Fertile Ground to Establish a Derivatives Market:

Case Study Approach*

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ABSTRACT

For emerging capital markets, making a decision to introduce a derivatives market is not easy. Many officials of emerging markets are cautious in opening their derivatives markets because of their large influence on the underlying cash markets. The expression a tail wagging the dog is often found in describing how derivatives trading can impact underlying cash trading.

Many studies have investigated the conditions and criteria under which a derivatives market can be successfully established in a country. In this paper we put together these conditions and synthesized into eight different determinants that could be used as a benchmark to see if a market is ready to launch financial derivatives products. They are economic background, political climate, legal and regulatory framework, infrastructure, capital market development, investors, and products traded, education and feasibility study. The Korean and Indonesian markets were selected as examples of a successful and a unsuccessful cases in launching derivatives. The market success criteria was the trading volume. We also selected the Turkish market as an independent case. The Turkish derivatives market is relatively new and located in a different geographical zone. Then each determinant was compared for Korea, Turkey and Indonesia to see if there is any remarkable difference in the three markets. We find that Korea and Turkey were able to meet the requirements while Indonesia was not as its economy and stock market were not in the solid growth path and the political climate was unstable.

It is important for emerging market stakeholders to understand what it takes for a derivatives market to be successful and hopefully emerging countries which have not yet established their own derivatives market, would seriously consider examining whether their respective markets meet the above mentioned determinants.

Key Words Derivatives Market, Emerging Capital Markets, Korea, Indonesia, Turkey

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Ⅰ. Introduction

When one invests in the stock market, he or she must live with the ups and downs of the market. No stock is immune from a variety of financial risk. For instance, the stock market that a stock is listed is influenced by changes in interest rates, exchange rates, and the movement of global funds among others. Investors, then, demand for a tool to manage the risk they are exposed to, which is calling for establishment of a derivatives market.

However, not all markets are successful in introducing derivatives. The question that this paper attempts to shed some light is what makes some markets succeed in derivatives trading and others not? Are there any underlying factors that raise the probability of launching a new derivatives market highly successful? In fact, several papers[1] have outlined a wide range of preconditions or necessary factors that are required before a derivatives exchange is established. Compliance with these factors may lead to the success of the exchange once established while non-compliance in part or whole would contribute to failure of the derivatives exchange.

To see whether these conditions can be empirically validated, we conducted a comparative case study of two emerging markets that share some historical and cultural similarities and differences, which have successfully or unsuccessfully established derivatives exchange. Markets from the same geographical regions are more likely to share some

1) Detailed explanation is made in the next section.

historical as well as cultural similarities as opposed to those of different geographical regions. The geographical segmentation[2] as used by the Futures Industry Association (FIA) and the Global Stock Market Fact book is applied.

The Korea Exchange (KRX) started to trade equity index futures in 1996 and its index options has been one of the most widely traded exchange-traded derivatives products in the world. KRX can therefore be termed as a successful derivatives market and is thus selected as the best case study for successful derivatives introduction.

Note that the success of a derivatives exchange to a large extent depends on choice of products traded. If the products are successful, so is the exchange and vice versa. Black (1986) states that a successful product is defined as one with a high trading volume, attracting a lot of trading interest, and drawing many people to trade. She classifies a contract as unsuccessful if its daily average trading volume is less than 1,000 contracts[3].

The Indonesian Exchange (IDX) was selected as an unsuccessful derivatives market based on the trading volume of its index futures. For the first three years since its opening in 2001, IDX recorded a daily average below 1,000 contracts as shown in Table 1. By the end of the first year (t_0), IDX's daily average trading volume was 525 contracts while KRX's contracts were 3,670. In subsequent years the Indonesia derivatives market experienced a decline in the daily average trading volume from 525

2) Africa, Asia-Pacific, Europe, Latin America, Middle East, and North America.

3) For a contract to be termed as successful, according to Black (1986), it should record more than 1,000 daily average contracts for at least the first three consecutive years since its launch.

〈Table 1〉 Korea, Indonesia, and Turkish Derivatives Exchange Index Futures Trading Volume
(Korea t0= 1996, Indonesia t0= 2001, Turkey t0 = 2005)

		t0	t+1	t+2
Volume (contracts in 000)	Korea	716	3,252	17,894
% Change			(+354)	(+450)
	Indonesia	128	96	17
			(-25)	(-83)
	Turkey	100	1,866	14,852
			(+1,766)	(+696)
Daily Avg. (contract)	Korea	3,670	11,137	61,279
	Indonesia	525	392	72
	Turkey	430	7,435	58,940

Source: World Federation of Exchanges, Korea Exchange (KRX), Indonesia Exchange (IDX), Turkish Derivatives Exchange (TurkDEX)

contracts to 392 and 72 contracts in the second and third year, respectively.

As an independent case and as one of the newly established derivatives exchanges from a region different from Asia, the Turkish Derivatives Exchange (TurkDEX) is selected to be examined simultaneously with Korea and Indonesia to see the validity of the relationship between its trading activity and its readiness prior to opening of its market. The TurkDEX started trading in 2005 and its products are equity index futures, currency futures, interest rates futures, and commodity futures.

Since the trading started, the exchange has recorded big increases in trading volume especially in the equity index[4] and currency futures. In 2008, the FIA named TurkDEX as one of the fastest growing exchanges in the world. ISE 30, which is its equity index, recorded more than 1,000 daily

4) ISE-30 Index Futures

average contracts traded by the second year with an 1,629% increase from the initial year. Thus, TurkDEX can be termed as a successful derivatives exchange just like the Korea Exchange.

In the next section, the determinants of derivatives exchange success are laid out, and the necessary data of Korea, Indonesia, and Turkey that best describe those determinants are extracted, compared and analyzed to see whether these factors have any distinguishing ability to forecast how launching of derivatives markets in the respective countries will be resulted. A summary and conclusion are in the final section.

II. Country Comparison and Analysis

1. Introduction

Fratzscher (2006), Jobst (2006, 2007), Tsetsekos and Varangis (1997, 2000) and Unis (1997) have outlined a wide-range of necessary factors that are required before a derivatives exchange is established. They are economic background, political climate, legal and regulatory framework, infrastructure, capital market development, education, investors, and feasibility study.

These pre-conditions of the three countries, Korean, Indonesia, and Turkey, are compared according to the determinants of successful derivatives market in this section. The comparison analysis can result in one of the following four scenarios. First, a country qualitatively meets those conditions prescribed as determinants of successful derivatives market and succeeds in establishing a derivatives market. A country falls short of meeting the conditions and fails to establish a successful

derivatives market. A country does not meet the conditions but establishes a flourishing market. Lastly, a country meets the conditions, but fails to establish an active market. If all three sampled countries fall in the first two scenarios, then it is easy to say that given our sample countries if a country follows the prescribed determinants, its probability of establishing a successful derivatives market is relatively high. However, if our sample countries fall in the last two scenarios, then it could be that the prescribed conditions are inadequate or some conditions are redundant.

2. Economic Background

A comparison of Korea, Indonesia, and Turkey's economic conditions prior to establishments of their derivatives markets is as shown in Table 2. The table shows the differences between these countries in various economic indicators in a five-year period prior to the introduction of their respective derivatives market. Korea recorded a continuous growth in GDP from US$308 billion in t-5 to US$557 billion in t0 recording an 81% increase and a 25% decrease in GDP growth rate. Note that t0 is the year the derivatives market is established and t-5 is five years preceding the establishment. Indonesia's GDP on the other hand declined from US$227 billion in t-5 to US$160 billion in t0 recording a 30% drop and a 53% decrease in GDP growth rate. Although Turkey had a lower GDP than Korea, it also recorded an 81% increase in GDP from US$267 billion at t-5 to US$483billion at t0. The GDP growth rate increased from 6.8% in t-5 to 8.4% in t0.

The inflation as measured by GDP deflator[5] shows Korea's inflation

5) GDP deflator unlike other measures of inflations like CPI is not based on a fixed basket of goods and services. The basket is allowed to change with people's consumption and

rates fell from 10.7% in t-5 to 5% in t0 compared to Indonesia' s inflation rates which increased from 8.9% in t-5 to 14.3% in t0. Turkey similar to Korea exhibited a decrease from 49.2% to 7.1%. The low declining inflation rates in Korea and Turkey are good to encourage investments and savings. High inflation rates as those presented in Indonesia usually causes adverse effects as it causes uncertainty in the economy thus discourages investment and saving. In a growing economy, there is a higher probability of capital market developing and by extension, derivatives market succeeding. On the other hand, a declining economy, there is less chances of capital markets developing and this may result to unsuccessful derivatives market once established.

Changes in interest rates have a great significance in economic growth. Economies use interest rates to encourage savings or investments. When the interest rates are low, they encourage borrowing and investments thus encouraging economic expansion. However, to control investments and also encourage savings, the interest rates are raised. In Korea, though the short-term interest rates were relatively high, they fell gradually from 7% in t-5 to 5% in t0. This may have encouraged investments and economic expansion. Indonesia on the other hand recorded a very high increase in interest rates especially during the financial crisis where the rates were raised to curb the capital flight. To combat inflation Turkey had very high interest rates but eventually it was able to tame the inflation and the interest rates fell to 23%.

investment patterns. (Specifically, for GDP, the "basket" in each year is the set of all goods that were produced domestically, weighted by the market value of the total consumption of each good.). It thus reflects up to date expenditure patterns in a given country.

An increase in foreign exchange rate is usually referred as a devaluation of the local currency which leads to an expansion in the economy through a rise in exports. Korea's foreign exchange rate increased slightly by 10% from 733 to 804 in t-5 to t0. Though Indonesia recorded a higher increase from 2,342 to 10,261 in t-5 to t0 value, this was mainly due to the 1997/98 financial crisis which led to massive sale of the local currency (Indonesian Rupiah) against other major currencies. Turkey experienced a devaluation of 115% due to the 2001 financial crisis[6], but the its exchange rates strengthened starting four years prior to the introduction of its derivatives market. Korea's unemployment rates fell from 2.4% in t-5 to 2.0% in t0. On the contrary Indonesia and Turkey recorded an increase from 4.4% to 8.1%, and from 6.5% to 10.6%, respectively.

For both Korea and Turkey, the economic indicators showed encouraging signs. The GDP level is positively growing with decreasing inflation and interest rates. Korea's exchange rates hovered between 733 and 804 while those of Turkey devalued significantly four years prior to the derivatives market opening but since then, they showed a steady path of strengthening. In the case of unemployment, Korea maintained low rates throughout the period prior to the introduction of derivatives trading while Indonesia and Turkey were experiencing a rising trend in unemployment. Overall, Korea exhibited the best outlook in opening a derivatives market based on the economic figures and Turkey also showed a solid economic status except for the unemployment rate trend. In contrast, Indonesia

6) Just like Korea was hit by financial crisis in 1997/98, Turkey also experienced financial crisis in 2000/01 caused mainly by the fragile banking sector. In both countries, the IMF intervened to stabilize the situation (Ozatay and Sak, 2002)

〈Table 2〉 Comparison of Korea, Indonesia, and Turkish Economic Factors

(Korea t0= 1996, Indonesia t0= 2001, Turkey t0 = 2005)

		t-5	t-4	5-3	t-2	t-1	t0
GDP (Millions US$)	Korea (+13)*	308,185	329,886 (+7)	362,136 (+10)	423,434 (+17)	517,118 (+22)	557,644 (+8)
	Indonesia (+0.8)*	227,370	215,749 (-5)	95,446 (-56)	140,001 (+50)	165,021 (+18)	160,447 (-3)
	Turkey (+15)*	266,568	196,005 (-26)	232,535 (+19)	303,005 (+30)	392,166 (+29)	482,980 (+23)
GDP Growth rate (%)	Korea (-2)*	9.4	5.9 (-37)	6.1 (+6)	8.5 (+39)	9.2 (+8)	7.0 (-24)
	Indonesia (-7.4)*	7.6	4.7 (-38)	-13.1 (-379)	0.8 (-106)	4.9 (+513)	3.6 (-27)
	Turkey (+76)*	6.8	-5.7 (-184)	6.2 (209)	5.3 (-15)	9.4 (+77)	8.4 (-11)
Inflation rates, GDP deflator (%)	Korea (-11.6)*	10.7	7.6 (-29)	6.3 (-17)	7.8 (+24)	7.4 (-5)	5.1 (-31)
	Indonesia (+94.6)*	8.9	12.6 (+42)	75.3 (+498)	14.2 (-81)	20.4 (+44)	14.3 (-30)
	Turkey (-29.8)*	49.2	52.9 (+8)	37.4 (-29)	23.3 (-38)	12.4 (-47)	7.1 (-43)
Forex (Local currency per US$)	Korea (+1.8)*	733.4	780.7 (+6)	802.7 (+3)	803.4 (0)	771.3 (-4)	804.5 (+4)
	Indonesia (+55)*	2342.3	2909.4 (+24)	10013.6 (+244)	7855.2 (-22)	8421.8 (+7)	10260.9 (+22)
	Turkey (+21.6)*	0.625	1.226 (+96)	1.507 (+23)	1.501 (0)	1.426 (-5)	1.344 (-6)
Interest rates** (%)	Korea (-5.8)*	7.00	7.00 (0)	5.00 (-29)	5.00 (0)	5.00 (0)	5.00 (0)
	Indonesia (+17.2)*	12.80	20.00 (+56)	38.44 (+92)	12.51 (-67)	14.53 (-16)	17.62 (+21)
	Turkey (-16.2)*	60.00	60.00 (0)	55.00 (-8)	43.00 (-22)	38.00 (-12)	23.00 (-39)
Unemployment rates (%) per total labor force	Korea (-3)*	2.4	2.5 (+4)	2.9 (+16)	2.5 (-14)	2.1 (-16)	2.0 (-5)
	Indonesia (+13.8)*	4.4	4.7 (+7)	5.5 (+17)	6.3 (+15)	6.1 (-3)	8.1 (+33)
	Turkey (+11)*	6.5	8.4 (+29)	10.3 (+23)	10.5 (+2)	10.8 (+3)	10.6 (-2)

* Simple average increase rate in percentage

** Interest rate: Short-term policy rates are used. For Korea it is the discount rate; For Indonesia it is the Central bank policy rate; For Turkey it is the discount rate.

Sources: World Bank, IMF

experienced various problems and was not fully recovered from the financial crisis when it was establishing a derivatives market in 2001. The dwindling growth rates, high and increasing inflations rates as well as high and growing unemployment rates in Indonesia may have inhibited the developments of capital market and hence derivatives market.

We can therefore infer that high GDP levels, increasing growth rates, low and declining or stable inflation as well as unemployment rates are good indicators for a ready economy that can support a derivatives exchange.

3. Political Climate

Korea, Turkey and Indonesia's economic distress variables are compared in Table 3. The variables are the measures of political instability advocated by Brink (2004), Pin and Marcel (2008), and the Economist

〈Table 3〉 Comparison of Korea, Indonesia, and Turkish political factors
(Korea t0= 1996, Indonesia t0= 2001, Turkey t0 = 2005)

		t-5	t-4	5-3	t-2	t-1	t0
FDI net inflows (Mil US$)	Korea	1,180	728	588	809	1,776	2,325
	Indonesia	6,194	4,677	-241	-1,866	-4,550	-2,977
	Turkey	982	3,352	1,082	1,702	2,785	10,031
GDP growth rate	Korea	9.4	5.9	6.1	8.5	9.2	7.0
	Indonesia	7.6	4.7	-13.1	0.8	4.9	3.6
	Turkey	6.8	-5.7	6.2	5.3	9.4	8.4
GDP Per capita, PPP	Korea	8,969.6	9,613.4	10,325.9	11,354.5	12,465.1	13,481.5
	Indonesia	2,478.2	2,607.8	2,265.7	2,285.6	2,416.9	2,527.5
	Turkey	8,866.1	8,318.3	8,364.2	8,478.6	9,802.0	10,977.3
Unemployment rates	Korea	2.4	2.5	2.9	2.5	2.1	2.0
	Indonesia	4.4	4.7	5.5	6.3	6.1	8.1
	Turkey	6.5	8.4	10.3	10.5	10.8	10.6

Sources: World Bank

Intelligence Unit (EUI).

Brink (2004) found that changes in the political climate of a country can results in risks that might impact negatively on a foreign operation's viability and profitability thus lowering the foreign investments in the country. Political instability leads to uncertainty in the future of the country prompting most investors to keep off from investing in the country and/or to withdraw their investments. The first indicator analyzed is the change of FDI as a measurement of political instability. Korea recorded a steady increase in the net inflow of investment between t-5 and t0, the FDI inflows doubled from US$ 1 billion to US$ 2 billion signifying the confidence of the investors in the Korean market. Turkey performed even better increasing from US$ 0.9 billion to US$ 10 billion. Thus, they can be taken to denote a stable political climate prior to and after the introduction of derivatives. In contrast, Indonesia FDI net inflows dropped from a high of US$ 6 billion in t-5 to a low of US$ -3 billion in t0. The negative sign indicates the withdrawal of investments by the foreigners. The largest declines were recorded in t-4 and t-3, 1997 and 1998 during the financial crisis which resulted to strikes, massive destruction and forceful removal of the president from power. This therefore supports the relationship of FDI with political stability in a country as many investors kept away from investing in Indonesia during this period. In addition to FDI, Korea also recorded increases in foreign portfolio investment.

Looking into the EIU economic distress factors, a decline of more than 4% in GDP growth rate, an unemployment rate of more than 10% and a GDP per capita of less than US$ 3,000 in a given year signifies political instability of significant risk. Korea's growth rate over the t-5 to t0 period declined by 2% annual rate, the unemployment rate was below 3% in all

the years and the GDP per capita was higher than US$ 8,000. They are all above the EUI cut off points for significant risk or political instability. We can thus infer from these indicators that Korea enjoyed a period of political stability necessary for development. Other than the unemployment rate of 10.6%, the figures of Turkey also indicate the distress factor was negligible. Over the same period, Indonesia' s growth rate declined on average by 7% annually and the GDP per capita was less than US$3,000. However, the unemployment rates was less than 10%. All these factors demonstrate that Indonesia had higher risk than both Korea and Turkey, which may lead to political instability.

In addition to the above determinants of political instability, the number of national strikes directed to government, change of government, change of presidents, and resignation of high government officials were also evaluated. In Korea, during the period t-5 to t0 (1991 to 1996) before the establishment of derivatives market, there were no anti-government protests recorded and neither were there resignations by top government officials as a result of dissatisfaction with the government. Free and fair elections were held in 1992 and President Kim Young-Sam[7] was elected for a single five-year term, a period characterized by political stability. These may have increased foreign investors' confidence on Korea' s market, leading to an increase in investments especially in t-2 and t-1.

Turkey experienced political turmoil since the Ottoman Empire in the 1920s to the mid 1990s, a period characterized by a high rate of change of the governments[8] as well as low economic growth. After the 1995

7) He presided over a massive anti-corruption campaign, the arrest of his two predecessors, and an internationalization policy called Segyehwa.

elections, stability was restored and has been maintained. There has been no coup, and democratic elections have been held regularly after every four years. Also, there were no demonstrations against the government or resignation of top government officials. As earlier discussed, this indicates political stability in Turkey which encouraged both foreign and local investment in the country.

In contrast, during the five-year period t-5 to t0 (1996 to 2001), Indonesia experienced enormous protests with huge destruction of property which led to Mr. Suharto's resignation in 1998. The next president, Mr. Habibie ruled for only a year before he was rejected by his party (Golkar). In October 1999 Mr. Wahid was elected as president but also only lasted until 2001 when he was impeached and removed from office by the parliament. During this period, several ministers resigned and others were sacked on unclear circumstances according to Greg (2002). This indicates that Indonesia experienced great political instability prior to the establishment of derivatives.

The stable political climate in Korea and Turkey in the period preceding the introductions of derivatives market meant higher chances for the exchange's success. However, the same cannot be said of Indonesia. Under the situation of political instability in Indonesia, there was less probability of the capital markets development hence resulting in an unsuccessful derivatives market.

8) In a span of 50 years, the Turkish people maintained four separate systems and almost 30 separate governments. Most of these governments either died out or were overthrown. Except between 1980 and early 1990s when there was political stability, during the one-party government which adopted a global-oriented economy program.

4. Legal and Regulatory Framework

A good regulatory framework as outlined by Fratzscher (2006), Jobst (2007) and WFE should include features like; self-regulatory, transparency and disclosure in the market, derivatives law, tax harmonization, level playing field, compliancy to the IFRS[9] which emphasizes on accounting standards and reporting among others.

The legal framework of Korean derivatives market is prescribed in the Futures Trading Act, which became effective in 1996. However, according to the addenda to the Act, equity-linked derivatives were subject to the Securities and Exchange Law. The Ministry of Finance and Economy regulates the stock index futures market as the ultimate government regulatory organization. In 2008, the Financial Services Commission (FSC) took over the policy-making authority from the Finance Ministry. It has power and responsibility to approve the listing of new derivatives products, supervise unfair trading and to control foreign investment. It also oversees the implementation and compliance of the capital market's laid down laws and rules.

As a self-regulatory organization (SRO), Korea Exchange maintains a fair and orderly market, and it is solely responsible for implementing the clearing and settlement operations. It also has a well laid down derivatives laws that clearly governs and administers the derivatives exchange. Under the Korean tax law, derivatives transactions are normally viewed as

9) International Financial Reporting Standards (IFRS) are standards and interpretations used in International Financial Reporting and is adopted by many countries. They are considered a "principles based" set of standards in that they establish broad rules as well as dictating specific treatments. Most countries have their Accounting and disclosure rules which are very similar to IFRS with very minimal difference.

financial services, which are not subject to VAT[10]. Derivatives transactions are also not subject to any stamp duties and/or transfer taxes (KPMG Korea, 2008). Unlike derivatives, other securities attract a significant transaction tax[11] whether they are listed or not. Unlike many other countries, Korea does not have capital gains tax on listed shares. For accounting and disclosure, Korea had not yet adopted the IFRS[12] at the time of derivatives introduction.

Just like Korea, Turkey has complied with most of the WFE legal and regulatory systems requirements. The Capital Markets Board (CMB) is the overall and single regulatory body for all kind of exchange-traded derivatives and it ensures that the market operates in a fair, transparent, and an efficient manner as stipulated in the Capital Markets Law. TurkDEX is a SRO but these regulations should comply and not overlap with CMB' s regulations. Turkey adopted IFRS in 2005 and all Turkish companies were required to comply with the new standards[13] as from 2006, when the IFRS was translated to Turkish. As for taxation, there are no specific rules relating to derivatives' products taxation but there is special tax treatment for other securities[14]. Most of the regulations meet the international

10) Instead, the Education Tax Law ("ETL") provides that companies engaging in a finance business enumerated in the ETL (e.g. banking, insurance, etc) are subject to education tax at the rate of 0.5 percent on income earned from derivatives transactions. In this case, the education tax base varies depending on the type of derivative transactions.

11) Korea tax rate on transactions is 30 basis point which is high compared to other countries like Japan and Australia which have scrapped the taxes. Information obtained from The Korean Securities Dealers Association (KSDA).

12) Korea has adopted IFRSs as Korean Financial Reporting Standards effective 2011, with early adoption permitted starting 2009. Indonesia has not yet implemented IFRS rules.

13) As from 2006, when the IFRS was translated to Turkish.

14) TurkDEX is tax free for foreign and domestic investors unlike other securities transactions which are taxed.

〈Table 4〉 Korea, Indonesia, and Turkish Regulatory Systems

Elements	Korea	Indonesia	Turkey
SRO	√	√	√
IFRS	◇	◇	√
Disclosure	√	√	√
Derivatives law	√	X	√
Tax harmonization	√	√	X
Legal Clarity	√	◇	√
Implementation	√	◇	◇

Sources: Korea Exchange; Indonesia Stock Exchange, Asia Development Bank
√ denotes best practice, ◇ denotes progress on existing deficiencies, X denotes major problems

standards, and CMB has made effort to comply with the European Commission (EC) regulations requirements. However, it lags behind in the implementation of these rules.

In the case of Indonesia, during the feasibility study, Pardy (1998) found the legislative and regulatory framework for financial derivatives were opaque, unclear and shallow. To begin with, there was lack of clarity in jurisdiction i.e., which laws and agency should govern derivatives. There were also no clear tax regulations for derivatives in regards to what will be taxed, at what rate, in what circumstances and when. Although the regulatory structure established by the Capital Market Law and implemented in over 300 Bapepam rules[15] is quite sophisticated and is generally considered to be at par with international standards, enforcement of these rules has lagged behind rule making due to lack of independence of the regulator as well as general permissiveness in business culture.

15) These rules and regulations cover wide areas including: the clearing and settlements systems, the accounting and disclosure rules, margin trading, licensing and registration among others. It also prohibits criminal activities like insider trading, money laundering, and securities frauds.

Prior to the establishment of derivatives in Indonesia, numerous regulatory adjustments and improvements were made as shown in Table 4. However, even after the derivative trading was established, the critical issue about jurisdiction was still not addressed. There was a struggle between the Indonesian Capital Market Supervisory Agency and the Indonesian Commodity Futures Trading Commission over jurisdiction of the Indonesian Financial Futures Market. Though clear law is a prerequisite for any securities market, it is not strictly observed in Indonesia and there are many loopholes. The Indonesia Central Bank is the overall regulator of financial services in Indonesia. According to the KPMG 2008 Indonesia' s derivatives tax report, Indonesia has no specific rules governing income recognized under derivatives transactions in the Income Tax Law or the implementing regulations. Therefore, there are cases where Indonesian legal entities prefer to exclude the unrealized gains and losses related to derivatives transactions from taxable profit. The law is also unclear regarding the withholding tax, VAT or stamp duty of derivatives transactions or income gains/losses and due to lack of such clarity and specific tax regulations, derivatives are treated like other services. The uncertainty about jurisdiction and lack of implementation of the established rules may therefore have resulted to exchange inefficiency and hence unsuccessful derivatives trading. In addition, most Indonesians have no confidence[16] in the judicial system and business people usually fear entering into any transaction that may need the intervention of the court since justice is not guaranteed. Hence, many potential investors do not

16) See: Herwidayatmo (2003).Rebuilding Market Confidence. Presented in The 5th Round Table on Capital Market Reform In Asia.

invest in the capital market thus adversely affecting the derivatives market.

As can be seen in Table 4, Korea and Turkey have better operational legal and regulatory system compared to Indonesia. According to Shalahuddin (2002), Indonesia, though it has several rules in book and in level with the international standards, has major handles in the clarity, enforcement and implementation of these rules. As mentioned by the chairman of Bapapem-LK, Mr. Herwidayatmo (2003), the poor regulatory framework in Indonesia led to loss of investors' confidence in the capital market. This therefore may have resulted to low trading and market illiquidity hence unsuccessful derivatives trading.

The importance of a functional legal-regulatory framework cannot be overemphasized. Every market should strive to comply with the WFE and other international organizations regulatory requirements. Regulations17) should be extensive, implemented and enforced. In case of any unfair trading practices or other malpractices, concerned people should be punished in accordance with the laws in place. This helps to build investors' confidence in the market, which is critical to the success of the derivatives market.

5. Infrastructure[18)]

After identifying the key areas of weaknesses in the infrastructure that could hinder the establishment and smooth flow of a derivatives exchange in Korea, important measures were put in place. Its trading systems were

17) They should neither be too strict to inhibit growth nor too loose so as it can protect the investors.

18) Most information is obtained from the Korea Exchange and Indonesia Exchange websites.

fully automated back in 1988 to enhance order flows and trade executions through an electronic trading platform. The clearing and settlement functions are carried out by two independent bodies. The clearing process is carried out by the Korea Exchange (KRX) which acts as the central clearing party (CCP) while the settlement is done by the Korea Securities Depository (KSD). Clearing process involves the confirmation of trading, revision of trading by mistake, take-over of obligation, netting (multilateral), instruction of payment, guarantee of settlement fulfillment and handling of settlement default.

Derivatives' trading in Turkey was allowed in 2001 and TurkDEX was set as a corporation in 2002. Between 2002 and 2005 when trading actually commenced, preparations were being made, particularly by putting in place the necessary infrastructure framework, prior to the establishment of derivatives exchange. TurkDEX is a fully electronic exchange which utilizes Exchange Operations System (TEOS) for trading and with continuous efforts to improve the current trading system. All the clearing is handled by the Takasbank[19], an independent company which acts as the central counter party clearing for both ISE and TurkDEX. It uses multi-lateral netting with final settlement done in T+2 days. To safeguard and protect its customers, TurkDEX uses market surveillance to ensure that trading is done efficiently and transparently. In addition, it has Guarantee Fund with paid-in capital of the clearing members in case of default.

19) Takasbank complies with the "Eligible Foreign Custodian" definition of the US SEC (Securities Exchange Commission) and is recognized by the UK SFA (Securities Futures Authority) as an "Approved Depository" and an "Approved Bank." It also complies with the standards predetermined by JSCC (Japan Securities Clearing Corporation) and JASDEC (Japan Securities Depository Center).

Information dissemination is done through data vendors. Just like KRX, it has both initial and maintenance margins though at different rates. The margin levels are determined and adjusted regularly according to market conditions. Similar to KRX, TurkDEX is also not demutualized. They both use circuit breakers to halt trading incase prices decline beyond pre-determined levels or in case of irregularity in trading. Market makers are used to provide and improve liquidity at the exchange. Both countries had similar infrastructural framework which enhanced smooth and efficient operation of the exchange, thus improving its chances of being successful.

During the feasibility studies on introducing derivatives market in Indonesia, Pardy (1998) concluded that the infrastructural system was not yet developed and needed to be addressed urgently. Various measures were henceforth laid down during the three year period prior to the establishment of the derivatives but they were not fully implemented. The clearing and settlement functions of both the stock and derivatives market are carried out by the Indonesian Clearing & Guarantee Corporation (KPEI) which serves as the CCP and carries out multilateral netting of the transactions. The clearing system is however not yet fully developed and requires major improvements. The clearing and settlement process takes T+3 trading days to be finalized. To enhance smooth order flow and execution, IDX has automated its operations and has market makers to improve liquidity. The order flow and trade execution is done through an automated system. In order to stabilize prices, circuit breakers are used to halt trading incase of a sharp decline in prices.

A summary and comparison of the infrastructures systems present in Korea, Turkey and Indonesia are given in Table 5. It gives the infrastructures elements

〈Table 5〉 Infrastructure Elements in KRX, IDX, and ISE

	Korea	Indonesia	Turkey
Cleaning and settlements	√	◇	√
CCP	√	◇	√
Netting options	√	√	√
Market mechanism	√	√	√
Market makers	√	√	√
Order-driven/hybrid	√	◇	√
Margin requirement(Initial)	√	√	√
Margin requirement (Maintenance)	√	X	√
Demutualization	◇	◇	◇
Circuits breakers	√	√	√

Sources: Korea Exchange; Indonesia Exchange, Istanbul Stock Exchange, Asia Development Bank

√ denotes best practice, ◇ denotes progress on existing deficiencies, X denotes major problems

available and how well they are implemented and enforced. Basic infrastructure requirements of clearing and settlements, market making, order flow and trade execution have been put in place in Korea, Turkey and Indonesia. IDX comparably has good infrastructure laid down and just like Korea, but its infrastructural elements still have deficiencies in various infrastructure systems. The biggest challenge of the IDX infrastructure is the implementation which inhibits the exchanges' smooth and efficient operations. This may have led to low trading volume and in turn unsuccessful derivatives trading. As Tsetsekos and Varingas (1997) concluded, implementation, monitoring, control and enforcement of the infrastructure elements discussed are important before and during derivatives trading. The elements enhance the smooth, transparent and efficient operation of an exchange, thus increasing the derivatives exchange chances of succeeding.

6. Capital Markets Development

1. Equity Market

As shown in Table 6, Korea and Turkey recorded different stock market indications though they had similar trends. However, the same cannot said of Indonesia. In the area of market capitalization, KRX and ISE recorded an increase in market capitalization while a 75% decline was witnessed in IDX. While ISE and KRX increased by 131% and 44%, respectively, from t-5 to t0. KRX' s capitalization was however higher than ISE' s market capitalization. In the area of liquidity, the ISE shares are turned over more frequently than the ones of the KRX. They are both very active markets while the IDX market, which relies more on institutional investors than retail investors, transactions occur less frequently. In the area of volatility, which measures stock price changes, on average, the Korean market is more stable than both ISE and IDX markets. In the area of trading volume and trading value, ISE recorded high trading volume compared to KRX, and IDX was the distant third. However, the trading value presented a different scenario. While KRX' s trading value doubled similar to its trading volume, ISE' s trading value increased minimally by 12% as opposed to the 600% increase in trading volume. This may indicate that ISE traded low priced shares which might be the reason behind the massive increase in trading volume. In terms of the number of listed companies, KRX had twice as many companies listed compared to IDX and ISE. Both KRX and IDX saw their listed companies increase but more companies delisted in ISE.

Both KRX and ISE recorded almost similar trends in stock market variables which were increasing in most cases except for ISE' s listed

companies. They were favorable and indicated the stock markets' readiness to the introduction of derivatives market. Borrowing from Levine' s (1996) conclusion, the disparities in KRX and ISE, and IDX stock market variables may thus explain the differences in the successful and unsuccessful derivatives trading in Indonesia, and Korea and Turkey, respectively.

It is therefore essential for a market to be large and liquid so that it can attract many participants and hence increase the trading volume, thus leading to an exchanges success according to Remolona (1992). Generally, the introduction of derivative instruments usually follows as a natural development of the domestic capital market.

2. Bond Market

During its early years, Korea government bond market was small and under-developed. Bond trading was minimal and was cumbered by a number of problems such as: small amounts of outstanding government bonds, almost no deficits of fiscal balances; issues were floated at odd intervals; issuing periods were usually for five years or less; there were many types of government bonds; investors holding bonds all the way up to maturity; and lack of liquidity, among other shortcomings. The corporate bond market was more developed and the 3-year corporate bond emerged as the benchmark bond. The market was also heavily regulated and the short-term bond market was closed to foreigners. At the time Korea established derivatives market in 1996, both primary and secondary bond markets were not yet in mature stage and a market for government bond had not been developed[20]. After the financial crisis, the government took several measures to improve the bond market such as

〈Table 6〉 Comparison of KRX, IDX, and ISE Spot Market Variables

(KRX t0= 1996, IDX t0= 2001, ISE t0 = 2005)

		t-5	t-4	5-3	t-2	t-1	t0
Mkt. Cap (Mil US$)	KRX	96,400	107,000	139,000	192,000	181,955	138,817
	(+10)*		(+11)	(+30)	(+38)	(-5)	(-24)
	IDX	91,016	29,105	22,104	64,087	26,834	23,006
	(+5)*		(-68)	(-24)	(+190)	(-58)	(-14)
	ISE	69,659	47,150	33,958	68,379	98,299	161,537
	(+29.8)*		(-32)	(-28)	(+101)	(+44)	(+64)
Liquidity ***	KRX	0.882	1.079	1.517	1.496	1.010	1.038
	(+6.6)*		(+22)	(+41)	(-1)	(-32)	(+3)
	IDX	0.407	0.567	0.568	0.418	0.372	0.390
	(+13)*		(+39)	(0)	(-26)	(-11)	(+5)
	ISE	1.817	1.788	1.807	2.119	1.971	1.699
	(-1)*		(-2)	(+1)	(+17)	(-7)	(-14)
Volatility **	KRX	0.1122	0.1013	0.2537	0.1706	0.1289	0.2406
	(+34)*		(-10)	(+150)	(-33)	(-24)	(+87)
	IDX	0.1306	0.3025	0.2568	0.2569	0.1335	0.1465
	(+15.8)*		(+132)	(-15)	(0)	(-48)	(+10)
	ISE	0.3184	0.4877	0.5184	0.2838	0.0935	0.1394
	(-0.8)*		(+53)	(+6)	(-45)	(-67)	(+49)
Trading Volume (Mil Contracts)	KRX	4,094	7,064	10,398	10,911	7,648	7,785
	(+19.4)*		(+73)	(+47)	(+5)	(-30)	(+2)
	IDX	30	77	91	178	135	148
	(+51.4)*		(+157)	(+18)	(+96)	(-24)	(+10)
	ISE	11,076	23,938	33,933	59,100	69,629	81,108
	(+53.2)*		(+116)	(+42)	(+74)	(+18)	(+16)
Trading Value (Bil US$)	KRX	84	116	212	286	185	177
	(+23.4)*		(+38)	(+83)	(+35)	(-35)	(-4)
	IDX	32	43	11	20	14	10
	(+2.54)*		(+34)	(-74)	(+82)	(-0.3)	(-29)
	ISE	179	78	71	100	147	201
	(+12)*		(-56)	(-9)	(+41)	(+47)	(+37)
No. of listed Companies	KRX	686	688	693	699	721	760
	(+2)*		(0)	(+1)	(+1)	(+3)	(+5)
	IDX	253	282	288	277	290	316
	(+4.6)*		(+11)	(+2)	(-4)	(+5)	(+9)
	ISE	315	310	288	284	296	302
	(-0.8)*		(-2)	(-7)	(-1)	(+4)	(+2)

Source: World Bank: WFE

* The simple average percentage change during the period.

** Volatility calculated as the annualized standard deviation of the monthly index return (v = std * sqrt[12]).

*** Liquidity is the turnover velocity

opening the market to foreign investors. The bond markets picked up in the 1990s and performed well recording greater growth. The bond market started performing well both in terms of corporate and treasury bond leading to the launch of interest rate futures based on 3-year Treasury bond in 1999.

The bond and bills market in ISE was established in 1991 while repo/reverse repo transactions began in 1993. Later in 1996, the Real Estate Certificates Market was launched within the ISE bond and bills market. Prior to 1991, there was minimal bond activity for both government and corporate bonds. Nevertheless, the government bond market was more liquid than the corporate bond market. With the introduction of exchange traded bonds, the government bond continued to perform well both in the organized and the off-exchange markets. ISE has a virtually non-existent corporate bond market after it dried up in the mid-1990s[21]. Reasons for that includes among others; heavy public sector borrowing, high budget deficits in the country, as well as high interest rates. Even in the government bond and bills market, only the repo/reverse repo market is active.

Indonesia bond market is classified as a small but growing market by the Asian Development Bond (ADB). It started with the establishment of Surabaya Stock Exchange (SSX) back in 1989[22]. Just like Korea, the market was initially dominated by government bonds with maturity ranging from

20) Korea introduced government bond futures in 1999

21) There have been recent efforts to revive the corporate bond market such as loosening the regulations.

22) Over-the-counter transactions (OTC) were carried out mainly through banks prior to this period.

one to 17 years with semi-annual coupon payment. SSX listed both government and corporate bonds though the latter had experienced minimal growth over the years until 2003 when it recorded an increase in volume/value traded. Nevertheless, the corporate bond market still remains illiquid compared to the government bonds. For example, while the average daily trading nominal value in 2007 for government bond was Rp. 3,752.17 billion (US$403 million), the corporate bond was only Rp. 241.5 billion (US$26 million). The secondary market for bonds has remained immature though various efforts are being carried out to improve the situation.

In all three markets institutional investors are the main participants with minimal retail investor's participation. Both the primary and secondary bond markets were not yet mature at the time when derivatives' trading was introduced. However, Korea's corporate bonds were developed earlier than government bonds and were more liquid unlike Turkey and Indonesia where the government bond market was developed earlier than corporate bonds which were illiquid. We can therefore conclude that the level of bond market development may not have been a good indicator as to whether a derivatives exchange will succeed and or not once established.

3. Financial structure

In addition to evaluating the capital market variables, it is important to consider the financial structure of a given country. Countries are mostly classified into either bank-based or market-based. Bank-based system refers to a market where banks play a crucial role in the financial systems and companies prefer using the banks to finance their activities which

might hinder the development of capital markets. In a market-based system, the companies usually raise their finances from the capital markets which might boost the capital market development. According to Levine (1997), Korea and Turkey are classified as a market-based system while Indonesia is categorized as a bank-based system. As the capital market is developed, the derivatives market has higher chances of success.

7. Investors

Prior to the introduction of derivatives, Kim (1998) states that Korea had almost 14% of its population[23] owning at least a share which was high enough compared to benchmarking countries like the US and Japan which had 21% and 17%, respectively. Retail investors[24] are the majority traders by trading volume in the stock market compared to institutional investors and the same investor pattern is also reflected in the derivatives market. This great participation by retail investors was the result of various reasons as discussed by HKEx (2003): First, the market is not particularly sophisticated by international standards; Second, derivatives trading was a game that anyone could play and for many investors it was an electronic game; Third, the government, pushing for the country to become a knowledge-based economy, made broadband access cheap and encouraged households to get online; Fourth, securities firms provided their clients with PDAs (personal digital assistants) almost for free and conducted seminars to promote understanding of options; Fifth, the KSE (currently KRX) disseminated its market data widely and free of charge

23) Increased to 18% of the population by 2007 (KRX statistics)

24) See Appendix 3E for investor' s data.

accordingly, thus providing an efficient trading system that could handle the high volumes; Sixth, there are no official market makers and the functionality of the KRX' s self-developed trading and clearing mechanism is relatively limited; and finally, all KRX members are participants in the options market, there being no separate qualifications. KRX also enjoys a significant number of foreign investors both in the stock market as well as in the derivatives market with more institutional investors than retail investors.

Unlike Korea which had a relatively large population owning at least a share, the ownership in Turkey is small, only about 2% of the population. One major peculiar trend in Turkey is the heavy presence of foreign investors. 60% of foreign investment[25] is by firms in the European Union. Largest investors are from Holland, France, Germany, US, Italy, England, and Japan. By 2007[26], around 70% of equity ownership was held by foreign investors while domestic investors accounted for 30%. However, domestic investors had 80% of the value traded with foreign investors accounting for 20%. In both domestic and foreign investors, institutional investors largely overshadow retail investors. Only 2% of domestic investors are retail while foreign retail investors account for less than 1% of the total foreign investors. Just like in KRX, the large and active investors enhance liquidity in the market which increases the probability of derivatives exchange success.

Majority of Indonesia' s investors are institutional investors with very few

25) More than half of these investments are into the financial sector.

26) Topbas, O.G.2007. "Banks and Securities Services in Turkey" Presented at Turkish Bankers Association, Citibank A.S

retail investors. Less than 1% of the Indonesia population owned a share before the derivatives market was introduced and were usually inactive traders. The small number of retail investors in the stock market was similarly reflected in the derivatives market. Generally, most people have no information about the capital markets operation and even those who do have; they do not trust the capital market[27]. Majority of the population prefers keeping their savings in banks rather than investing in the capital markets as they lack confidence[28] in the market according to Herwidayatmo (2003). Furthermore, Pardy (1998) states that the institutional investors, who are the main participants in the market could easily access already liquid overseas derivatives market in Singapore, Malaysia, Hong Kong, Taiwan, Chicago, London, and Sydney to hedge their interest rate and currency positions against the US dollar, yen, Deutsch mark and AU dollar rates. The minimal participation by the retail investors and availability of already liquid products in international markets

27) As Pardy (1998) pointed out, Indonesia' s capital marker legal-regulatory framework was not yet developed which in turn eroded the investors' confidence in the market. Also, see Herwidayatmo (2003), "Rebuilding Market Confidence" in Indonesia Capital Market.

28) The State Street developed the Investor Confidence Index which measures the attitudes of investors to risks. Investor confidence can be defined as the willingness of investors to put money in more risky investments like equity and derivatives rather than in more safer or conservative vehicles like savings in the bank. Confidence in the economy and the capital markets is a critical driver of economic and financial fluctuations and of the business cycle. When confidence increases, consumers and investors want to buy consumer goods, durables and invest at prevailing prices. When confidence decreases, spending and risk-taking tend to fall. Investors are said to be confident when the news about the future is good and stock prices are rising. However, rising prices are related both to good fundamentals, such as growth in industrial production and productivity, as well as to the underlying sentiment or mood of investors. A good confidence measure should indicate whether, for a given set of fundamentals, investors have an increased or decreased appetite for risk.

for the institutional investors deprived the Indonesia' s derivatives market much needed investors, leading to market illiquidity and as a result, unsuccessful derivatives trading.

Securities transaction through the exchange creates trading volume which should be large for a derivatives market to be successful. Ceteris paribus, a large number of investors lead to high trading volume hence enhancing the probability of success. It is therefore vital to have a large and active investor population comprised of local and foreign investors as well as retail and institutional investors.

8. Products Traded, Education and Feasibility Study

Korea started looking into the possibility of establishing a derivatives market in the mid-1980s. An independent committee was formed to carry out the feasibility study. Stock market variables were found to be ready[29] for the establishment of a derivatives exchange. Other preconditions necessary for derivatives trading like the investor population, the regulatory as well as infrastructures were evaluated and were found to be strong enough or in need of several adjustments to allow derivatives trading. The committee recommended the establishment of financial derivatives exchange with stock index as the first product to be introduced. In 1996, a derivatives exchange was established (almost ten years since the study began) with stock index futures listing on May 3, 1996. The Index products were the first products to be introduced followed by currency products,

29) According to the 1989 year-end figures, the market capitalization stood at $119 billion which represented 68% of GDP, and the total number of shares outstanding and the trading value were 4.2 billion and $102 billion, respectively (Kim, 1998)

interest rates and single stocks in accordance to the study recommendation. The detailed feasibility study and the implementation of the recommendation can be attributed to the great success of the Korea derivatives exchange.

In the case of Turkey, soon after the establishment of the Istanbul Stock Exchange in 1986, the agenda of introducing derivatives products was raised. In late 1990s, as ISE continued to perform well, the establishment of derivatives was looked into seriously by the research department of ISE. Seminars were held in which other emerging countries that had succeeded in introducing derivatives shared their experiences[30]. In 2001, the legislation on "The Establishment and Operation of Futures and Options Exchange" was published in the official Gazette and in 2002, TurkDEX was set up. More research on derivatives exchange, products, and trading was carried out and necessary parameters were put in place. It was not until 2004, when the permission to operate a derivatives exchange was received from CMB. The exchange opened officially in 2005 after compliance with the few concerns raised previously[31] by CMB (TurkDEX, 2009).

The exchange also educated and trained its members[32], employees, and the general public about derivatives trading and products. The education program is an ongoing process in TurkDEX. It still organizes series of seminars and training programs for members and traders to assist them in market rules, regulations, and all related topics on derivatives market.

30) See: ISE. 1998. Instable Stock Exchange Review. Vol 2, No. 5. ISSN 1301-1642

31) Mainly in relation to non-compliance with all the legal and regulatory issues as required by CMB.

32) There were 32 members initially and had increased to 87 by 2007.

On its part, Indonesia contracted a consulting firm in 1998 to look into the feasibility of exchange-traded derivatives in Indonesia[33]. Though the research done was brief and carried out during the periods of economic uncertainty due to the financial crisis, it highlighted major problems in the infrastructure as well as legal and regulatory framework. Interest rates futures were recommended as the most required products, followed by currency futures, stock index and finally stock options. However, when the derivatives trading was launched in 2001, three years later, the second least required product by the potential investors, stock index futures, was the first product to be launched. It was followed by single stock options, the least requested products. Introducing these products might be the main reason why the products experienced low trading volumes as the potential investors were not ready or willing to trade the introduced derivatives products. In comparison to most emerging economies, where several years[34] were normal to conduct a feasibility study and the recommendations were implemented as a derivatives exchange is established. The short period of the study of two months and the three-year duration between the study and the launch of derivatives exchange was thus insufficient to carry out a detailed analysis as well as to implement the recommendations especially in regard to the poor infrastructure and regulations in place. In addition, the exchange started by introducing the

33) For detailed information on the derivatives feasibility in Indonesia, see: Pardy, R. 1998. Feasibility of Exchange- Traded Financial Derivatives in Indonesia. Analit Capital Market Consulting under contract from the Asian Development Bank.

34) The durations taken by different emerging markets to carry out feasibility study and implement recommendations were: Korea (10 years), Turkey (14 years), Thailand (more than 15 years), and India (7 years).

least required products and this can be attributed to the low trading volumes of derivatives products and hence the unsuccessful derivatives trading.

9. Summary

The success of the Korean and Turkish derivatives markets can be attributed to several favorable conditions present at the time of the derivatives market launch. In contrast, Indonesia' s unsuccessful derivatives market can be attributed to insufficient or lack of the desired conditions before introducing derivatives. which are summarized below:

- Economic background: For an economy to have a successful derivatives market, it must have a solid economy with high and stable growth. Inflation must be checked and the unemployment rate over 10% is not encouraged.
- Political climate: Stable political economy and government support is necessary for derivatives market development. Political stability was measured by the levels of FDI net inflows, the number of tourists' arrivals as well as change of presidents among other determinants.
- Timing: Korea and Turkey were able to time when the market was performing well and was ready for something new. Indonesia on the other hand missed the timing as it introduced derivatives exchange in 2001, too soon after the crisis when the participants were not yet ready.
- Legal and regulatory framework: The legal and regulatory structure in relation to derivatives exchange, products and trading should be clear and properly detailed. These laws and rules should also be operational and implemented for a successful derivatives exchange. Strong regulations can greatly hinder establishment of an exchange.

Conversely, lack of proper regulations can lead to improper trading and can encourage proliferations of illegal operations. Therefore there is a need for balanced laws and rules which will encourage as well as safeguard and monitor derivatives trading. Korea, Turkey and Indonesia took several steps to improve the legal and regulatory systems. However, Indonesia still experiences various problems regarding clarity as well as implementation.

- Infrastructure: The infrastructure allows the smooth and efficient operation of the derivatives exchange and hence it should be well structured and harmonized with the international standards and requirements.
- Capital market variables: Strong underlying spot market is good for a sound derivatives exchange. Korea and Turkey' s stock market variables were performing exceedingly well, hence laying a solid ground for the derivatives market to flourish. In comparison, Indonesia capital market was small and not yet fully developed which might have led to the poor performance of the derivatives exchange.
- Education: Korea and Turkey undertook intensive training for its staff and education to the brokers, government and the investors at large prior to the introduction of derivatives. This helped in familiarizing the participants with the products as well as equipping them with know-how and knowledge on how to carry out derivatives trading. Indonesia lacked such an extensive education undertaking especially to the investor leaving them uninformed on derivatives trading.
- Investor: Investor population and confidence are necessary for the establishment of derivatives exchange. There is a need for a large and active investor population participating in derivatives market. Moreover,

〈Table 7〉 Summary of Korea, Indonesia, and Turkey Comparison in Meeting Precondition to Open a Derivatives Market

Derivatives Market Determinants	Korea	Indonesia	Turkey
Economic Background	High and stable economic growth with low inflation and low unemployment	Declining economic growth with rising inflation and unemployment	Positively growing economic growth with declining inflation but relatively high unemployment
Political Climate	Stable political climate	Unstable political situation with negative foreign direct investment	Stable political climate with rising foreign direct investment
Legal and Regulatory Framework Infrastructure	Clear and properly detailed legal and regulatory structure Structured and harmonized trading, trading and settlement system	Questionable clarity and the ability to implement the legal framework Not fully developed infrastructural system	Complying with European Commission regulation requirements Structured and harmonized trading, trading and settlement system
Capital Market Development Investors	Solid and developed underlying stock market Large and active investor population	Small and not fully developed stock market Lack of investor confidence in the market	Solid and developed underlying stock market
Products Traded, Education, and Feasibility Study	Intensive training of market participants including government officials	Lackluster education program	Intensive training of market participants including government officials

the Indonesian capital markets were suffering from lack of investor confidence especially due to the weak legal systems as well as lack of implementation. The Korean stock market already enjoyed investors' confidence by the time the derivatives exchange was established exhibited by the high number of retail traders in the capital market.

III. Summary and Conclusion

For many emerging markets it is difficult to determine when is the

appropriate time to introduce a derivatives market. In this paper we put together the preconditions and synthesized into eight different determinants that could be used as a benchmark to see if a market is ready to launch financial derivatives products. They are economic background, political climate, legal and regulatory framework, infrastructure, capital market development, investors, and products traded, education and feasibility study.

In order to examine whether fulfilling these conditional variables in a market will increase the probability of introduction of a derivatives market successful, we have investigated the experiences of the Korea Exchange, Turkish Derivatives Exchange and Indonesia Exchange. We found that Korea and Turkey met those conditions, which might have led in large part to their flourishing derivatives markets while the inactive Indonesian market failed to do so. In conclusion, the determinants explained can be relied on for general reference as to the probability of a derivatives exchange succeeding or not when established. If the determinants are favorable, then there is a higher likelihood the exchange will be successful and vice versa.

We admit that the result of this paper is arrived by examining only three markets. For further research, we need to study more markets from different countries, which in turn allows one to analyze the conditions more in depth using rigorous econometrics tools.

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요 약

신흥시장에서 성공적인 금융파생상품시장 개설

요건 분석 - 사례분석

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신흥개발 자본시장에서 금융파생상품 시장을 도입하는 결정은 용이하지 않다. 신흥시장의 정부책임자들은 파생시장을 개방하는데 조심스러워하며 이는 기존의 현금 시장에 커다란 영향을 미칠 수 있기 때문이다. 개꼬리가 몸통을 흔들게 한다는 표현은 파생상품의 거래가 기존의 현물 거래에 얼마나 영향을 미치는가를 설명하는 중에 종종 쓰이는 표현이다.

이 논문에서는 자본시장이 금융 파생상품시장을 도입할 준비가 되어있는지를 판단 할 수 있는 벤치마크로서 사용되어 질 수 있는 수가지의 결정요소들을 과거 문헌에서 발췌하여 최근에 개설된 파생금융상품시장에 적용하였다. 시장 개설시 고려하여야 할 중요한 요소로소는 경제적 배경, 정치적 환경, 법과 규제의 틀, 시장의 기반시설, 자본시장의 발전정도, 투자자, 교육 및 타당성 조사들이다. 이러한 요소들이 제대로 고려가 되었는지를 파악하기위하여 파생상품을 도입하는데 성공적인 곳과 성공적이지 못 한 곳을 선정하여 두시장의 성공여부에 결정요소가 영향을 미쳤는지를 파악하였다. 이러한 시장의 예로 한국은 성공시장 그리고 인도네시아는 성공을 못 한 시장으로 선정하였다. 또한 지역적으로 유럽으로 분류돼 있는 터키시장도 함께 분석하였다. 성공시장으로써의 선정 척도는 거래 규모다. 한국과 터키는 결정요소들을 상대적으로 인도네시아 보다 충

족시킬 수 있음을 발견하였다.

파생상품시장이 성공적이기 위해서는 신흥개발국의 자본시장 관계자들은 경제, 법률, 자본시장이 어떠한 수준에 어떠한 여건을 갖추고 있는지를 파악해야 하며 무엇이 필요한지를 충분히 이해하는 것은 중요하다. 이 논문이 언급한 여러 결정요소들이 이러한 어려운 의사결정과정에 도움이 되기를 희망한다.

주제어: 금융파생상품시장, 신흥자본시장, 한국, 인도네시아, 터키

찰: 아스만의 문화적 기억 관점을 중심으로" (2011) 등이 있다.

한준성(韓準成)

현재 서울대학교 정치외교학부에서 정치학 전공으로 박사과정 중이다. 논문으로는 "다문화주의 논쟁: 브라이언 배리와 윌 킴리카의 비교를 중심으로"가 있고, 역서로는 『전쟁과 정의』(2009, 공역)가 있다.

김동엽(金東燁)

부산외국어대학교 동남아지역원 HK연구교수. (국립)필리핀대학교 정치학과에서 1990년대 한국과 필리핀의 통신서비스산업 자유화정책에 대한 비교연구로 박사학위를 받았으며, 2009-10년도 한국동남아학회 총무이사를 역임하였다. 저서로는 『동남아의 한국에 대한 인식』(2010, 공저), 『교차하는 텍스트, 동아시아』(2010, 공저), *The Promise of ICTs in Asia* (2008, 공저), 『동남아의 선거와 정치사회적 변화』(2008, 공저) 등이 있다. 전공영역은 비교정치(정치경제/지역연구)이며, 동남아시아와 필리핀 연구를 주로 하고 있다.

김유경(金有經)

서강대 국제대학원 조교수. 미국 Rutgers대학교(뉴저지주립대학교)에서 기업재무이론 및 실증적 연구로 경영학박사 학위를 받았다. 주요 연구 분야는 기업재무, 주식관련 파생상품시장, 금융기관과 금융시장이다. 주요 논문에는 "Asymmetric Information Concerning the Variance of Cash Flows: The Capital Structure Choice" *International Economic Review* (1998), "Launching Markets for Stock Index Futures and Options: The Case of Korea," *Istanbul Stock Exchange Review* (1998) 등이 있다.

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