Chapter 1
Introduction

1.1 Background / Rationale / Problem

Capital is an essential requirement in the economic development process of all countries. Unless they are endowed with large amounts of domestic resources to generate the necessary domestic capital and foreign exchanges, countries have to rely on foreign sources of capital. As in most developing countries, savings can not be adequately produced domestically to meet their capital requirements, and so one way for the countries to bridge the gap is to inject capital from external sources in the form of foreign assistance, private foreign investments and foreign loans into the economies.

With increased globalization and financial liberalization, the financial systems of nearly every country are becoming more closely integrated. As a result, capital can now easily flow between most countries to capture the highest returns. Consequently, countries facing saving and investment gap can easily obtain foreign capital in financing their development. There are, however, certain interest costs associated with foreign borrowings, and these costs vary from country to country. As the cost of external debt is primarily determined by the risk-free interest rate in the currency borrowed and the risk premium required by creditors to compensate the risk associated with any potential inability of the borrowers to meet their repayment, differences in countries' borrowing costs are mostly determined by differences in the risk premium.

Due to differences in countries' political as well as economic aspects, risk varies among countries. However, countries' economic conditions are weighted by many international bankers to have more influence on their interest costs. This is evidenced by the fact that the cost of debt for many developing countries is much higher than for industrialized countries. In particular, a country with high rate of expected inflation will have to pay higher borrowing rates as lenders require higher

premiums. By contrast, if economic conditions in a particular country tend to be relatively stable, the risk of recession is usually low. Thus, it is less likely that the country will default, so creditors require relatively lower risk premiums in lending to that country.

The enormous increase in cross-border lending and investment activities as well as the recent deteriorating fundamentals in many developing countries (i.e. as in case of Mexico in 1994) have increased the difficulties for international lenders and investors in assessing the risk involved in lending or investing in developing countries. As a result, a great deal of effort goes into assessing the country's credit risk and making country-by-country forecasts of macroeconomic variables in providing the country's overall fundamental outlook. Hence, it is interesting to estimate the impact that these macroeconomic forecasts can have on the country's borrowing costs in international financial market, using the case of ASEAN.

1.2 Objectives of the study

This research aims to establish a linkage between developing countries' economic fundamentals and their borrowing costs, using the case of ASEAN countries by emphasizing on:

1) analyzing the country risk for the ASEAN countries; and
2) investigating the extent to which the forecasts of macroeconomic variables affect the country's borrowing costs.

1.3 Scope of the study

In analyzing the country risk of the ASEAN countries, this study focused on four particular ASEAN countries, namely, Indonesia, Malaysia, Philippines and Thailand during 1991 and 1996.* Although Singapore is also one of the ASEAN countries, it was excluded from the analysis in this study. This is because Singapore

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* Thus, the word ASEAN countries used in this study refers to four particular ASEAN countries, namely, Indonesia, Malaysia, Philippines and Thailand.

is a fully-opened economy that begins to achieve the stable growth and, hence, classified as a developed country; whereas, the four ASEAN countries are in the expansion stage of development and classified as developing countries. In addition, as the years between 1991 and 1996 are the periods during which the economies in these four ASEAN countries expand rapidly and some overheating pressures have occurred; so, the analysis of the ASEAN countries' risk, which based mainly on some important macroeconomic variables*, is conducted during these periods.

Furthermore, in investigating the impact of the ASEAN countries' fundamental outlooks on their costs of external borrowings, secondary data from Indonesia, Malaysia, and Thailand covering the period from February 1996 to May 1997 was used in this study.** The forecasts of macroeconomic variables of these ASEAN countries were obtained from various monthly issues of the "Asia Pacific Consensus Forecasts", published by Consensus Economic Inc..

1.4 Review of literatures

Over the past decade, many developing countries have been increasingly borrowing in international financial markets, but due to the deteriorating fundamentals in some developing countries in recent years causing crisis of confidence among international lenders, the demand for sovereign credit ratings has increased dramatically. As a result, the questions as to what determines the creditworthiness as well as the credit rating of a country and to what extent these factors affect borrowing costs for sovereign are issues of interest. Therefore, this part of the study is divided into two sections. The first section contains a review of

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* Conceptually, there are two components of country risk: the willingness to pay and the ability to pay. The former is generally driven by the political considerations of foreign governments which are usually hard to be analyzed and predicted while the latter is generally driven by economic considerations which are more predictable. So, the issue of the ability to pay is predominant in evaluating the country risk as it is the country's inability to pay that normally leads to default. Therefore, this study limits the analysis to macroeconomic considerations only.

** Due to the unavailability of the cross-currency swap rate, which can be used as a proxy for a country's cost of external borrowings, Philippines is excluded from the analysis of the influences of the country's fundamental outlooks on its borrowing costs.

literature concerning the determinants of country's creditworthiness and credit ratings, and, despite a few literature investigating the extent to which determinants of country risk affect country's borrowing costs, the second section contains a review of literature studying the influence of country risk on sovereign bond yields.

A. Determinants of country creditworthiness and credit rating

As economic growth for many countries, especially the developing ones, will depend in large part on their ability to attract foreign capital, creditworthiness is therefore cited in Feder and Uy (1985) as an important factor in facilitating growth for the countries. In trying to identify which variables significantly affect country creditworthiness as perceived by international lenders as well as to estimate their weight, Feder and Uy (1985) utilize a reduced-form equation assuming a measure of country creditworthiness[*] to be a function of a set of variables and indicators related to debt servicing capacity of borrowing countries. These variables include the ratio of debt to GNP, international reserves to imports, the growth rate of exports and GDP, terms of trade, export vulnerability to external shocks[**], GNP per capita, oil exporter dummy variable, political turmoil dummy variable and debt service difficulties dummy variables. The study covers eight semi-annual periods between the second half of 1979 and the first half of 1983 for fifty-five countries. The results of Feder and Uy's (1985) study are satisfactory in that every variable hypothesized to have an impact on country creditworthiness is statistically significant and has the expected sign. However, the results ignore the dynamic implication of changes and are only meaningful in a "ceteris paribus" sense since changes in any one variable are necessarily accompanied by changes in other variables. As a result, Feder and Uy

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[*] Feder and Uy (1985) use the scores of creditworthiness ranking published every six months by the "Institutional Investor" on the basis of a survey conducted among bankers and international financial institutions as a direct measure of country creditworthiness. This creditworthiness ranking is within the interval of (0, 100) scores and can then be interpreted as a probability.

[**] This variable is included as countries with volatile exports are viewed as less creditworthy among international lenders. It is measured using the extent to which export revenues are concentrated in three commodities. If a country's exports are very concentrated, it is more likely that a change in world markets will have a major effect on a country's export revenues, so the higher will be the risk for the country.

(1985) take into account the dynamic of changes by assessing the effect of changes in economic variables on country creditworthiness within a framework of a macroeconomic model of the whole economy, and so several changes in policy variables are considered in their study that highlights the importance of the expansion in the export sectors of the economy.

Similarly, with an attempt to identify the determinants of sovereign ratings, Cantor and Packer (1996) use regression analysis to measure the relative significance of eight quantitative variables repeatedly cited by many international bankers and rating agencies as determinants of sovereign ratings. These variables are per capita income, GDP growth, inflation, fiscal balance, external balance, external debt, level of economic development[*] and default history. The study assesses the significance of these eight variables in determining the September 29, 1995 ratings of the forty-nine countries assigned by two important rating agencies - Moody's and Standard & Poor's. The results show that five of the eight variables are directly correlated with the ratings assigned by these two agencies. In particular, a high per capita income and a high level of economic development appear to be closely related to high ratings; while, high inflation and high external debt are correlated with low ratings. In addition, any history of default limits sovereign ratings to lower levels. While, the other three variables not included in the study of Feder and Uy (1985), i.e. GDP growth, fiscal balance and external balance, appear to lack any significant relation to ratings.[**] Although the studies of Feder and Uy (1985) and Cantor and Packer (1996) are not the same in that the first study conducts a pooled, cross-sectional, time series regression, while the second study uses cross-sectional regression, their results are quite similar in that most of their economic variables are useful in assessing country creditworthiness.

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[*] It is believed that once countries reach a certain level of income or development, they may be less likely to default. This variable is proxied by a simple indicator variable noting whether the country is classified by International Monetary Fund as industrialized.

[**] A lack of a correlation between ratings and fiscal and external balances may reflect endogeneity in both fiscal policy and international capital flows.

In addition to the studies of Feder and Uy (1985) and Cantor and Packer (1996), Dym (1997) introduces an analysis of the credit risks of developing country debt instruments by utilizing six variables which can be classified into three categories of risk based on the imminence of their impacts - serviceability, solvency and structural. These six variables are reserve coverage, ratio of current account deficit to GDP, external borrowings to GDP, ratio of budget deficit to GDP, percent of real GDP growth and inflation. To determine the credit risk for developing country bond portfolios, Dym (1997) combines these six variables to create an overall measure of country risk for eight countries with liquid Brady bonds*, including Latin American countries and others (i.e. Philippines, Nigeria, Poland and Bulgaria) by computing the z-scores.** The plot of the risk measure shows that Argentina's position held relatively stable during July 1992 to November 1995; while Mexican risk increased steadily during 1994, then jumped sharply in the early of 1995.

There are numerous economic, social and political factors, whether they are quantifiable or not, affecting country's creditworthiness and credit ratings. However, some quantitative variables repeatedly cited in the above three literatures of Feder and Uy (1985), Cantor and Packer (1996) and Dym (1997) as determinants of country's creditworthiness and credit ratings can be summarized as follows:

(1) **Gross domestic product (GDP) growth**

The growth rate of GDP is a measure of the overall economic performance of a country's economy. Moreover, GDP growth also reflects the long-term fundamental health of a country's economy. Thus, the rate of GDP growth will have an influence on a country's creditworthiness as well as its credit rating because a country with a relatively high rate of economic growth is more likely to be able to service its existing debt burden than a country with a stagnant economy.

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* The study defines Brady bonds as the recycled, U.S. dollar-denominated bank loans increasingly included in fixed-income portfolios in recent years.

** A z-score is defined as the particular country's deviation from the average value of the group of countries which is scaled by the standard deviation.

(2) Inflation

As inflation can indicate the long-run outlook for a country's stability, a country with relatively high inflation is more likely to have default problem which will deteriorate the country's creditworthiness.

(3) Fiscal balance

In an economy with a relatively large fiscal deficit, the government can not earn enough tax revenue to cover its current expenditure. This will then result in additional borrowing by the government which may affect country creditworthiness.

(4) External balance

A country with large amount of current account deficit relative to its economy has to rely heavily on foreign funds to finance its development since the economy spends more than it can earn. So, a large and persistent current account deficit will also tend to lower the country's creditworthiness.

(5) Reserve coverage

International reserves are used by many developing countries to finance their savings and investment gap, so it is important for countries, especially the developing ones, to hold enough foreign reserves to safeguard the short-term import capacity of the economy in the face of fluctuations in their foreign exchange receipts.

(6) External debt

A country with relatively high external borrowing relative to its economy is more likely to default because large amount of its economic output must eventually be transferred to foreigners. Thus, a high debt burden economy should also exhibit a higher risk of default and a low creditworthiness.

(7) Default history

When a country is known to have defaulted on debt in the recent past with respect to some of its creditors, other creditors are alarmed and the country is perceived to have higher credit risk, so its credit rating is likely to fall.

Besides the seven quantitative variables summarized above as commonly cited in the literatures as having an influence on country creditworthiness and credit ratings, qualitative evaluations on both economic and political aspects of a country are suggested in Ajanant's (1981) work as important to supplement the assessment of risk in lending to developing countries. In particular, on the economic side, the past and prospective growth of total output, consumption and investment, the share of investment financed from domestic savings, the factors causing inflation, the balance of payments outlook, trade account composition, general profile of external indebtedness (i.e. maturities, interest rates and terms of borrowings), degree of export diversification, import compressibility and, the most important of all - the quality of the management of economic policies should additionally be analyzed. On the political side, the political stability of a country should be analyzed by assessing the orderliness of the process of political succession, the homogeneity of the population, and the country's foreign relations, especially with its major trading partners. All these multidimensional aspects of the country should also be analyzed in assessing country risk.

Apart from the literature concerning the determinants of country creditworthiness and credit ratings just reviewed, Demirguc-Kunt and Detragiache (1997) examine the factors leading to systemic banking crises by econometrically estimating the probability of a banking crisis, using a multivariate logit model. The data come from a large sample taken from both developed and developing countries during 1980-94. The explanatory variables used to estimate the probability of a banking crisis include not only the macroeconomic variables commonly used by Feder and Uy (1985), Cantor and Packer (1996) and Dym (1997), but also the structural characteristics of the economy in general and of the financial sector in particular.[*] Their results suggest that a weak macroeconomic environment - particularly low GDP growth, high inflation and high real interest rates - is not the sole factor leading to banking crises: structural characteristics of the economy and of the banking sector also lead to banking crises. In particular, vulnerability to sudden

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[*] These variables include GDP growth, change in terms of trade, change in exchange rate, real interest rate, inflation, ratios of budget surplus to GDP, M2 to reserves, domestic credit to the private

capital outflows, a high share of domestic credit going to the private sector, high past credit growth as well as the presence of an explicit deposit insurance scheme increase the probability of banking crises. Moreover, countries with weak law enforcement are also more at risk of experiencing banking sector problems.

B. Influence of country risk on sovereign bond yields

In addition to an attempt to identify variables used in the determination of ratings, Cantor and Packer (1996) also evaluate the effect of ratings on sovereign bond yields. In investigating the degree to which ratings explain yields, Cantor and Packer (1996) conduct a regression analysis using ordinary least squares for thirty-five countries rated by both Moody's and Standard & Poor's as having actively traded Eurodollar bonds in the fall of 1995. Three regressions are conducted: the first regression relates the log of these 35 countries' bond spreads* to their average ratings; the second regression relates the spreads to the eight variables – per capita income, GDP growth, inflation, fiscal balance, external balance, external debt, level of economic development and default history - determining the credit ratings; and, the third regression relates the spreads to average ratings as well as all eight determinants of average ratings collectively. The results show that the single rating variable alone explains 92% of the variation in spreads, while the eight determinants of average ratings explain only 86% of the sample variation. This suggests that ratings effectively summarize the information contained in macroeconomic indicators and provide additional information beyond that conveyed in the standard macroeconomic country statistics incorporated in market yields. Furthermore, the result from the third regression shows that the determinants of average ratings are collectively and individually insignificant and the adjusted R-squares is 91.4% which is a little bit lower than in the first regression. This implies that macroeconomic indicators do not add any statistically significant explanatory power to the average rating model.

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sector to GDP, bank liquid reserves to bank assets, the past real domestic credit growth, the dummy variable of an explicit deposit insurance scheme and, lastly, an index of the quality of law enforcement.

* For each country, its most liquid Eurodollar bond is identified first so that its spread over U.S. Treasuries can be obtained.

Instead of relating actual figures of economic variables to sovereign yield as in Cantor and Packer's (1996) work, Jankus (1997) tries to relate the forecasts of macroeconomic variables to sovereign bond yields. Jankus (1997) investigates the extent to which macroeconomic forecasts of GDP growth rate, consumer inflation rate, government budget balance as percent of GDP, current account balance as percent of GDP and unemployment rate affect pricing in the global fixed-income markets. To do so, the study conducts an ordinary least squares analysis using cross-sectional regressions for fifteen OECD countries, for eighteen quarters beginning from the first quarter of 1992 through the second quarter of 1996. The five-year swap rate in fifteen OECD countries is used as a dependent variable in the regression. In addition, as global investors require a premium for a market that lacks liquidity, the total market capitalization of the country's government bond market as measured by Lehman Brothers is also included in the regression as an explanatory variable representing market liquidity. The results show that expected inflation and expected budget balance are consistently significant, while there is little statistical significance apparent in expectations for GDP growth, current account balances, and unemployment. This indicates that the global structure of yield in OECD countries is really determined by two factors: inflation and supply. However, the results of the regression should be interpreted carefully because the sample period is very short.

To recapitulate, there are numerous economic variables affecting country creditworthiness and credit rating which eventually also affect the country's borrowing rates in international financial market. However, some certain variables are repeatedly cited in Feder and Uy (1985), Cantor and Packer (1996) and Dym (1997) as determinants of country creditworthiness and credit ratings. These variables are GDP growth, inflation, fiscal balance, current account balance, international reserves, external debt and default history. Additionally, these determinants of country risk are also investigated in Cantor and Packer (1996) and Jankus (1997) as having an influence on country's borrowing costs. Following Cantor and Packer (1996) and Jankus (1997), this study, therefore, attempts to analyze and investigate the impact of these determinants of country risk on the country's borrowing costs for developing countries, using the case of ASEAN countries.

1.5 Conceptual Framework and Methodologies

A. Conceptual framework

Conceptually, the framework employed in sovereign risk analysis is quite similar to that traditionally applied to corporate risk analysis with the only difference being that sovereign risk analysis places more emphasis on the macro level of the whole country, while corporate risk analysis places more emphasis on the micro level of corporations. Similar to corporate risk analysis, country risk can be viewed as having two primary components: a country's willingness to pay and its ability to pay. Political risk is associated with the willingness to pay, while economic risk is associated with the ability to pay. A corporation's interest rate cost equals the risk-free market rate plus a spread. This spread reflects the credit risk premium required by the lenders for the corporation. Similarly, the interest rate cost for a country's bonds equals the risk-free rate on U.S. Treasuries plus a spread.[*] The spread, in turn, reflects the credit risk premium of the sovereign borrower. Hence, any factors affecting a country's ability and willingness to pay will also impact the country's credit risk, then the risk premium and, ultimately, the borrowing costs (as summarized in Exhibit 1.1).
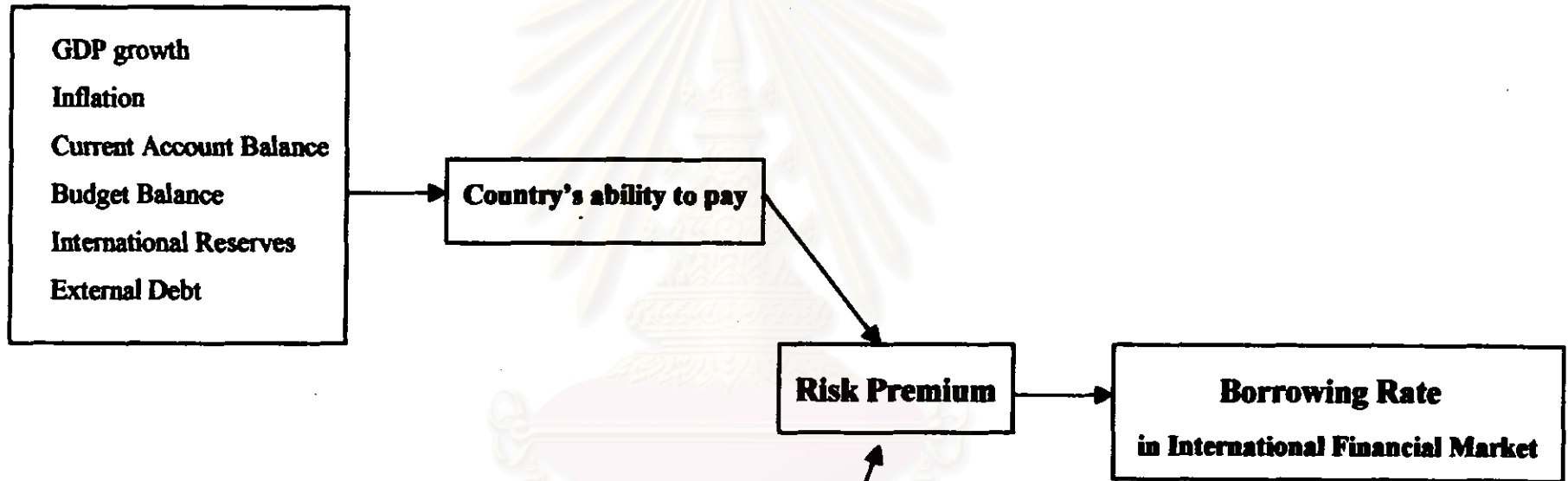
As this research emphasizes on the economic aspect of a country in assessing the country risk, many macroeconomic variables (such as GDP growth, inflation, current account balance, budget balance, international reserves, external debt and unemployment rate) can then be used to evaluate country risk as these variables affect the country's ability to repay loans. However, with an attempt to evaluate the extent to which the forecasts of macroeconomic variables affect country's borrowing costs, the availability of the forecast data limits the study to focus only on four variables: GDP growth, inflation, current account balance and exchange rate. An explanation of how these four economic variables affect country risk, and ultimately the country's borrowing costs is provided below.

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[*] While, the interest rate cost for a country's loan equal LIBOR or SIBOR plus a spread.

Exhibit 1.1: Linkages between country's fundamental and its borrowing costs.

Economic Aspects:

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┌─────────────────────────┐
│  GDP growth             │
│  Inflation              │
│  Current Account Balance│────────▶  ┌──────────────────────┐
│  Budget Balance         │           │ Country's ability to pay │
│  International Reserves  │           └──────────────────────┘
│  External Debt          │                      │
└─────────────────────────┘                      ▼
                                       ┌──────────────┐      ┌─────────────────────────────┐
                                       │ Risk Premium │─────▶│  Borrowing Rate             │
                                       └──────────────┘      │  in International Financial Market │
                                                 ▲           └─────────────────────────────┘
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Political Aspects:

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┌──────────────────┐
│ Political stability │
│ Foreign relations  │────────▶  ┌──────────────────────────┐
└──────────────────┘           │ Country's willingness to pay │
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(1) **GDP growth**

As the growth rate of GDP measures the economy's overall economic performance and reflects the economy's long-term fundamental health, a high growth rate economy is less likely to default since it has a high ability to generate foreign exchange. Thus, a high growth rate economy will have low credit risk and low costs of borrowing.

(2) **Inflation**

Inflation can be viewed as the process of a continuous rise in the general level of prices, or alternatively, a process of a continuous fall in the value of money. Hence, inflation measures the level of prices of goods and services in the economy and indicates the real value of assets and income. Change in inflation arises when there is more demand than supply or when the prices of inputs increase. The effect of change in inflation on the economy depends on the degree to which it is anticipated and taken into account of in making economic decision.

Anticipated inflation still, however, has some effects on the economy: interest rate effect and the costs of changing nominal values. The result of an increase in anticipated inflation is to raise the nominal or the market rate of interest. Thus, if domestic inflation is relatively higher than foreign inflation, it is likely to attract mobile capital funds into the country because domestic interest rates are relatively high. With a floating exchange rate, this inflow of funds will lead to an appreciation in domestic currency which may adversely affect the country's balance of payments. In addition, an economy facing an increase in inflation, even if it is fully anticipated, will be required to frequently change the nominal value of prices, wages, taxes and benefits, causing additional costs to the economy.

If an increase in inflation is unanticipated, the consequences are greater than if it is anticipated. An increase in unanticipated inflation may create some macroeconomic effects on the country's unemployment and balance of payments. In an economy with relatively high inflation, domestic producers will lose price competitiveness at home and abroad if the exchange rate does not adjust sufficiently to correct for the inflation differential. Then producers' profits will decline which

may result in lower output and higher unemployment. In addition, high inflation is an impediment to new investment since it raises the costs of borrowing as nominal interest rates increase. It may also increase the variability in inflation, making expected returns from investment more uncertain. Furthermore, high inflation may lead to balance of payments deficits. This is an important consideration especially for countries where international trade plays a major role in the economy. When domestic inflation increases at a faster rate than that of the country's trading partners, the overall effect will almost certainly be a deficit on the current account of the balance of payments since it reduces exports while encouraging imports.

Therefore, a high level of inflation will deteriorate a country's economic stability and lessen its ability to generate foreign exchange, which then affects the country's ability to pay, the country's credit risk, the risk premium and lastly its borrowing costs.

(3) **Current account balance**

The current account balance measures the economy's trade in goods and services with the rest of the world, taking into account unilateral transfers. Almost all developing countries generally have current account deficits as they have to rely on imported oil and raw materials in their economic development, but such level of deficits should be appropriate with the countries' level of investment and economic growth. However, the current account deficits will not deteriorate the country's economic stability provided that exports expand faster than debt obligations. Unless enough foreign currencies are earned from exports, countries facing current account deficits have to be financed either by borrowing from other countries, by selling some of its stocks, bonds, and other financial assets, or by reducing its holdings of foreign reserves. Hence, a large current account deficit indicates the lower ability of the country to generate foreign exchange from exports, which then affects the country's credit risk, and eventually the borrowing costs.

(4) **Exchange rate**

An exchange rate is the price of one currency in term of another currency, and thus it should reflect the country's real economic condition. Change in exchange rate

is a major source of uncertainty in international business as the magnitude of the fluctuation in currency value can overwhelm other determinants of the profitability of corporation. In addition, changes in the exchange rate also influence aggregate demand through exports, imports, and expenditure as well as aggregate supply via the cost of imported factors of production. For example, a depreciation of exchange rate may improve a country's trade balance because of the increased cost of imported inputs, increase in exports and decrease in imports as well as expenditure. Thus, as the trade balance for a country with a depreciating currency value will improve, it is less likely for the country to default, and so the country's credit risk and borrowing costs may decrease. However, a depreciation of exchange rate will also tend to undermine investor confidence in the economy. This is because domestic inflation will increase and the external debt problem will be exacerbated. Therefore, the effect of change in exchange rate on the country's borrowing costs is quite ambiguous.

B. Methodologies

In an attempt to analyze the country risk of the ASEAN countries, this study is both descriptive and hypothesis-testing types and organized into two parts. The first part contains a descriptive analysis of the country risk of the ASEAN economies, while the second part conducts a regression analysis in investigating the extent to which the forecasts of macroeconomic variables, indicating the country's economic risk, affect the sovereign borrowing costs.

B.1. Analysis of Country Risk

The purpose of this part is to provide an analysis of the country risk of the ASEAN economies. To do this, the six macroeconomic variables are analyzed for ASEAN economies. These variables are GDP growth, inflation, current account balance, budget balance, external debt and international reserves. In addition, following Dym (1997), these six macroeconomic variables are combined to create an overall measure of country risk of ASEAN economies which are targeted specifically to fixed-income investments.

A *z score*, which is defined as the particular country's deviation from the average value of the group of countries that scaled by the standard deviation, is calculated for each variable. Thus, each country has six z scores, corresponding to six risk variables. Then, for each country, all six z scores are summed up to provide an overall z score for a country. The higher the overall z score, the more risky the country relative to the group.

More formally, let $X(i, j)$ equal the value of variable j for country i, let $X(j)$ equal the average value of variable j across all countries and let $SD(i, j)$ equal the standard deviation of variable j for country i. The z score is defined as:

$$z\ score(i, j) \quad = \quad \frac{X(i, j) - X(j)}{SD(i, j)}$$

Then, an overall z score sums the individual scores.

$$z\ score(j) \quad = \quad z\ score\ (i, j)$$

B.2. Impact of macroeconomic forecasts on the country's borrowing rate

The purpose of the second part is to evaluate the predictive-power of the macroeconomic forecasts in explaining the borrowing costs for sovereign. In doing so, a regression analysis using the t-test of significance of regression coefficients is conducted with the following hypotheses:

$$H_0: \quad \beta = 0$$

$$H_1: \quad \beta \neq 0$$

where β represents the coefficients of regression. If the absolute value of the t-computed, $|t|$ is greater than t-critical, we reject the null hypothesis, indicating the significance of that particular variable.

In particular, to investigate the extent to which macroeconomic forecasts[*] affect the borrowing rates of ASEAN countries, the regression that relates the

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[*] The forecasts of macroeconomic variables for ASEAN countries used in this research are the mean (or consensus) of economic forecasts made by various forecasters such as J.P. Morgan, Goldman Sach, Baring Securities, etc.. These consensus of macroeconomic forecasts for ASEAN countries are obtained from "Asia Pacific Consensus Forecasts" published by Consensus Economics Inc..

forecasts of macroeconomic variables as well as the market capitalization of a country's stock market to the one-year cross currency swap rate in ASEAN countries is conducted. The cross currency swap rates used as the dependent variable in these ordinary least squares analysis represent the fixed rate that would make a highly rated issuer indifferent between financing with dollar six month LIBOR and with local currency fix rate for the same term.[*] Thus, these swap rates, suggested by Jankus (1997), can be essentially thought of as a corporate borrowing rate or bond rate for very high-quality borrowers. The availability of the forecast data limits the study to sixteen months from February 1996 to May 1997. The pooled cross-sectional, time series regressions taking into account the influence of structural differences between countries, with the expected sign of the coefficients above, are as follows:

$$Y_{i,t} = \alpha + \overset{(-)}{b_1 GDP_{i,t}} + \overset{(+)}{b_2 INF_{i,t}} + \overset{(-)}{b_3 CAD_{i,t}} + \overset{(?)}{b_4 EXR_{i,t}} + \overset{(-)}{b_5 MKT\_CAP_{i,t}}$$

$$+ \overset{(+)}{b_6 DM\_INDO_{i,t}} + \overset{(-)}{b_7 DM\_MY_{i,t}} + \varepsilon_{i,t}$$

where

$Y_{i,t}$ is the swap rate for country i at month t ;

α is the constant term;

$b_1, b_2, \ldots, b_7$ are the regression coefficients;

$GDP_{i,t}$ is the forecast of the real growth rate of GDP for country i at month t ;

$INF_{i,t}$ is the forecast of inflation rate for country i at month t ;

$CAD_{i,t}$ is the forecast of current account deficit for country i at month t ;

$EXR_{i,t}$ is the forecast of percentage change in exchange rate for country i at month t (where positive percentage change in exchange rate used in this regression means an appreciation in domestic currency value and vice versa);

$MKT\_CAP_{i,t}$ is the market capitalization of stock market for country i at month t ;

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[*] Conceptually, with cross-currency swaps, domestic borrowers can access to highly liquid market with relatively low interest costs compared with borrowing from domestic financial markets and can also hedge currency and interest rate risk. Cross-currency swaps are explained in more detail in Appendix A.

DM_INDO$_{i,t}$ is the dummy variable for Indonesia:-- 1 for Indonesia and 0 for otherwise;

DM_MY$_{i,t}$ is the dummy variable for Malaysia:-- 1 for Malaysia and 0 for otherwise;

$\varepsilon_{i,t}$ is a random disturbance.

The estimated parameters in the regressions are hypothesized to have the following directions or signs as in the parentheses:

b_1 (-) :   An increase in forecast of real GDP growth will reduce borrowing costs.

b_2 (+) :   An increase in expected inflation will increase country risk and borrowing costs.

b_3 (-) :   An increase in forecast of current account deficit will increase borrowing costs.

b_4 (-) :   An increase in the forecast of domestic currency's value will reduce the borrowing costs.

b_5 (-) :   An increase in the country's market capitalization of the stock market will reduce the borrowing costs.

b_6 (+) :   Assuming other factors constant, the average level of the swap rates for Indonesia should be higher than for Thailand.

b_7 (-) :   Assuming other factors constant, the average level of the swap rates for Malaysia should be lower than for Thailand.

1.6 Benefits of the study

The analysis of the country risk of the ASEAN economies by focusing on some important macroeconomic indicators does not only shed new light on the macroeconomic performances of the ASEAN countries during 1991 and 1996, but also on the factors increasing the country risk in these developing ASEAN economies during this period. Furthermore, in conducting a regression analysis that relates the forecasts of macroeconomic variables to the country's external borrowing costs, it should be revealed which macroeconomic forecasts significantly affect the costs of external borrowings; so that, in trying to reduce the country risk of the ASEAN

economies and hence their borrowing costs, policies can be implemented aiming towards those variables, i.e., reducing inflation, etc.

1.7 Organization of the Study

This study is divided into six chapters for the purpose of examining the linkage between countries macroeconomic fundamental and their external borrowing costs by focusing on analyzing the country risk of the ASEAN economies and investigating the influence of macroeconomic forecasts on country borrowing costs.

The first chapter is an introductory chapter, presenting the objectives as well as the scope of the study, a review of literature, the conceptual framework and methodologies, and the benefits as well as the organization of the study. The second chapter provides the widely used criteria in rating the country risk, and also the country risk ratings for the ASEAN countries. The third chapter provides an economic overview of the ASEAN economies between 1991 and 1996, focusing on six important macroeconomic variables: i.e. economic growth, inflation, current account balance, budget balance, international reserves and external debt. In the fourth chapter, a brief summary of the ASEAN countries' economic performance based on relative score ranking among ASEAN as well as the analysis of the ASEAN's country risk during 1991 and 1996 using the Z score are provided. Then, the analysis of the influences of the forecasts of macroeconomic variables on the country's costs of external borrowings is provided using both graphical and regression analysis in Chapter 5. Finally, the summary of the study's findings and some policy implications as well as the limitation and recommendations for further study are provided in the last chapter.