16,210.80	20,526.00	27,242.80	31,889.70	33,015.80
	Hong Kong	3,091.80	3,652.20	4,208.80	4,102.20	3,855.00	3,561.20
	India	1,443.80	2,787.40	4,079.20	4,883.70	5,869.00	9,008.70
	Indonesia	8,330.40	9,729.50	10,451.90	14,756.90	14,657.30	17,109.20
	Malaysia	21,549.30	24,956.00	27,347.20	31,156.90	34,419.20	40,656.30
	Philippines	2,827.10	4,214.90	4,649.80	5,649.70	5,810.90	5,106.80
	South Korea	4,960.20	6,936.20	8,598.60	10,477.50	12,814.20	19,429.60
	Thailand	5,514.40	6,710.00	7,517.80	8,730.50	8,497.10	11,020.40
	Vietnam	1,023.90	1,351.50	1,813.60	1,649.90	2,140.40	2,432.60
	Australasia	2,405.20	2,568.20	3,229.80	4,090.90	3,634.80	5,761.80
	Europe	22,947.60	29,297.50	30,341.00	34,728.90	42,381.30	55,663.30
	Latin America	1,123.30	1,606.50	1,956.90	2,433.30	2,986.00	6,062.20
	North America	18,556.70	21,395.40	24,294.40	31,267.80	33,940.90	40,091.90
	Canada	553.40	651.60	812.20	914.90	1,073.50	1,267.40
	USA	18,003.30	20,743.80	23,482.20	30,352.90	32,867.40	38,824.50
	TOTAL	**127,939.00**	**163,854.00**	**200,047.00**	**238,710.00**	**263,155.00**	**336,660.40**

(Table 11: Singapore imports/exports by geographies – Source: Euromonitor International)

Thailand - US $ millions						
Trade account	**Categories**	**2003**	**2004**	**2005**	**2006**	**2007**
Export	Food and live animals	10,942.30	11,934.30	12,374.60	14,135.20	14,671.30
	Beverages and tobacco	200.90	229.80	253.40	295.50	314.20
	Crude materials exc. Fuels	4,195.90	5,205.10	5,622.70	7,663.70	8,658.70
	Mineral fuels	2,126.00	3,415.00	4,767.80	6,506.70	7,364.70
	Oils and fats	163.80	222.00	171.90	210.90	227.40
	Chemicals	5,257.30	6,909.10	8,912.60	10,440.30	11,637.50
	Basic manufactures	9,391.50	11,815.10	13,637.40	16,424.40	18,109.20
	Machinery and transport equipment	35,191.00	42,776.50	49,192.20	58,371.10	65,628.50
	Miscellaneous manufactured goods	10,621.00	12,038.60	13,351.10	14,318.60	14,718.70
	Other goods	2,233.50	1,702.50	1,826.20	2,213.70	2,475.80
	Total	**80,323.20**	**96,248.00**	**110,109.90**	**130,580.10**	**143,806.00**
Import	Food and live animals	2,913.20	3,278.40	3,792.90	4,136.80	4,437.10
	Beverages and tobacco	236.60	275.60	294.10	314.40	332.60
	Crude materials exc. Fuels	3,069.40	3,764.10	4,008.30	3,818.30	3,928.50
	Mineral fuels	9,029.40	13,206.00	20,942.80	25,622.70	29,315.50
	Oils and fats	96.60	139.00	123.00	124.30	128.90
	Chemicals	8,476.50	10,594.10	12,006.30	13,189.00	14,422.30
	Basic manufactures	13,116.20	17,664.30	21,865.20	23,493.10	25,064.10
	Machinery and transport equipment	32,963.30	38,404.70	44,944.20	46,784.70	49,153.80
	Miscellaneous manufactured goods	4,376.30	5,023.00	6,846.00	7,934.00	8,864.90
	Other goods	1,546.60	2,053.30	3,341.40	3,167.30	3,320.80
	Total	**75,824.10**	**94,402.50**	**118,164.20**	**128,584.60**	**138,968.50**

(Table 12: Thailand imports/exports by commodities – Source: Euromonitor International)

Thailand - US$ millions							
Trade account	**Geography**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Exports	Africa and the Middle East	4,177.30	5,731.70	6,803.90	8,407.90	11,053.90	13,075.60
	Asia-Pacific	40,871.90	50,248.90	59,098.10	68,150.20	80,570.00	89,903.20
	China	5,707.20	7,097.60	9,105.20	11,810.40	14,834.00	16,691.00
	Hong Kong, China	4,331.20	4,923.90	6,122.70	7,214.30	8,686.00	9,282.30
	India	640.90	909.90	1,519.80	1,822.00	2,664.10	3,035.80
	Indonesia	2,273.50	3,207.40	3,953.50	3,336.00	4,767.80	6,288.90
	Malaysia	3,886.60	5,295.10	5,780.70	6,656.00	7,792.20	8,661.90
	Philippines	1,622.20	1,828.30	2,041.80	2,587.70	2,899.40	3,241.00
	Singapore	5,873.00	7,009.00	7,641.00	8,411.20	9,534.60	9,698.00
	South Korea	1,588.40	1,854.10	2,244.30	2,688.00	2,966.80	3,187.20
	Vietnam	1,266.70	1,872.60	2,347.60	3,093.80	3,802.90	4,820.00
	Australasia	2,434.20	2,789.10	3,669.10	4,908.40	6,341.60	8,251.80
	Europe	15,034.00	17,618.60	18,974.40	23,665.50	29,477.80	32,170.80
	Latin America	1,196.60	1,520.30	2,030.10	2,901.00	3,930.60	4,511.30
	North America	14,610.00	16,549.40	17,978.10	20,871.10	20,614.90	21,902.50
	Canada	941.20	1,057.40	1,028.40	1,245.20	1,364.60	1,333.60
	USA	13,668.80	15,492.00	16,949.70	19,625.90	19,250.30	20,568.90
	TOTAL	**80,323.60**	**96,248.20**	**110,178.00**	**130,803.00**	**153,100.00**	**179,593.70**

(Table 13: Thailand imports/exports by geographies – Source: Euromonitor International)

Thailand - US$ millions							
Trade account	**Geography**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Imports	Africa and the Middle East	8,333.30	11,953.00	16,584.40	20,069.20	20,442.30	29,531.80
	Asia-Pacific	42,078.00	52,888.00	65,786.30	72,225.90	79,343.40	98,769.50
	China	6,066.90	8,181.80	11,153.30	13,800.90	16,382.00	19,687.40
	Hong Kong, China	1,075.10	1,331.20	1,504.60	1,560.80	1,454.50	2,789.00
	India	878.90	1,140.10	1,276.00	1,640.10	2,085.00	2,569.70
	Indonesia	1,770.50	2,322.60	3,130.10	3,483.60	4,025.40	6,287.00
	Malaysia	4,540.20	5,548.60	8,091.90	8,598.80	8,702.60	10,123.30
	Philippines	1,351.90	1,546.80	1,881.20	2,143.40	2,162.90	2,470.10
	Singapore	3,269.60	4,153.50	5,374.90	5,760.20	6,343.20	9,875.10
	South Korea	2,919.30	3,589.80	3,887.80	5,198.30	5,337.50	6,779.10
	Vietnam	336.70	438.60	890.40	908.90	1,122.20	1,300.10
	Australasia	1,796.10	2,447.50	3,507.70	3,779.40	4,254.60	5,947.70
	Europe	10,271.10	12,822.70	15,054.00	15,828.60	16,636.00	20,678.90
	Latin America	1,497.30	1,686.20	2,057.20	1,847.10	2,369.50	3,115.90
	North America	7,576.60	7,770.50	9,246.90	10,296.20	10,287.30	11,781.80
	Canada	391.70	500.30	523.40	514.10	633.90	866.50
	USA	7,184.90	7,270.20	8,723.60	9,782.10	9,653.50	10,915.30
	TOTAL	**75,824.30**	**94,409.80**	**118,158.00**	**128,723.00**	**140,795.00**	**185,129.40**

(Table 13: Thailand imports/exports by geographies – Source: Euromonitor International)

Vietnam – US$ million						
Trade account	**Categories**	**2003**	**2004**	**2005**	**2006**	**2007**
Export	Food and live animals	4,384	5,657	6,673	7,908	8,907
	Beverages and tobacco	142	210	280	367	440
	Crude materials exc. Fuels	628	845	1,057	1,301	1,540
	Mineral fuels	4,151	5,225	6,250	7,510	8,690
	Oils and fats	23	18	15	16	18
	Chemicals	338	473	594	743	873
	Basic manufactures	1,343	1,816	2,239	2,749	3,134
	Machinery and transport equipment	1,792	2,364	2,881	3,575	4,113
	Miscellaneous manufactured goods	7,226	9,820	12,407	15,412	17,931
	Other goods	123	59	47	25	24
	TOTAL	**20,149**	**26,485**	**32,442**	**39,605**	**45,669**
Import	Food and live animals	1,256	1,630	1,888	2,291	2,658
	Beverages and tobacco	152	190	217	250	280
	Crude materials exc. Fuels	996	1,269	1,455	1,735	1,982
	Mineral fuels	2,714	3,324	3,766	4,476	5,022
	Oils and fats	152	194	229	272	314
	Chemicals	3,606	4,523	5,178	6,175	7,015
	Basic manufactures	6,641	8,594	10,113	12,157	14,125
	Machinery and transport equipment	7,977	10,161	11,832	14,398	16,648
	Miscellaneous manufactured goods	1,555	1,923	2,129	2,477	2,747
	Other goods	207	162	171	180	166
	TOTAL	**25,256**	**31,968**	**36,978**	**44,409**	**50,957**

(Table 14:Vietnam imports/exports by commodities – Source: Euromonitor International)

Vietnam - US$ millions							
Trade account	**Geography**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Export	Africa and the Middle East	494.30	646.80	761.20	755.70	416.60	484.80
	Asia-Pacific	8,632.60	11,563.50	14,441.20	16,557.90	19,150.30	21,268.30
	China	1,883.10	2,899.10	3,228.10	3,242.80	3,356.70	3,960.20
	Hong Kong, China	368.70	380.10	353.10	453.00	582.50	768.20
	India	32.30	78.60	97.80	137.80	179.70	190.80
	Indonesia	467.20	452.90	468.80	957.90	1,105.30	1,298.50
	Malaysia	453.80	624.30	1,028.30	1,254.00	1,390.00	1,539.90
	Philippines	340.00	498.60	829.00	782.80	965.10	967.70
	Singapore	1,024.70	1,485.30	1,917.00	1,811.70	2,202.00	2,211.40
	South Korea	492.10	608.10	663.60	842.90	1,252.70	1,330.10
	Thailand	335.40	515.10	863.00	930.20	1,033.90	1,186.80
	Australasia	1,445.80	1,931.60	2,770.30	3,798.80	3,624.00	4,651.50
	Europe	4,906.10	5,963.50	6,607.00	8,921.50	11,708.50	14,785.60
	Latin America	217.30	347.80	539.90	690.70	152.40	216.80
	North America	4,110.80	5,294.90	6,280.00	8,285.60	10,628.20	11,869.60
	Canada	171.30	270.10	356.00	440.50	539.10	606.00
	USA	3,939.60	5,024.80	5,924.00	7,845.10	10,089.10	11,263.60
	TOTAL	**20,149.30**	**26,485.00**	**32,442.00**	**39,605.00**	**48,302.00**	**62,366.70**

(Table 15: Vietnam imports/exports by geographies – Source: Euromonitor International)

Vietnam - US$ millions							
Trade account	**Geography**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Import	Africa and the Middle East	488.00	619.90	797.70	555.00	403.50	575.10
	Asia-Pacific	16,174.30	20,933.40	24,715.60	30,784.40	42,993.30	53,603.30
	China	3,138.60	4,595.10	5,899.70	7,391.30	12,502.00	16,199.50
	Hong Kong, China	990.90	1,074.30	1,235.00	1,440.80	1,941.40	2,871.40
	India	457.10	593.50	596.00	880.30	1,356.90	1,381.30
	Indonesia	551.50	663.30	700.00	1,012.80	1,353.90	1,586.80
	Malaysia	925.00	1,215.30	1,256.50	1,482.00	2,289.70	2,158.70
	Philippines	140.90	188.40	209.90	342.60	414.20	431.70
	Singapore	2,875.80	3,618.40	4,482.30	6,273.90	7,608.60	10,824.20
	South Korea	2,625.40	3,359.40	3,594.10	3,908.40	5,334.00	5,429.80
	Thailand	1,282.20	1,858.60	2,374.10	3,034.40	3,737.20	5,137.10
	Australasia	368.10	568.00	617.20	1,259.40	1,305.80	2,344.90
	Europe	4,002.30	4,643.20	4,843.50	5,534.60	7,373.10	8,598.00
	Latin America	258.90	314.90	464.30	604.00	640.10	767.80
	North America	1,220.70	1,230.70	1,036.50	1,165.60	1,986.90	3,876.80
	Canada	76.60	96.80	173.60	178.60	287.20	336.80
	USA	1,144.10	1,133.90	862.90	987.00	1,699.70	3,540.00
	TOTAL	**25,255.80**	**31,968.80**	**36,978.00**	**44,410.00**	**60,869.00**	**84,714.70**

(Table 15: Vietnam imports/exports by geographies – Source: Euromonitor International)

Regression Statistics	Singapore STI			Thailand BNGKS50			Vietnam FTVIAS$		
	2007	2008	2009	2007	2008	2009	2007	2008	2009
Multiple R	0.172186	0.264629	0.290961	0.160723	0.316453	0.257543	0.097136	0.104141	0.043880
R Square	0.029648	0.070028	0.084658	0.025832	0.100142	0.066328	0.009435	0.010845	0.001925
Adjusted R Square	0.025887	0.066451	0.063371	0.022056	0.096681	0.044615	0.003807	0.007041	-0.021286
Standard Error	0.009786	0.020545	0.022558	0.009806	0.024132	0.022783	0.010973	0.025301	0.023556
Observations	260	262	45	260	262	45	178	262	45
X Variable 1:									
Coefficients	0.1242	0.2216	0.3604	0.1158	0.3368	0.2900	-0.0779	-0.1124	-0.0613
Standard Error	0.0442	0.0501	0.1807	0.0443	0.0626	0.1659	0.0602	0.0666	0.2128
t Stat	2.8077	4.4247	1.9942	2.6156	5.3791	1.7478	-1.2948	-1.6884	-0.2880
P-value	0.0054	0.0000	0.0525	0.0094	0.0000	0.0876	0.1971	0.0925	0.7747

Figure 1: *Regression outputs of stock markets in Asia in relation to S&P500*