

CHAPTER II

THEORITICAL REVIEWS

2.1 Comovement Among Countries Stock in The World

The basic theoretical concept of financial market or stock market integration is adopted from the law of one price. In integrated financial markets, the assets with the same risk in different markets will result in the same yield when measured in a common currency (Stulz 1981). However, if the yields are different across the markets, the arbitrage process will play an important role in eliminating the differences. Operationally capital markets integration refers to the extent that markets' participants are enabled and obligated to take notice of events occurring in other markets by using all available information and opportunities, while financial market integration is defined in terms of price interdependence between markets (Kenen, 1976). Moreover, stock market integration is affected by some factors (Roca 2000), such as:

1. Economic integration, which means that the more integrated the economies of countries, the more integrated their equity markets.
2. Multiple listing of stocks. This implies that a shock in a particular stock market can be transmitted to other stock market through shares listed in both markets
3. Regulatory and information barriers. The higher the barriers, the lower the degree of stock market integration.

4. Institutionalisation and securitisation. As institutions are more willing to transfer funds overseas to increase their diversification opportunities, the integration will be promoted.
5. Market contagion. The prices between stock markets can move together due to a contagion effect, and this contagion effect determines significantly the dynamic relationships between international stock markets. However, in emerging stock markets, this effect might be smaller than what is widely perceived.

Comovement is explicitly defined as a pattern of positive correlation (Barberis et al., 2002). However, positive correlation is unclear term and can portray many types of relationships. More precisely, comovement depicts a phenomenon of an asset price moving with another asset price. Moving with is the movement that is shared by all assets or movement that all assets have in common (Baur, 2004). Growing globalization among economies of the world has increased attention of academics and investors to the subject of comovement among the stock markets around the globe (Hoque, 2007). In today's rapid moving finance world, there are abundant factors integrating financial markets to each other. The existence of robust trading and economic links, the escalation in liberalization activities of governments, the expansion of international finance and trade, swift developments in trading systems and telecommunication, and the establishment of common trading blocs such as European Union, NAFTA, SAARC and ASEAN are some factors contributing to financial integration (Aktan et al., 2009). Similarly, (Benie and Candelon, 2007) reported positive impact of financial and trade

liberalization reforms on the degree of cross country equity market linkages. Likewise, (Gelos and Sahay, 2000) claimed that the presence of strong policy coordination and economic ties between related countries can indirectly connect their stock indices over time.

Rua and Nunes (2009) used monthly data from January 1973 to December 2007 and investigated comovement of stock market returns between Germany, Japan, United Kingdom and United States. They used special type of test i.e. and United States. They used special type of test i.e. simultaneously. Noteworthy finding of this paper was that the strength of the comovement of international stock returns depends on the frequency. As they found that comovement between markets was stronger at the lower frequencies i.e. in longterm benefits of international diversification was less important. They also found that the strength of comovement varied across countries as well as sectors. Karim and Karim (2009) examined equity market integration between the emerging equity market of Indonesia and its key trading partners the US, Japan, China and Singapore by using autoregressive distributed lag (ARDL) approach on weekly stock price data ranging from July 1998 to December 2007. The results provided the evidence of cointegration among Indonesian equity market and its major trading partners. Thus, there was limited opportunity for international portfolio diversification in those markets. Furthermore, any development in the US, Japan, China and Singapore markets should be considered by the Indonesian government for making stock market policy. Aktan et al. (2009) examined the linkages among the stock markets of the BRICA countries (Brazil, China, Russia,

India and Argentina) and their relations with the US stock market on daily data from January 2002 to February 2009. They employed the vector autoregression techniques which showed the significant effect of US market on all BRICA countries in the same trading day.

2.2 U.S. Sub-prime Crisis

Since 1925, United States has Mortgage Act, regulations relating to the property sector, including mortgages. All U.S. citizens can get easy credit property ownership, such as mortgages. Ease of credit occurs when property prices in the U.S. is rising. Enthusiasm makes the property market speculation in the sector increased. The provider of property loans with a fixed rate for three years. It made a lot of people buy houses and hopes to sell within three years before the interest rate adjusted (Kuncoro et al., 2008).

The problem is, many property financial institutions lending in the United States disbursed loans to people who actually do not deserve to get financing. They are people with a background of *non-income non-job non-activity* (NINJA) who do not have the economic strength to complete the dependent credit that they borrow. That situation led to the credit crunch in the property sector (subprime mortgage). Furthermore, credit jammed in the property sector resulted in a domino effect collapse of major financial institutions in the United States because the property financing agency generally borrow short term funds from other parties, including financial institutions (Kuncoro et al., 2008).

Assurance provides by mortgage financing property is debt, like subprime mortgage securities, which were sold to investment institutions and investors in various countries. In fact, debt is backed by debtors' guarantee which has low ability to pay his mortgage. With greater numbers of delinquent property loans, finance companies cannot meet its obligations to financial institutions, both investment banks and asset management. It affects the liquidity of capital markets and banking system (Kuncoro et al., 2008).

After that, there was a draining liquidity of financial institutions because they do not have funds to pay the existing obligations. This inability to pay such obligations makes another financial institution that provides loans are also threatened with bankruptcy. Conditions faced by major financial institutions in the United States also affect the liquidity of other financial institutions, which originated from United States and from outside United States. This condition happened especially to institutions that invest their money through financial institutions instruments in the United States. This is where the global financial crisis began (Kuncoro et al., 2008).

To avoid the spread of the subprime mortgage crisis that bring bad effects to the United States' economics, the government and the Federal Reserve (Fed) issued a policy to help some of the major financial institutions. The effort is well packaged in monetary policy to reduce inflation and stabilize the U.S.dollars exchange rate. Anticipatory action in the United States has begun on the 5th of September. At that time, the U.S. government took over finance companies named

Fannie Mae and Freddie Mac for restructuring the company's cash flow (Kuncoro et al., 2008).

Subsequently, on September 16th, 2008 the Federal Reserve (Fed) provided loans of USD 85 billion to American International Group to acquire 80 percent stocks of the insurance company. On September 18th, 2008 the U.S. government asked Congress to approve economic rescue package, in the form of government bailout funds USD 700 billion. President George Bush declared the U.S. economy was in a danger situation if Congress did not approve the bailout plan (Kuncoro et al., 2008).

Nevertheless, on September 29th, 2008 U.S. Congress rejected the bailout plan. As a result, the Dow Jones dropped 778 points, at the most dropped position in the history of United States' stock markets. Finally, on October 3rd, 2008 Congress approved the bailout. Furthermore, President Bush signed the Emergency Economic Stabilization Act of 2008. Legislation that includes the disbursement plan of government bailouts equal to USD 700 billion to take over several lossy companies and financial institutions in the U.S. capital markets (Kuncoro et al., 2008).

2.3 U.S Global Financial Crisis

Subprime mortgage problem in the United States actually have been seen since August 2007. It was already suspected to be a subprime bubble, but the U.S. government continues to disburse money and lowering interest rates to lift the declining technology industry sectors. U.S. government efforts in disbursing

government bailout equal to USD 700 billion, only temporarily reduce the market distortion because the majority of investors around the world are forced to sell their portfolio shares on a large scale to cover the liquidity needs. As a result, the world capital markets falling to pieces (Kuncoro et al., 2008).

In particular on Wall Street, the majority of investors who suffered losses when the stock index fell 777.7 points – as the result of the bailout refusal by the House of Representatives -, were also selling their portfolio invested in various countries, including in Indonesia. On October 10th, 2008 the stock index in various countries fell again. Ten central banks from various countries lower their interest rates so that the lossy investors' debt were not getting bigger. Until August 2008, the crisis resulted greater number of unemployed in Britain to 1.79 million people or 5.7 percent of the workforce. According to the International Labor Organization, this was the worst unemployment rate since July 1991. All signals showed the U.K. economy was heading into recession. The International Monetary Fund (IMF) forecast the Queen Elizabeth country's economic growth next year would be minus 0.1 percent (Kuncoro et al., 2008).

Economic crisis wave had hit Eastern European countries. Loans that used to be so easily available in the financial markets are now beginning hard to come by. Ukraine had submitted a loan proposal of USD 14 billion to the International Monetary Fund in order maintaining its liquidity. Hungary even had a debt of USD 6.7 billion to the European Central Bank. Meanwhile, the International Monetary Fund estimated Estonia and Latvia would be the worst victims. Estimated Estonia's economic growth in 2008 was minus 1.5 percent and 0.5

percent next year. Latvia's economic growth in 2008 would be minus 0.9 percent and minus 2.2 percent in 2009. Several countries relying revenues from oil or gas, such as Russia, also hit by its falling commodity prices (Kuncoro et al., 2008).

2.4 Efficient Capital Markets

When the economists say efficient securities market, it's not mean that the archive system is very sophisticated and shiny clean tables. Efficient securities markets means the relevant information has been reflected in the such securities price. Formally an efficient capital market is defined as a market which the price of its securities already reflect all relevant information. The faster new information reflected in security prices, the more efficient capital markets. Thus, it would be very difficult for investors to earn above normal rates of return consistently by doing trade transactions on the stock exchange. Efficiency in this sense often referred as informational efficiency (Husnan, 2009). In addition to the terms of the availability of information, the form of market efficiency can be also seen from the sophistication of market participants in making decisions based on analysis and information available. Efficient market evaluated from the shophisticated point that market participants make decisions based on available information referred to decisionally efficient market (Hartono, 2009).

2.4.1. The Information Market Efficiency

The main key to measure an efficient market is the relationship between information and the security prices. Fama (1970) presents three main forms of

market efficiency based on three different forms of information, including past information, current information that now being published and private information.

1. Weak form market efficiency

A market consider as in a weak form efficient if the prices of the securities is fully reflect the past information. Past information is information that is already happening. A weak form of market efficiency is related to the random walk theory which states that past data is not related to the current value. If the market is in a weak form efficient, then the past values cannot be used to predict current prices. This means that for weak form efficient market, investors cannot use past information to obtain benefits that are not normal.

2. Semi strong form market efficiency

A market consider as in a semi strong efficient market if the prices of the securities fully reflect the all publically available information including information in the financial statements of the issuer company. The information can be published as follows:

- a. Published information that only affects the price of securities of the firms that publish such information. This published information usually formed as an announcement by the issuer company. This information is generally associated with events that occurred in the issuer company (corporate event). Examples of this published information such as earnings announcements, dividend

announcements, announcements of new product development, merger and acquisition announcements, announcement of changes in accounting methods, change of company announcements, etc.

- b. Published information that affects the prices of several securities companies. This published information could be governmental regulation that only affects the prices of firms affected by this regulation. Examples of this information such as a regulation to increase the reserve requirement that must be met by all banks. This information will not only directly affect the banks' security prices, but perhaps all the issuers in the banking industry.
- c. Published information that affects prices of securities of all companies listed on the stock market. This information may be regulatory or governmental regulation that affects all of the issuer. Examples of this regulation such as accounting regulation to mention cash flow statements that must be done by all companies. This regulation will affect the price of the securities not only to one company or firms in an industry, but also may have a direct impact to all companies.

If the markets are in semi strong form efficiency, then no investor can use the information published to obtain abnormal profits in the long term.

3. Strong form market efficiency

A market consider as in a strong efficient market if the prices of securities fully reflect all of the available information including private

information. If markets are in this form, then no investor can earn abnormal return because it has private information.

2.4.2 Market Efficiency by Decision

The distributions of market efficiency (weak form market efficiency, semi strong form market efficiency, and strong form market efficiency) is based on the availability of information. This efficiency of such markets called informationally efficient market. For information that doesn't need to be further processed, such as company's earnings announcement, the market will digest the information quickly. Thus for information such as earnings announcements, market efficiency is not determined by how advanced information processing market profits, but how widely the information is available on the market.

However, the information that still needs to be further processed; the availability of information alone doesn't guarantee the market will be efficient. For example, the information about company's merger announcement by the issuer. At the time information was announced and all market participants have already received such information, it is not necessarily the price of its securities will reflect the full information. The reason is the market participants should interpret and analyze such merger information as a good news or bad news. It is not always a merger announcement is good news or bad news. Different with the announcement of earnings that can be easily interpreted as good news or bad news. If profits increase from the prior period earnings, it means as good news, and if the earnings decline can be interpreted as bad news. Interpretation of the

merger announcement as good news or bad news requires extensive analysis to estimate the impact of information into security prices. To process this information correctly, market participants must be sophisticated. If only some of the market participants are sophisticated, then this group can enjoy the abnormal benefits because they can interpret the information accurately than the naive market participants. Although the information is available for all market participants, but inefficient market can be happened, because there are some players who can make abnormal profit because of its sophistication. Thus the distribution of market efficiency based on the availability of information alone is not enough. Market efficiency also should be based on the sophistication of market participants to process information for decision making.

Market efficiency by decision is also a form of semi strong market efficiency referred to Fama version which is based on the information distributed. The difference is if the informational efficient market considers two factors, namely the availability of information and sophistication of market participants. Because there are a lot of factors in determining an efficient market, market efficiency by decision is higher semi strong form market efficiency compare to the semi strong market information form.

Efficient market information is not necessarily efficient in the decision. For example, a nail dividend payment announcement of the previous period and this information are available to all market participants at the same time. Generally, the issuer companies use dividends as a signal to market participants. By increasing the value of dividends paid, the issuers try to give a signal that the

company has good prospects in the future because they can increase the dividend payments. Conversely if the company cut its dividend, it would be regarded as a bad signal because it will be considered as lack of liquidity. Less sophisticated market participants will receive an increase in dividends just as a good signal without further analyzed and the security prices will fully reflect this good news. By definition, this means that the market is in a semi strong efficient form of information.

On contrary, sophisticated market participants will not be easily fooled by the issuer. Sophisticated market participants will further analyze the information regarding to the announcement of dividend payments to determine whether payment of the dividend announcement is a signal that valid and reliable. If the signal is not valid (apparently the company didn't have good prospects) and for unsophisticated investors, a positive reaction to the increased dividend payment information is not true, so it can be said the market is not efficient because they take the wrong decision. If the decision market is efficient, then market participants will be able to know that the signal is not the real signal. As a result, investors will assume the information is not as good news, but perhaps as a bad news, because increased dividend payments for companies that do not have good prospects will lead to liquidity problems. Therefore, the sophisticated market players will understand that the given signal was a wrong signal; investors will react to the contrary, as reflected in the negative price of the issuer's securities to such information. Thus, to find out whether the market is in efficient decision is not enough just by looking the information efficiently but also to know whether

the decisions made by market participants and investors are correct and not fooled by the market.

An efficient information market is a fair market, so that the organizers of the market and regulators trying to make the stock market as efficiently as possible. Said to be a fair market for all market participants are expected to get the same information and the quality and amount received at the same time so that no investor can enjoy abnormal profits at the expense of other investors. Therefore the capital market regulator (such as the SEC in the United States or Bapepam in Indonesia) tried to make the information required to be available in the market at large, for example by requiring the disclosure of important information by the issuer company. Available information alone cannot make efficient market decisions. To lead to an efficient market decision, education will be essential to create a sophisticated market player.

2.5 Hypothesis

A research done by Dooley and Hutchison (2009) explained that there was a long gentle decline in U.S. equities at the start of subprime crisis in mid of 2007 through September 2008. The stock market indices in both U.S. market and emerging markets exhibited a dramatic decline in September with extreme volatility after that. The reason given was that the news announcements such as Lehman bankruptcy led to a massive impact on the equities markets and transmission of such impact to emerging markets was discovered. This finding is consistent with the results by Celikkol et al (2010) regarding the increase of

volatility of Turkey price index (ISE-100) after the bankruptcy of Lehman Brothers. Besides, similar examination was employed by Longstaff (2010) exposed that there was financial contagion spillover across to other financial markets as the Subprime crisis developed.

Another recent study was found by Ramlall (2010) regarding the influence of Subprime crisis on volatility clustering and leverage effects in major international stock markets. Evidences revealed that volatility clustering had increase after the Subprime crisis. The report also supported findings by Dooley and Hutchison (2009) that there was transmission of Subprime crisis to other emerging stock markets. At the same time, the leverage effect in post crisis was higher compare to pre crisis period in most of the international stock markets studied. The volatility due to negative shocks was found to be more pronounced in post crisis than pre crisis while the volatility due to positive shocks showed reverse pattern. Based on the above the proposed, this research hypotheses is:

Ha1: There is intensity difference before and after U.S. sub-prime crisis at emerging capital market index.

Lee (2012) examines whether the sub-prime mortgage financial crisis of 2007 influenced the stability of the correlation structure in international stock markets. Heteroscedasticity biases based on correlation coefficients are used to test for the contagion effect, across 20 economies. The results indicate that six (Canada, Korea, Hong Kong, Taiwan, Australia and New Zealand), nine (Canada, Argentina, Japan, Korea, Hong Kong, Taiwan, Malaysia, Australia and New

Zealand) and five (China, Hong Kong, Taiwan, Australia and New Zealand) international stock markets displayed contagion for one, three and six months after the sub-prime mortgage financial crisis of 2007 in US respectively. Those countries of suffer from the contagion effect, which Hong Kong, Taiwan, Australia and New Zealand are most significant. Based on the above the proposed, this research hypotheses is:

Ha2: There is intensity difference before and after U.S. sub-prime crisis at developed capital market index.

Diamandis (2009) provides an analysis on the issue of international financial linkages by examining the existence of common stochastic trends between four Latin America emerging capital markets (Argentina, Brazil, Chile and Mexico) and the US. The analysis was carried out by estimating the autoregressive and moving average representation of a cointegration system. This study achieved four main results: 1) the four Latin America emerging stock markets and the mature US market are partially integrated; 2) the five stock markets have four significant common permanent components which drive their system in the long run; 3) the Latin America markets are more influenced by, and contribute more, to the common trends than the US market; and 4) there were significant short-run deviations from the common stochastic trends during the 1994-1996 Mexican crisis and the 2001 financial crisis which were documented for all markets under investigation. These transitory deviations are short-lived. .

Based on the above the proposed, this research hypotheses is:

Ha3: There is intensity difference before and after U.S. sub-prime crisis among emerging capital market index and developed capital market index.

