

## AN EXAMINATION OF THE IMPACT OF REGULATORY CHANGE: THE CASE OF THE INTERNATIONALIZATION OF THE KOREAN CAPITAL MARKET

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### 1. INTRODUCTION

The recent progress of financial internationalization in Korea has attracted keen attention from both the domestic and international markets. Until the 1980s, the Korean capital market was long closed to foreign investors due to the government's efforts to protect and foster the domestic financial market. The internationalization of the Korean capital market gradually began with the disclosure of the long-range and comprehensive internationalization plan on January 14, 1981. The internationalization plan was tailored in pursuit of corporate financing through the foreign capital market on the one hand and moving ahead with the open-door economic policy on the other. The initial plan was revised a few times thereafter to adjust to internal and external circumstances and the speed of financial internationalization has accelerated during the latter half of the 1980s. In the areas of foreign exchange transactions, capital account transactions, and financial services industries. On December 2, 1988 the Korean Ministry of Finance revised the final schedule for opening the domestic capital market, which was more tangible than the initial one. Finally, the Korean domestic stock market was opened to foreigners in January 1992.

The positive analysis of government regulation has long been a popular topic of research. Beginning with the seminal papers by Stigler and Friedland(1962), economists have sought to measure the wealth effects of regulation on competing interest groups [Stigler(1971), Peltzman(1976)]. Stigler states that diverse coalitions of economic agents having similar

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interests combine to exert political pressure upon regulators. In his view, regulation is considered as a commodity having demand and supply in the market and the regulatory process is considered as a wealth transfer among various economic groups. Following Stigler's economic analysis of regulation, Peltzman(1976) proposes the risk-buffering hypothesis, stating that to the extent that the cost and demand changes are economy-wide, regulation reduces systematic risk as well as diversifiable risk and lowers the variability of earnings by buffering the firm against demand and cost changes

Theoretical disciplines and empirical research in the economics of regulation and capital market equilibrium can provide several competing hypotheses for examining the effects of regulatory changes. This study examines several important issues in the stock market reaction to the internationalization of the Korean capital market. First, it looks at the wealth effects of the internationalization of the Korean capital market on the stock returns of different types of financial institutions, including commercial banks, security companies, investment and finance companies and insurance companies. The common stock price performance of different financial institutions can be examined in terms of the regulatory and legislative changes and firm-specific characteristics. Along with the theories of regulation, the theories of capital market equilibrium also provide several competing hypotheses about the process by which stock prices adjust to new information, the existence of market disequilibrium as market participants correct their expectations, and the comparison of the behaviors of stock prices of different institutions over time. In particular, the arguments for and against controls on international financial flow are difficult to determine their values. Thus, the wealth effects of the internationalization of the Korean capital market on the stock returns of financial institutions are an interesting empirical issue in this study

Second, the study examines the impact of the internationalization of the Korean capital market on the risk contents of different types of financial institutions. An inference is that the internationalization might lead all economic participants in domestic financial sector to higher level of risk by eliminating constraints on subsidies and creating a freer field for higher competition in open economy. As the financial liberalization and internationalization proceeded, the heterogeneity among different types of financial institutions became removed. Thus, increasing competition for a particular financial service might have contributed to increasing stockholders' risk perception. If regulators are primarily concerned with risk in the financial system, they will be concerned with wealth effects largely to the extent that changes in wealth are associated with changes in risk. Thus, risk issue is also an interesting empirical issue

As the pace of internationalization and liberalization increased in the 1980s, the financial institutions in Korea became increasingly valued not only upon their size but also upon their return and risk. Therefore, the role of market-determined levels of return and risk became more important.

This paper is organized in four sections. Section 2 describes the historical background and the regulatory and legislative changes leading up to the internationalization of the Korean capital market and its probable impacts. In Section 3, the methodology, estimation procedure, data and technical hypotheses are presented. The last section discusses the empirical results of the return and risk responses to the events released in the process of the internationalization of the Korean capital market.

## 2. An Overview of the Internationalization of the Capital Market in Korea<sup>1)</sup>

### 2.1. Historical Background and Progress

Since the 1980s, Korea's financial system has undergone continual liberalization in response to both internal and external pressures. The process of financial liberalization was instituted not only to reduce government regulation and intervention, but also to restore the balanced development of the financial market. The financial liberalization has been prepared to integrate the Korean financial market into the international market.<sup>2)</sup>

On January 14, 1981, the government announced a four-step plan for the internationalization of the Korean capital market in pace with its open economic policy. The plan was intended to reduce the foreign debt the country was heavily suffering at the time by converting financing sources from traditional debt capital to equity capital. Proposing the initial internationalization plan, the government also attempted to improve the financial structures of individual firms by lessening their high debt-to-equity ratio and lowering the cost of capital. The stepwise plan initially set in January 1981 was first revised in July 1983 and a few times thereafter to keep pace with shifting economic circumstances. The major contents of four stages of the original plan was as follows:

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- 1) The discussion in this study is limited to the internationalization of capital market in the 1980s.
  - 2) In many cases the liberalization in domestic finance and the internationalization in financial activities proceed together, but in the case of Korea the liberalization in domestic finance has its own motive and prepares the background for the internationalization.

- 1 Stage One(1981-1984): To allow indirect securities investment by foreigners while preparing for the internationalization in domestic finance
- 2 Stage Two(1985-1987): To allow foreigners to make limited direct investment in domestic securities while permitting to issue and list equity-related Korean securities in the foreign capital markets.
- 3 Stage Three(1988-1990): To permit direct foreign investment in domestic securities, with no restrictions but limits.
4. Stage Four(early 1990s). To allow for direct investment without any limits for both foreigners and domestic investors.

In general, the package of financial market opening in Korea includes liberalization of foreign exchange transactions and opening of domestic capital markets and financial services markets. In planning and implementing deregulatory measures, the government took a very gradual and conservative approach, carefully planning the sequence of the deregulatory measures and putting them in action. This is because the financial market in Korea in terms of interest rates and international trade was not mature to endure a full opening all at once.

Based on the 1981 internationalization plan, domestic investment trust companies were allowed to establish trust funds exclusively for foreigners in 1981. The Korea Fund, a mutual fund investing exclusively in Korean stocks was launched and listed on the New York Stock Exchange in 1984, followed by the Korea Euro-Fund and the Korea Asia-Fund in 1987 and 1991, respectively. In 1985, Korean companies were allowed to issue convertible bonds in overseas markets. In addition, Korean corporations were also encouraged to diversify the means of overseas borrowing to include bonds with subscriptions warrants and depository receipts.

As the internationalization in domestic finance proceeded, foreign securities companies have been gradually allowed to enter domestic securities market as representative offices, partners and then branch offices. Domestic securities companies also started setting up overseas offices in 1984. Until the early 1980s, entry of foreign banks into the domestic banking market was encouraged with preferential treatments and discriminatory regulations to attract foreign capital, which had been little by little alleviated in the 1980s. In the course of financial liberalization, commercial banks were privatized and policy loans were reduced. However, there have been serious attempts for interest rate deregulation, which is a major part in the area of financial liberalization, but no significant changes in interest rates yet.

During the last decade, foreign exchange liberalization took place in the areas of foreign exchange rate requirement, position management, and

underlying documentation requirement, internationalization of foreign exchange rate requirement, position management, and underlying documentation requirement, internationalization of Korean won.

Since the late 1980s, Korea has accelerated the opening of its financial market. The most tangible measure was taken toward the internationalization of the Korean capital market when another comprehensively revised internationalization plan was announced on December 2, 1988. In January 1992, foreigners were allowed to invest directly in domestic stock market, marking a milestone in the process of the internationalization of capital market. In sum, the Korean capital market has gone through significant changes in an attempt to extend the scope of its business to the international dimension during the 1980s.

## 2.2. Probable Impacts on the Financial Sector

The internationalization of capital market has both positive and negative effects on the whole financial system. It is easy to fall into the assumption that financial opening will contribute to economic growth, particularly in the developing country like Korea where foreign capital has been a consistent source of market demand, with inflow far exceeding outflow in principle, the internationalization of capital market can enhance domestic capital market efficiency and promote competition among financial institutions. It can provide domestic firms with cheaper sources of financing their investment. It can also provide investors with better opportunities for international portfolio diversification.

Contrarily, financial opening may have a number of negative effects which is dangerous to ignore. Domestic financial market may be vulnerable to speculative attacks of international hot money. Some countries may suffer from capital flights and debt crises. In some developing countries, the unsuccessful internationalization attempts turned out to be quite devastating

Although the impacts of the internationalization of capital market on the whole financial system may be clear, it is difficult to assess the probable impacts on different types of financial institutions. It was more likely that depository institutions would experience more competition and challenges in attracting and maintaining deposits and in selling loans from foreign institutions. The financial internationalization would have created a freer field for competition for some services between both domestic and foreign financial institutions and made for a wider choice of institutions offering these financial services. Thus, financial institutions should assess more carefully the costs and benefits of doing business in the new environment

and to reexamine their pricing policies and service levels. Thus, it is likely that the internationalization changed the risk characteristics of different types of financial institutions by changing the competitive structure of the financial system.

A fundamental task of financial intermediaries is to appraise and assume risk and to charge for it appropriately. The internationalization process appeared to increase the general level of different sources of risk assumed by the financial institutions, namely, credit risk, liquidity risk, foreign exchange risk, interest rate risk, and political risk, etc.

The internationalization of the Korean capital market is expected to advance further and with greater speed due to the convergence among financial markets and the growing attractiveness of the Korean market.

### 3. METHODOLOGY, DATA AND HYPOTHESES

#### 3.1. The Multivariate Regression Model(MVRM)

This study employs the Multivariate Regression Model(MVRM) to measure return and risk responses to the multiple announcement events surrounding regulatory changes in the process of the internationalization of capital market in Korea.<sup>3)</sup>

The MVRM methodology is suggested by Schipper and Thompson(1983) and Binder(1985) to overcome the cross-sectional correlation problem in regulatory event studies, using Zellner's(1962) two-stage Aitken estimator or Estimated Generalized Least Squares(ELGS) estimator. Under the context of Zellner's Seemingly unrelated Regression(SUR), the MVRM estimation is at least asymptotically more efficient than the equation-by-equation OLS estimation. The MVRM assumes that the observations in each equation are from the same calendar time period for all firms. The disturbances are assumed to be independent and identically distributed within each equation.

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3) When the traditional market model is applied to the regulatory event study, some methodological problems arise from features of regulatory change and violation of the underlying basic assumptions: (1)unlike firm-specific events, regulatory changes have no single announcement but multiple announcements, such as seminars, committee hearings, Congress approval, (2)it is not clear *a priori* that the effects of regulatory change are positive or negative, when there is asymmetry in response to regulatory change, (3)there can be cross-sectional dependence between stock return residuals of affected firms if the event occurs during the same calendar time period in the same or related industry. The cross-sectional correlation problem can cause the most severe methodological errors in regulatory event study if it is ignored.

but allow the disturbance variances to differ across equations. It is also assumed that contemporaneous covariances of the disturbances can be nonzero but that the non-contemporaneous covariances are zero. Thus, the MVRM can accommodate both serially independent and cross-sectionally correlated dimensions of the data sets from which the traditional market model suffers. The advantage of the EGLS approach lies in testing the joint hypotheses pertaining to abnormal return responses to regulatory change when the basic assumptions are violated. Furthermore, the framework of MVRM lends itself to an F-test or a likelihood ratio test of the parameter resimplified by a particular financial model. One important disadvantage is that finite sample properties of SUR and MVRM estimators are known only asymptotically.

The MVRM in Eq. (1) employs the technique of intervention analysis, or dummy variable regression to measure the return and risk response to new information about the regulatory changes surrounding the financial internationalization in Korea. Furthermore, the model includes two additional parameters to examine the potential changes in the intercept term and market parameter(systematic risk) resulting from the announcement events in the internationalization process. The regression model can separate the influence of abnormal returns upon the model's intercept term from the effects of shifts in the systematic risk. The shift coefficient in systematic risk( $\beta_{jt}$ ) represents the risk perception of shareholders to the financial internationalization.

$$R_{jt} = \alpha_{jt} + \alpha'_{jt} D_{0t} + \beta_{jt} R_{mt} + \beta'_{jt} R_{mt} D_{0t} + \sum_a^A \delta_{ja} D_{at} + e_{jt}, \quad (1)$$

where

- $\alpha_{jt}$  regression intercept before the intervention
- $\alpha'_{jt}$  shift in regression intercept after the intervention
- $\beta_{jt}$  systematic risk coefficient of market portfolio before the intervention
- $\beta'_{jt}$  shift in systematic risk coefficient of market portfolio after the intervention
- $\delta_{ja}$  coefficient of information dummy variable
- $R_{jt}$  rate of return on security j at time t
- $R_{mt}$  rate of return on the value-weighted index of all common stocks on the Korea Stock Exchange at time t
- $D_{0t}$  shift dummy variable  
0 before the intervention

1 after the intervention  
 Dat information dummy variables  
 1 in announcement period  
 0 otherwise.

The joint hypotheses on the abnormal returns can be tested with linear restrictions on the coefficient vector. The joint hypotheses across  $j$  firms can be expressed as

$$C\beta = c, \quad (2)$$

where

$C$  a  $Q \times K$  matrix of constants with rank  $Q$ ,  
 $\beta$  a  $K \times 1$  vector of coefficients estimated  
 $c$  a  $Q \times 1$  vector of coefficients  
 $Q$  number of restrictions tested in the system

To test the joint hypotheses, the model uses the cross-sectional covariances among all  $j$  firms through use of the estimated contemporaneous covariance matrix of residuals. The Rao's  $F$  statistics is used to test the joint hypotheses, which can be expressed as follows.<sup>4)</sup>

$$\frac{(c-C\beta)' [C(X' \theta \Sigma^{-1} \otimes I)X]^{-1} (C\beta-c)/Q}{(R-X\beta)(\Sigma^{-1} \otimes I)(R-X\beta)/J(T-K)} \sim \frac{F}{(Q, J(T-K))}, \quad (3)$$

where

$\otimes$  Kronecker product  
 $I$   $T \times T$  identity matrix  
 $S$   $J \times J$  covariance matrix of  $(e_{jt}, e_{jt})$   
 $F$  statistics, degree of freedom  $(Q, (J(T-K)))$

When parameter coefficients are constrained to be the same across sample firms, the estimate obtained is equal to the estimate obtained from a single regression run on a particular portfolio of original securities. The portfolio which has weights proportional to the inverse of the estimated matrix of residuals ( $\Sigma^{-1}$ ) in the joint GLS estimation is the portfolio which has minimum estimated residual variance on the estimated matrix.<sup>5)</sup> The portfolio

4) See Theil(1971, pp.313-314) or Judge et al (1988).

5) As a consequence, the constrained coefficient estimate can be interpreted as the estimate from an industry portfolio which has minimum estimated residual variance.



approach calculates the portfolio abnormal returns and their significances with a t-test using the maximum likelihood estimates of full covariance matrix.

### 3.2. Data

To reduce the imprecision in identifying event dates, the event dates and sample data are found by examining the Korean economic newspapers and financial periodicals. Financial institutions whose returns might be contaminated by firm-specific events such as dividend announcements or stock splits during the event period are eliminated from the sample. The period after the announcement date is also checked for any possibility of further contaminating information. Thirty eight announcements are selected as the events of significant change, which are summarized in Table 1.

The event period focuses on the two trading days of the announcement day and the day after the announcement day, that is, the press day. In reality, many investors become informed of the event announcements in the print medial at the day after the announcement day.

Daily stock returns are employed from the Korea Investors Service-Stock Market Analysis Tool(KIS-SMAT) traded at the Korea Stock Exchange. The total sample in this study includes all the financial institutions publicly traded at the Korea Stock Exchange, including 18 banks, 12 securities companies, 11 insurance companies and 8 investment and finance companies.

### 3.3. Hypothesis

The hypotheses pertaining to the return and risk responses are proposed to assess the probable impacts of the internationalization plan announcements on the stock returns of different types of financial institutions.

The wealth effects of the internationalization of the Korean capital market are examined by testing the following hypothesis of portfolio abnormal return responses within the methodological framework discussed above. The risk response is also examined in portfolio perspective by imposing cross-sectional restrictions on the systematic risk parameters of the sample firms.

$$(H_0): \delta^*_{jm} = 0$$

Under the assumption that a particular group of financial institution has the same return response across sample firms, portfolio abnormal returns equal zero for a given announcement.

## 4. EMPIRICAL FINDINGS

For thirty eight announcement events released in the process of the financial internationalization, return responses are cross-sectionally analyzed by testing the joint hypothesis in the portfolio perspective as proposed above and the empirical implications are drawn across different types of financial institutions.

Thirty eight announcement events are divided into three subgroups, because the events cover the period of eleven years from May 1980 to December 1990. The event grouping is based on the time period and informational contents of regulatory and legislative changes in the process of the internationalization of the Korean capital market. For the first group of seven announcement events surrounding the 1981 and 1983 revised internationalization plans, the MVRM employs the estimation period of 1072 days from the 150 trading day prior to the first announcement date(May 31, 1980) to the seventh announcement date(July 18, 1983). Between the announcements of the 1983 and the 1988 revised internationalization plans, seven announcement events in second event group are regressed with the estimation period of 1133 days from the 150 trading day prior to the eighth announcement date(May 15, 1984) to the fourteenth announcement date (September 13, 1987). The third group of twenty four events surrounding the 1988 revised internationalization plan is estimated using 1028 daily stock returns from the 150 trading day prior to the fifteenth announcement date (December 1, 1987) to the thirty-eighth event date(December 5, 1990).

To measure the risk response to the financial internationalization, the regression model arbitrarily assigns the two dates of intervention. Any of the events included in the process of the internationalization could trigger the shift of systematic risk, but it is not clear which date is most appropriate. Considering the degree of uncertainty of the regulatory and legislative changes surrounding the internationalization of the Korean capital market, the days when the 1981 and 1988 long-range internationalization plans were announced on January 14, 1980 and December 2, 1988 are arbitrarily chosen the points of intervention in the return generating process.

### 4.1. Return Responses

#### 4.1.1. The Return Responses Surrounding the 1981 Initial Internationalization Plan and The 1983 Revised Internationalization Plan

Table 2 presents the portfolio abnormal returns for seven announcement events surrounding the 1981 initial internationalization plan and the 1983

revised internationalization plan for different types of financial institutions.

The first two announcements in the first event group are so important to have drafted the direction of the internationalization process in the future. The first two events leading up to the disclosure of the 1981 initial comprehensive internationalization plan produced insignificant portfolio abnormal returns to the stockholders of banks, insurance companies, investment and finance companies, while the government's first official comments on the internationalization plan produced significant and negative portfolio abnormal return(-0.030) to stockholders of securities companies.

After announcing the 1981 internationalization plan, Korean government partially revised the initial internationalization plan in July 1983 to take into account rapidly changing internal and external economic factors(Event 7;7-18-83). Unsatisfactory trade balance and high interest rates acted as major obstacles to further financial internationalization. To cope with this situation, the government began implementing measures to delay the internationalization progress, with a view to strengthening the international position of our financial industries through exposure to international competition. For example, the government decided to allow foreigners to invest directly in domestic stock market later and permit domestic firms to issue securities overseas earlier than initially planned. Accordingly, it is hypothesized that the impact of the 1983 revised internationalization plan on the stock returns of financial institutions is positive. In responses to the 1983 revised internationalization plan(Event 7;1-18-83), securities companies showed significant and positive portfolio abnormal return (+0.017) but banks, insurance companies and investment and finance companies produced insignificant portfolio returns. This evidence supports that the 1983 revised plan provided securities companies with new opportunities to increase profits, which was in contrast to the negative response to the 1981 internationalization plan. In other words, the shareholders of securities companies adjusted their expectations about the internationalization progress and gained from the 1983 revised internationalization plan

The first event group contains other important events of financial services and capital market internationalization than the two comprehensive internationalization plans. However, the shareholders of financial institutions did not show any significant return response in portfolio perspective to the events, such as the opening of the first representative office of foreign securities company in Seoul (Event 3;3-27-81), the proposals for the establishment of the Korean investment trusts in New York(Event 4;8-31-81, Event 6;1-11-82).

In sum, it could be inferred that there existed a considerable degree of uncertainty in shareholders' expectations regarding the final contents and

form of the internationalization of domestic capital market. Alternatively, it could be interpreted that such an insignificance in response to the initial internationalization announcements was due to unsatisfactory macroeconomic conditions in foreign exchange accounts, capital market maturity and international trade balance at the early 1980s.

#### 4 1.2. Return Responses Surrounding the Intermediate Internationalization Plans Between 1984 and 1987

Table 4 presents the portfolio abnormal returns to seven announcement events revealed between the announcements of the 1983 and the 1988 revised internationalization plans. Following the 1981 initial and 1983 revised long-range internationalization plans, the intermediate internationalization plans were mainly concerned with the internationalization of domestic security business and for non-residents' entry into domestic finance. For instance, the Ministry of Finance approved domestic securities companies to set up the overseas offices(Event 9;6-1-84) and to issue securities overseas(Event 11, 11-11-85). As a means for non-residents to encourage indirect investment into domestic capital market, the government established the Korea Fund(Event 8, 5-15-84) and proposed the Korea Euro-Fund(Event 13;1-7-87), and permitted foreigners' capital participation in domestic securities business (Event 10; 6-13-85) and entry in life insurance business as joint venture (Event 12; 11-15-85, Event 14; 9-13-87).

As reported in Table 3, the sample groups of banks, securities companies and investment and finance companies produced insignificant portfolio abnormal returns to all seven events included in the second group. The sample of insurance companies also produced insignificant portfolio return responses to all the events, except for the event that the Korea Euro-Fund was proposed(Event 13, 1-7-87), which revealed the only significant response among 28 different portfolio return responses of four different groups and seven different events. Such an overall insignificance implies that there still remained a considerable degree of uncertainty in shareholders' expectations, even though the two major, comprehensive, sequential internationalization plans had already been announced. Another possible implication is that the announcements did not convey any new information to change the market price or that the announcements were non-event. In reality, even some policymakers preferred to delay the financial opening schedule because they believed that the domestic market needed to be more protected from the adverse influence of the world economy, especially during the period of downturn.

#### 4.1.3. The Return Responses Surrounding the 1988 Revised Internationalization Plan

Table 4 reports 96 portfolio abnormal returns of four different financial institutions and twenty four announcement events surrounding the 1988 revised internationalization plan(Event 27; 12-2-1988). Among 96 portfolio abnormal returns, seven abnormal returns appear to be significant: six significant abnormal returns are found around the announcement date of the 1988 revised internationalization plan. However, the announcement of the up-to-date, long-range comprehensive internationalization plan itself did not provide abnormal returns with different portfolios of all financial institutions in the sample. It could mean that the stock market had already anticipated the contents of the announcement and impounded it in the stock prices prior to the announcement date.

Banks in the sample showed significant and negative portfolio abnormal returns (-0.013 and -0.013) to the announcements that insurance companies were authorized to invest in foreign securities market(Event 16; 4-19-88) and foreign securities companies were permitted to set up branches in domestic market(Event 30;1-3-90), respectively.

The portfolio of securities companies produced significant and negative abnormal returns (-0.018) to the announcement that the Advisory Committee for the Development of the Korean Financial industry sent a reply to the government about the future internationalization plan(Event 26; 11-29-88) However, the portfolio of securities companies showed significant and positive abnormal returns(+0.021 and +0.015) when the international convertible bonds were authorized to deal at the OTC market(Event 30; 1-3-90) and a matching fund of \$300 mil. was proposed(Event 32; 3-2-90), respectively. The change in stock price behavior of securities companies before and after the 1988 internationalization announcement suggests that the shareholders of securities companies adjusted their expectations in different ways as the internationalization progress became more tangible.

In contrast to the cases of banks and securities companies, it is important to note that insurance companies and investment and finance companies in the non-bank financial institution category gained around the announcement date of the 1988 revised internationalization plan. The portfolio of insurance companies experienced gains (+0.012 and +0.011) from two announcements that the seminar on the financial market liberalization and opening was held by the Ministry of Finance(Event 24; 11-8-88) and international convertible bonds were permitted to convert into domestic stocks(Event 28; 2-21-89). The portfolio of investment and finance companies also experienced gains (+0.023 and +0.028) when the banking and finance committee had the second meeting

(Event 25; 11-23-88) and international convertible securities were permitted to deal the OTC market (Event 30; 1-3-90)

An analysis of the portfolio responses in Table 4 suggests that as uncertainty about the final form and process of the internationalization was dissipated over time, different types of financial institutions in the same industry responded differentially to the internationalization issues.<sup>6)</sup> It could be suggested that the pattern of wealth redistribution is found within the same industry, which is consistent with Stigler's wealth transfer hypothesis that the regulatory process transfers wealth from one economic group to another. Contrary to Binder's argument (1985) that because regulatory changes are generally anticipated by the market stock price data may not be useful to measure the effects of regulatory changes, it is interesting that such a significant return response behavior which can be attributed to the passage of the financial internationalization is found.

Taken as a whole, thirty eight announcement events released in the process of the internationalization over eleven years provide a unique situation to measure the wealth effects of regulatory changes using stock price data. After the major, sequential, revised and comprehensive internationalization plans were announced in 1981, 1983 and 1988, an efficient market should have increasingly become aware of the following occurrence in the process of the internationalization and should have impounded the learning into stock prices that occurs in the form of anticipation. The anticipation would have been reflected in the market's ability to deal more effectively with later events. However, this study may have benefitted from high degree of uncertainty regarding the substance and likelihood of the following occurrence, caused by divergent interests of internal and external pressure groups in the industry and frequent revisions and short-term restrictions by the government

#### 4.2. Risk Responses

The important question concerning risk perception is whether there has been a corresponding change in investors' risk exposure in the financial institutions as domestic capital market became more open over time

Tables 2 and 4 contain the shift variables for intercept term ( $\alpha'$ ) and portfolio systematic risk ( $\beta'$ ) to examine potential changes in intercept term and systematic risk in the process of the internationalization.<sup>7)</sup> After the

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6) The test results of the null hypothesis that individual abnormal return are equal to zero for a given event also support this conclusion.

7) Chen and Salinger (1985) and Allen and Wilhelm (1988) also employ the

first internationalization plan was announced in January 1981, banks, securities companies, and investment and finance companies showed decrease in systematic risk response (-0.185, -0.141, and -0.759), while insurance companies showed insignificant systematic risk response.<sup>8)</sup>

After the internationalization plan was announced in December 1988, banks and securities companies experienced decrease in risk response (-0.170 and -0.020), while insurance companies and investment and finance companies experienced increase in risk change (+0.104 and +0.263).

Peltzman's analysis (1976) suggests that the risk of financial institutions would increase, resulting from financial opening. Since financial internationalization led economic participants to higher level of risk exposure in the transition of closed economy to world economy, the internationalization should increase the systematic risk contents of financial institutions.

An summarization of the test results for risk responses of banks and securities companies is inconsistent with the predictions of Peltzman's risk-buffering hypothesis that regulation reduces systematic and unsystematic risk and lowers the variability of earnings from what they would have been otherwise. On the contrary, the risk responses of insurance companies and investment and finance companies are consistent with Peltzman's hypothesis.

## 5. SUMMARY AND CONCLUSIONS

This paper examines the impacts of thirty eight of announcements released in the process of the internationalization of the Korean capital market from May 1980 to December 1990 on the return and risk response of publicly-traded financial institutions. For this purpose, this study has measured portfolio return responses and tested the significances for different types of financial institutions. The MVRM deals with full covariance of multivariate data of individual daily stock returns instead of drastically simplified equally-weighted portfolio returns to overcome the cross-sectional dependence between stock returns.

The empirical findings of the return responses can be summarized as follows first, the return responses became more significant as the uncertainty regarding the final form and contents of the legislation was resolved over time. In addition, the return responses differed across different types of financial institutions.

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intervention analysis to examine the possibility of risk shift from regulatory change.

- 8) The financial institutions had significant and positive systematic risk coefficients before the 1981 internationalization plan.

Second, the effects of wealth redistribution are found within the financial market, which is consistent with Stigler's wealth transfer hypothesis.

Third, it is important to note that there was an existence of market adjustment process within the capital market as securities companies which had previously lost, recovered those losses around the announcement of the 1988 internationalization plan and then gained from the recent events

Fourth, the different types of financial institutions in the sample showed insignificant responses in most cases. Such an overall insignificance could imply that the announcements did not convey new information because the information about the internationalization plans had leaked at the market prior to the announcement dates and the market had already impounded the information into stock prices. However, this study may have benefitted from the high degree of uncertainty about the substance and the likelihood of the financial interationalization, which was associated with divergent interests of internal and external pressure groups and frequent revisions and short-term restrictions by the government

Using intervention analysis, an examination of the market equilibrium process revealed significant decrease in systematic risk responses of banks and securities companies after the 1981 and 1988 long-range comprehensive internationalization plans were disclosed. This result is inconsistent with Peltzman's risk-buffering hypothesis. Contrastingly, the risk responses of insurance companies and investment and finance companies appeared to increase after the 1988 revised internationalization plan was announced

The internationalization of the Korean capital market is still under the ongoing process, it is not clear whether the internationalization is a success or a failure at this time. Although the precise framework to analyze the process of internationalization in terms of economic, institutional and political factors is not available for us, we hope that our empirical study could be fruitful for further research on the issue. The analysis of the stock market reaction to the internationalization of financial activities could provide empirical evidence for policymakers in designing policy tools to promote the wealth effects of regulatory change.

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Table 1  
Description of Events in the Process of Internationalization of the Korean  
Capital Market from 1980 to 1990

Event/Date	Contents of Information Released
Event 1 5-31-80	The Ministry of Finance comments on the internationalization of the Korean capital market.
Event 2 1-14-81	The initial comprehensive internationalization plan is disclosed.
Event 3 3-27-81	First foreign securities company of Japan opens the representative office in Seoul.
Event 4 8-31-81	Beneficial securities are proposed exclusively for foreigners
Event 5 10-13-81	Korea Fund is proposed as a sort of investment trusts in the U.S.
Event 6 1-11-82	The project for the Korea Fund is authorized.
Event 7 7-18-83	The 1981 initial internationalization plan is first revised.
Event 8 5-15-84	Korea Fund is established in the U.S with the capital of \$600 mil.
Event 9 6-1-84	Domestic securities companies are permitted to set up the overseas offices.
Event 10 6-13-85	Foreigners are allowed to invest in domestic securities companies.
Event 11 11-11-85	Domestic securities companies are permitted to issue international securities on the limited basis.
Event 12 11-15-85	U.S life insurance business in Korea is approved.
Event 13 1-7-87	Korea Euro-Fund is proposed.
Event 14 9-13-87	U.S insurance companies are permitted to do business as a joint venture.
Event 15 12-1-87	The government confirms to build up the internationalization of domestic capital market.
Event 16 4-18-88	Insurance companies are permitted do investment business abroad.
Event 17 5-20-88	The government outlines the proposal for financial reforms in the banking industry.
Event 18 6-3-88	Deregulatory measures are initiated to liberalize securities business.
Event 19 6-16-88	The Ministry of Finance implements measures to accelerate foreign direct and indirect investments.

Event/Date	Contents of Information Released
Event 20 8-25-88	The Ministry of Finance allows for domestic securities companies to expand international business.
Event 21 8-29-88	The Ministry of finance outlines the proposal for interest rate liberalization.
Event 22 10-14-88	The government confirms the internationalization plan as one of its major economic policies.
Event 23 10-25-88	The Banking and Finance Committee has the first meeting to review the internationalization plan.
Event 24 11-8-88	The seminar on the Korean financial liberalization and internationalization is held by the Ministry of Finance.
Event 25 11-23-88	The Banking and Finance committee has the second meeting
Event 26 11-29-88	The Advisory Committee for the Development of the Korean Financial industry sends a reply to the government about the internationalization of domestic capital market
Event 27 12-2-88	The 1988 revised comprehensive internationalization plan is announced
Event 28 2-21-89	International convertible bonds are authorized to convert into domestic stocks
Event 29 8-8-89	The Ministry of Finance expands indirect financial opening
Event 30 1-3-90	International convertible securities are permitted to deal at the OTC market.
Event 31 1-11-90	Foreign securities companies are allowed for domestic branching and joint venture.
Event 32 3-2-90	A matching-fund of \$300 mil. is proposed to revitalize the stock market in recess.
Event 33 6-5-90	Korea Asia-Fund is proposed to establish in August 1990
Event 34 6-11-90	Foreign securities companies is partially reregulated for entry into domestic market
Event 35 6-14-90	Domestic securities companies are allowed to enter the EC
Event 36 10-10-90	Korea Asia-Fund is proposed
Event 37 11-23-90	Foreign securities companies are allowed to set up representative offices
Event 38 12-5-90	Foreign exchange transaction restrictions are alleviated for domestic companies to strengthen international business.

Source: Mael Economic Newspaper, Stock

Table 2  
Portfolio Abnormal Returns for Event Announcements Surrounding the 1981  
and 1983 Internationalization plan<sup>+</sup>

$$H_0 : \delta'_{ia} = 0$$

Parameter Event/Date	<u>Bank</u>		<u>Securities Companies</u>		<u>Insurance Companies</u>		<u>Investment and Finance Companies</u>	
	Parameter Estimate	t-value	Parameter Estimate	t-value	Parameter Estimate	t-value	Parameter Estimate	t-value
$\alpha$	-0.000	-0 410	-0.001	-1.951	0.001	1.318	0.000	0.716
$\alpha'$	0 000	0.492	0.001**	2.288	0.000	1.374	0 000	0 712
$\beta$	0 157*	3 000	0.245*	6.343	0.063**	1 898	0.927*	7.525
$\beta'$	-0.185**	-2 573	-0.141*	-2 658	0.000	1.374	-0 759*	-4.680
1/ 801201	-0.000	-0.067	-0.030*	-4.160	-0 000	-0 031	-0.005	0 134
2/ 810114	-0 001	-0.167	-0.005	-0.793	-0 001	-0 131	-0.001	0.975
3/ 810327	-0 004	-0.409	-0.002	-0.351	0 019	0.098	0 019	0 102
4/ 810803	0 007	0 785	0 004	0.586	-0.001	-1 196	0.001	0.135
5/ 811013	0 004	0.483	0.000	0 088	-0.002	-0.367	-0.002	-0.185
6/ 820111	-0.001	-0.171	-0.007	-0 018	0 003	-0.143	0 003	0 306
7/ 830718	-0 003	-0 351	-0 007**	2 420	-0.000	-0 079	0.000	0 048
d f.	(1,18162)		(1,6403)		(1,11737)		(1,7472)	
DW	1.933		2.005		1 945		2.000	
R <sup>2</sup>	0 033		0.012		0 001		0.008	

+ computed with estimated full covariance matrix

\* significant at the 0.01 level

\*\* significant at the 0.05 level

( ) degree of freedom

Table 3  
Portfolio Abnormal Returns for Event Announcements Surrounding the 1983  
and 1988 Internationalization plan<sup>+</sup>

$$H_0 \quad \delta_{ja} = 0$$

Parameter Event/Date	<u>Bank</u>		<u>Securities Companies</u>		<u>Insurance Companies</u>		<u>Investment and Finance Companies</u>	
	Parameter Estimate	t-value	Parameter Estimate	t-value	Parameter Estimate	t-value	Parameter Estimate	t-value
$\alpha$	-0.000**	2.020	0.001**	1.942	0.001*	3.087	0.001**	1.905
$\beta$	0.592*	11.789	0.724*	11.889	0.326*	7.133	0.071	1.100
8/ 840515	-0.000	-0.076	-0.002	-0.119	-0.002	-0.199	-0.013	0.997
9/ 840601	-0.007	-0.868	0.005	0.388	0.005	0.388	-0.007	-0.475
10/ 850613	-0.005	-0.591	-0.015	1.167	0.015	1.167	-0.004	-0.021
11/ 851111	0.005	0.178	-0.006	-0.514	-0.000	-0.032	0.001	-0.094
12/ 861115	-0.003	0.433	-0.004	-0.211	0.020	1.496	-0.000	-0.021
13/ 870107	-0.032	-0.005	0.009	0.673	-0.029*	3.044	0.006	0.475
14/ 870913	0.035	1.907	0.023	1.245	0.023	1.245	0.202	0.997
d f	(1,19250)		(1,6789)		(1,12454)		(1,7922)	
DW	1.746		1.681		1.003		1.876	
R <sup>2</sup>	0.009		0.159		0.008		0.001	

+ computed with estimated full covariance matrix

\* significant at the 0.01 level

\*\* significant at the 0.05 level

( ) degree of freedom

Table 4  
Portfolio Abnormal Returns for Event Announcements Surrounding the 1988  
Internationalization plan

$$H_0 : \delta'_{ja} = 0$$

Parameter Event/Date	<u>Bank</u>		<u>Securities Companies</u>		<u>Insurance Companies</u>		<u>Investment and Finance Companies</u>	
	Parameter Estimate	t-value	Parameter Estimate	t-value	Parameter Estimate	t-value	Parameter Estimate	t-value
$\alpha$	0.000	1.382	0.000	1.145	0.001*	3.701	0.001*	2.888
$\alpha'$	-0.000	-1.147	0.000	0.373	-0.002*	-4.565	-0.002*	-2.844
$\beta$	1.306*	42.100	1.295*	35.321	0.268*	9.782	0.735*	18.910
$\beta'$	-0.170*	-4.185	-0.020**	-2.205	0.104*	2.886	0.263*	5.151
15/ 871201	0.000	0.191	-0.011	-1.319	0.009	1.719	-0.006	-0.798
16/ 880419	-0.013**	-2.393	-0.004	-0.510	0.003	0.564	-0.012	-1.691
17/ 880525	0.008	1.438	-0.008	-1.253	0.000	0.061	-0.010	-1.495
18/ 880603	-0.007	-1.225	-0.006	-1.293	-0.008	-1.554	-0.007	-0.985
19/ 880616	-0.001	-0.243	-0.008	-0.859	-0.008	-1.577	-0.004	-0.687
20/ 880825	0.001	0.179	-0.008	-0.769	-0.000	-0.074	-0.005	-0.559
21/ 880829	0.000	0.053	0.008	0.808	-0.009	-1.307	-0.002	-0.286
22/ 881014	0.005	0.959	0.005	0.790	0.001	0.374	0.007	1.032
23/ 881025	0.001	0.223	-0.004	-0.421	0.000	-0.029	0.003	0.428
24/ 881108	-0.000	-0.004	0.000	0.118	0.012**	2.338	0.001	0.205
25/ 881123	0.008	1.463	0.008	0.823	0.010	1.821	0.023*	3.150
26/ 881129	-0.005	-0.849	-0.018**	-2.341	-0.003	-0.649	-0.013	-1.935
27/ 881202	-0.004	-0.709	0.004	0.577	0.008	1.580	-0.002	-0.314
28/ 890221	0.002	0.412	-0.000	-0.104	0.011**	2.231	0.003	0.407
29/ 890808	-0.007	-1.274	-0.005	0.726	-0.005	-1.004	-0.008	-1.196
30/ 900103	-0.013**	2.184	0.021*	2.653	-0.004	-0.763	0.028*	3.758
31/ 900111	-0.001	-0.246	-0.000	0.126	0.008	1.577	0.005	0.716
32/ 900302	0.001	0.297	0.015**	2.010	-0.004	-0.822	0.004	0.633
33/ 900605	0.001	0.227	0.002	0.357	0.003	0.600	0.004	0.574
34/ 900611	0.003	0.509	0.001	0.018	-0.005	-0.966	0.004	0.483
35/ 900614	-0.006	-1.007	-0.009	-1.367	0.006	1.237	-0.002	-0.309
36/ 901010	-0.005	-0.896	0.004	0.598	0.005	1.099	0.008	1.184
37/ 901123	-0.001	-0.188	-0.000	-0.010	0.009	1.706	-0.004	-0.653
38/ 901205	0.008	1.384	0.002	0.287	0.008	1.632	0.008	1.098
d. f	(1, 18533)		(1, 12140)		(1, 11279)		(1, 8196)	
DW	1.764		1.782		2.046		1.675	
R <sup>2</sup>	0.127		0.197		0.036		0.137	

+ computed with estimated full covariance matrix

\* significant at the 0.01 level

\*\* significant at the 0.05 level

( ) degree of freedom