

MARKET IMPERFECTIONS AND INTERNATIONAL CAPITAL MARKETS INTEGRATION⁽¹⁾

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INTRODUCTION

We attempt to survey the literature in integration of world capital markets with concentration on the sources of segmentation and to compare the findings of selected recent literature with the implications of simple comovements of stock price indices across major world markets. Parallels have been observed between the results of the recent literature and share price comovements. Further, evidence supports that the capital controls are the only type of market imperfection that causes segmentation in capital markets. As controls over the markets are removed, world capital markets have gradually become more integrated. However, segmentation still persists among and between markets. Evidences from European Community, Japanese, and North American stock markets support partial integration at global level. Most European Community stocks prices have displayed comovements within the Community after the mid eighties. The U.S. and the Canadian stock markets are partially segmented. Integration between the U.S. and the Japanese stock markets, the two largest in the world, is also supported by the evidences of recent studies. These two have become gradually more integrated after the enactment of the Law concerning foreign investment passed in 1980.

AN OVERVIEW:

Empirical studies of international capital markets have failed to accept the hypothesis that the world capital markets are strictly integrated. Most researches on international asset pricing have supplied evidence of segmentation in capital markets irrespective of the level of market capitalizations. Some studies have found evidence

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that market segmentation level is relatively less than is commonly expected in some less developed country (LDC) markets with respect to the U.S. markets. Europe on the other hand is in the process of transforming itself into a single internal market. Research has also shown that Japan has exhibited a peculiar case in terms of financial integration since its markets were practically closed to foreign investors until the eighties. Although no empirical study has supported the argument that the international capital markets integration can be justified, recent works have shown that there is a remarkable movement toward a greater integration across world capital markets particularly as a result of radical developments of the decade of eighties that have led to removal of capital controls over most financial markets.

It is commonly accepted that market imperfections are the source of segmentation in capital markets. Nevertheless, what type of market imperfection causes segmentation is still an open discussion. Identifying market imperfections as causes of segmentation in practice is very important to specify the market imperfection to corporations making capital budgeting decisions, to macroeconomic policy makers thinking that they correctly deal with the efficient distribution of available capital among the various sectors in their economies, and finally to the investors facing different risks when they invest in foreign securities.

There are in general two major imperfections accepted by the literature in international capital asset pricing. One is the presence of government impediments, and the second one is the assumed inability of a investors to trade in a foreign capital market. An exchange rate risk can also be added to this list. Our objective in this paper is to discuss the causes of segmentation-that is market imperfections in world capital markets and to evaluate the importance of integration by surveying a number of case studies in the literature. We will focus on the particular imperfection of capital controls.

A non-technical descriptive methodology is accompanied to the survey where we search for comovements of share prices across world capital markets. Unless otherwise stated, stock markets are meant by capital markets. Only share prices are represented by the IFS stock markets data are adopted for comparison purposes.⁽²⁾ Financial markets other than stock markets are not considered.

We will proceed first by highlighting the importance of an integrated world capital market. This will be followed by a discussion of the nation of integration and a general view of the issue along with the

(2) International Financial Statistics, 1986 Supplement on Price Statistics, and updates from 1986 on.

major factors that cause lack of integration in capital markets. Next, we will survey the literature. Further, the securities markets in four selected segments of the world, namely the North America, Europe (in particular the European Community), Japan, and LDC markets are examined based on a comparison of each part to a benchmark U.S. market. Special emphasis is given to the European Community (EC) capital markets. In each case the status of integration (or segmentation) is clarified and sources of segmentation or partial integration are discussed in detail. Comovements in share prices are also examined. Finally, a conclusion will follow.

AN INTEGRATED WORLD CAPITAL MARKET

Existence of an integrated world capital market has been considered as a desirable target by quite a few professionals and by a good number of politicians who favor either less or no government impediments regulating national capital markets. Capital markets integration are desirable for different economic agents who are motivated by different reasons. Firstly, it is desirable for the economic policy makers who see the integration as a vital element of economic efficiency in as much as it ensures that available financial resources are mobilized and can practically go anywhere without national boundaries to capital movements. Secondly, integration makes it more convenient for corporations to carry out their capital budgeting plans by providing them with an international financial environment where funds are mobilized.

Finally, it is important for private investors who want to diversify their funds internationally. Individual investors struggle with optimizing their hedging and borrowing decisions. For those who invest internationally financial decision making involves strategies to manage unknown peculiarities of foreign capital markets. If markets are segmented then the optimum hedging and buying behavior becomes a very different task to carry out.

If national stock markets are segmented, then international investors can even diversify the domestic systematic risk or at least some part of it through setting international portfolios. Therefore, international portfolios exhibit superior risk adjusted performance. Integration, on the other hand, should imply that investors earn the same risk-adjusted expected return on similar or identical assets traded in different national markets. That is, risk should carry the same price across stock markets if there is integration.

MODELS OF CAPITAL MARKETS INTEGRATION A REVIEW OF THE LITERATURE

A. THE CONCEPT OF RISK PREMIA DIFFERENTIALS

Capital markets are said to be integrated if the risk associate with similar assets traded in different exchanges carries the same price. A stricter version of this definition suggests that capital markets are integrated if assets with perfectly correlated rates of return meaning identical assets have identical risk premiums regardless of the location in which they are traded. Therefore, risk premia differentials should imply some level of segmentation in capital markets, and sources of risk premia differentials should explain the causes of segmentation.

A rich body of studies in the theory of international capital movements have found that different risk premiums for similar assets traded in different exchanges are caused by some market imperfection. However, since market imperfections have been seen in varying forms from one market to another -that is, peculiar to the market is the type of imperfection- the theory that links market imperfections to segmentation is not a standard one.

Thus, we find it appropriate and necessary to assume in the existence of a particular market imperfection and to assume away other imperfections for the question of integration is an elusive one.⁽³⁾ We postulate that the capital controls over stock markets are the only source of segmentation. That is, risk premia differentials are caused by national governments' impediments. Indeed, the recent literature is biased toward the assumption that capital controls are important sources of segmentation in stock markets. Thus, we assume away the exchange rate risk, and inability of a group of investors to trade in a class of securities. As a matter of fact, two of these three imperfections have been necessarily assumed away in the literature. In section three we will come back to the postulate that the capital controls -or in general legal barriers to investment are the sources of segmentation in capital markets and discuss its validity case by case.

B. MODELS OF CAPITAL MARKETS INTEGRATION:

1. Non-Asset-Pricing-Models of Capital Markets Integration

Although most empirical studies carried out recently are based on models of international asset pricing, numerous previous works fo-

(3) Specifying the type of integration before undertaking any model of integration or of segmentation is recommended by Solnik (Solnik, 1974, 1977)

cused on the discrimination between the segmentation and integration on the basis of simple correlation coefficients. By calculating correlation coefficients among equity returns in various countries, some works linked capital markets integration to these coefficients. For instance, Ibbotson, Carr, and Robinson (1982) found high degrees of correlation within various groups of countries. Germany, Switzerland, and the Netherlands exhibited a great deal of comovement as did the United States, Canada, Australia, Hong Kong, Singapore, and the Netherlands. It was argued that these comovements of returns should be a signal for capital markets integration (Ibbotson, Carr, and Robinson, 1982).

Contrary to this argument, however, are the findings of most recent studies that adopt capital asset pricing models. That is, the issue of integration versus segmentation has not been given a clear cut answer by the recent empirical works. Among those, Errunza and Losq (1985) for instance, find evidence supporting what they call "mildly segmented" world capital markets. Similarly, Jorion and Schwartz (1986) reject the hypothesis of integration between the Canadian and the U.S. markets. For an account of the inappropriateness of the covariance matrix of returns see Adler and Dumas (1975, and 1983) who argue that the matrix does not give information on the presence or absence of capital markets integration. (See also Solnik (1977))

Still another approach that was adopted in a couple of early works on international capital markets is to test the validity of interest rate parity and link such tests to the tests for market integrations. It was argued that making the assumption of the existence of perfectly capital markets is sufficient to set forward an interest rate parity relation. Since perfect capital markets imply capital markets integration, there seems to be a link between the tests of interest rate parity and the test of capital markets integration.

2. Asset Pricing Models of Capital Markets Integration:

2.1. Single Index Models:

Recent literature in international asset pricing and capital market segmentation appear to follow two lines of research. Most of the empirical studies in the field concentrate on testing whether or not international capital market integration exist. These works have in general adopted an international single asset pricing model of Sharpe-Lintner tradition based on the standard assumption that the return on any security is a linear function of the return on the domestic market index.

International extension of CAPM based on the standard Sharpe-Lintner postulate was first studied and adopted by Solnik (1974) who

derived a single index model and further investigated whether a domestic factor -for instance that part of the return on the domestic portfolio that is uncorrelated to the world portfolio- can solely explain the variations in stock returns via world market index. The following is the international version of a single index model that is in essence similar to what Solnik, Stehle (1977) and others have derived:

$$E(r_i) = \alpha + \Gamma \beta_{i,w} \quad (1)$$

Where $r_i = r_{i,n} - r_f$ = excess return on asset i , $r_{i,n}$ is the nominal return, r_f is the risk free rate, and $r_w = r_{w,n} - r_f$ is the excess return on the world market. β_i is the sensitivity of the world index on security i . The sensitivity coefficient is also known as factor loading. * stands for the estimated risk premia. In this setting, a zero intercept corresponds to the Sharpe-Lintner version and a nonzero intercept implies a version of the Black model.

Then the question raised is whether a single world index model would give a reasonable description of international asset prices. If the argument is a valid one, then the parameters of two regressions, one that regresses returns on a domestic market index, and the other that regresses returns on an international market index should answer the question of integration or segmentation. That is, capital markets are said to be integrated if the international factor is priced, or markets are segmented if a purely national factor is priced. adopting this model, many of the empirical works fail to reject the hypothesis that the world markets are integrated.

Having examined the issue of market segmentation for the Canadian stock market, for instance Jorion and Schwartz (1986) reject the integration, in a recent study. Their test support a strong degree of segmentation between the Canadian markets and the global North American market. A "mild" market integration that is partial integration of some degree is only supported for the interlisted stocks. They suggest that their rejection of the joint hypothesis of integration of the North American equity market combined with the CAPM is due to their adoption of the maximum likelihood technique, a more powerful technique than the traditional Fama-MacBeth two-pass approach.⁽⁴⁾

Similarly, Errunza and Losq (1985), applying a model originally developed by Stulz (1981a, and 1981b) find evidence to support the

(4) Their work has important implications for the role of market imperfections in integration of capital markets. This will be further considered when we examine the issue case by case.

mild segmentation hypothesis in their work which includes a large number of world capital markets. Their work, unlike many others, is based on the assumption that the only market imperfection is "the assumed inability of a class of investors to trade in a subset of securities." (Errunza and Losq, 1985) They suggest that the securities inaccessible to some investors display super risk premiums that are proportional to the conditional market risk, a new risk concept which means the conditional covariance between the return on a security specific and the return on the market portfolio. (Errunza and Losq, 1985)

In one of the early works comparing the international and domestic versions of the CAPM, Stehle (1977), whose model is based on empirically the Fama-McBeth cross-sectional, time series approach, can not reject the hypothesis of segmentation, nor can he reject the integration hypothesis. Stehle adopts a multi-period capital market equilibrium model based on logarithmic utility functions. He proceeds to test whether risk premiums on U.S. stocks during the period 1956-1975 were determined as if the U.S. market were segmented from the rest of the world or were integrated fully. It turns out that the data do not provide any support for the domestic model. Yet, he cannot accept the validity of the international model, either.

Although the single index models are widely used in the literature, this should not suggest that they are trouble free. In fact, single index models of standard Sharpe-Lintner tradition have had some empirical problems. One such problem lies in the difficulty in assuming a universal logarithmic utility function or no correlation between the exchange rates and and stock returns. This assumption is inherent to the single index capital asset pricing models. Recent models, such as several versions of the arbitrage pricing theory argue that single index models cannot capture the structure of international asset prices. Single asset prices are also criticized for their weakness about addressing the sources of capital markets segmentation.

Briefly speaking, most studies adopting international versions of standard capital asset pricing models and comparing a domestic market to an international benchmark market have concluded that world markets are neither integrated nor segmented. This conclusion also suggests that domestic factors still play a major role in international asset pricing. (See for instance Jorion and Schwartz (1986), Errunza and Losq (1985)).

2.2. Multi-Index Asset Pricing Models of Integration and the APT:

It is often questionable whether a single global world index would describe properly the international structure of capital assets. That is, the results of two cross sectional regressions that employ one of

the two alternative systematic risk measures as the single independent variable cannot answer whether capital markets are segmented or integrated. Returns are likely to be affected by several other independent and international factors in addition to the national risk. Thus, return should follow a multi-factor linear generating process where in domestic market index is one of the factors.

Some recent works have adopted an international version of a multi-index asset pricing model where equilibrium rates of return are set by arbitrage conditions. (Berges (1981), Cho, Eun, and Serbet (1986), Korajczyk, and Viallet (1986), Gültekin, and Penati (1989, and 1990) Arbitrage pricing theory (APT), unlike the single index pricing models attributes the changes in stock returns to more than one indices.

The return generating stochastic process under the assumption of APT is a linear multi-factor regression wherein several (k) number of factors make up the systematic risk. It has been argued that one of the advantages of employing the APT in an international capital asset pricing framework is that it eludes the problem of purchasing power parity deviations for the pricing and estimation of risk premia in this model are based on an arbitrage condition of nominal returns. A disadvantage of adopting an APT model is that factor elimination process and testing are both costly and nonstandard. The following is a typical APT multi factor return generating model as adopted widely in the literature:

$$r_{it} = E(r_i) + \sum_{k=1}^k b_{ik} \partial_{kt} + \varepsilon_{it}$$

$$E(\partial_{kt}) = E(\varepsilon_{it} | \partial_{kt}) = 0 \quad (2)$$

Where

r_{it} = Return on security i between time t-1 and t for any finite i

$E(r_i)$ = Expected return on security i

∂_{kt} = The kth common factor, i.e. source of systematic risk between time t-1 and t

b_{ik} = The kth common factor sensitivity of the return on security i, also called factor loading

ε_{ik} = the idiosyncratic unsystematic risk or the residual risk of the return on the ith security between time t-1 and time t. It is assumed to have zero mean and finite variance and to be sufficiently independent for a law of large numbers to apply.

$$E(r_i) \approx q_0 + b_{i1}q_1 + b_{i2}q_2 + \dots + b_{ik}q_k \quad (3)$$

Where

q_0 = Expected return on the zero-beta (risk free) asset

q_k = The risk premium on the k^{th} common factor, $k= 1,2,\dots, K$.

The task of a multi-factor return generating APT here is to estimate the risk premia, that is a vector of q 's, and to test whether the q 's, are priced. Next, vectors of different stock markets are compared to see if the risk premia differentials are existent.

The definition of capital markets integration in the context of arbitrage pricing theory is driven from an arbitrage condition of asset prices. Specifically, if arbitrage ensures that risk carries the same price in, say, two different stock markets in two countries, then it follows that these two markets are integrated. That is, capital markets are said to be integrated if assets with perfectly correlated rates of return have the same price regardless of the location in which they are traded. According to Stulz (1981) it is natural to look at the integration of capital markets based on risk premia differentials.

3. Consumption Based Asset Pricing Models of Integration:

A relatively less received model in the literature of international asset pricing is based on consumption. Some of such models test the equality of the marginal rate of substitution across countries. In an empirical work, Obsteld (1986) fails to reject the hypothesis of integration. Wheatley (1988), using a discrete-time version of the consumption-based asset pricing model, cannot provide enough evidence against the joint hypothesis that equity markets are integrated internationally and that the asset pricing model holds.

C. METHODS ON THE SOURCES OF SEGMENTATION IN CAPITAL MARKETS

A group of recent studies in the literature argues that a widespread rejection of integration should not suggest that there is no empirical question left unanswered. Rather, that the future researches ought to aim at the specific causes of segmentation in world capital markets. Gültekin, et al., (1990) for instance argue that generalized tests of capital market integration are likely to be uninformative. They, therefore suggest case-specific studies wherein experiences of one or two countries are examined rather than the world market as a whole. In their event study, Gültekin, et al. (1990) take the specific case of Japanese capital market versus its American counterpart.

The common sources of segmentation in world capital markets can be summarized in three groups based on the implications of these sources:

1. Implications of exchange rate risk on international asset pricing given that no government impediments over the capital markets exist. Further, the inability of a class of investors to trade in a particular group of assets is assumed away. (Solnik (1974, and 1977))

2. Implications of market imperfections in the form of direct (legal) barriers to investment on asset pricing such as capital controls over the markets assuming that exchange rate risk is either negligible or absent. also, the inability of a group of investors to trade in is ruled out. (Stulz (1981a, 1981b), Jorion and Schwart (1986), Gultekin, Gultekin, Penati (1990)).

3. Implications of those market imperfections created by the inability of a group of investors who trade in capital markets. Exchange rate risk and capital controls are assumed away. (Errunza and Losq, 1985)

There appear to be two methods attempting to extract possible sources of segmentation in the literature. We will briefly outline these two methods.

1. Method of Interlisted Stocks:

This method is based on how well (or badly) the interlisted stocks in more than one exchanges are integrated. Two possible outcomes are evaluated as follows:

1. If imperfections were caused by indirect barriers (the term is due to Jorion and Schwartz (1985)) and if indirect barriers were the only source of segmentation in capital markets, then we would expect that the interlisted stocks are integrated but the domestic stocks (those that are not interlisted) are segmented.

Based on the classification of Jorion and Schwartz (1985) the following indirect barriers are common:

- a) Difficulty of obtaining information about foreign stocks,
- b) Differences in the dept and quality of financial reporting due to the differences in accounting disclosure requirements,
- c) Impediments based on traditional practices such as reluctance to deal with foreigners, or any other indirect cost of doing business abroad.

2. If, on the other hand both the interlisted and the domestic stocks were segmented, we could then conclude that the effective barriers are of the legal type such as

- a) Differential juridical status between the domestic and international investments.
- b) Differential tax considerations,
- c) Restrictions on ownership of foreign securities,
- d) Any other barrier linked to the origin of the security.

2. Method of comparison based on pre and post liberalization:

Since the end of the seventies, world capital markets have been subject to less capital controls that have gradually lifted even over the third world markets. Therefore, one can look at the pre and post liberalization periods in one or two specific markets and compare the risk premia. The disadvantage of the method is its lack of generality. That is, if markets are segmented for the reasons other than controls of national governments, then this method does not help much. However, given the fact that quite a few nations have lifted capital controls over their markets, this method can explain a good part of market segmentations.

Based on two possible outcomes, we can evaluate the issue of capital markets segmentation in this method as follows:

1. If the government impediments to foreign investment are the only source of segmentation, the price of risk in two or more selected capital markets should be different before but not after a specific liberalization act.
2. If the risk premia do not differ significantly from their pre liberalization levels, then there are other reasons for market segmentations.

III. MARKET IMPERFECTIONS

Market imperfections can be classified under two major groups that seem to be different in nature. The first group of imperfections is what we call indirect barriers to investment. Indirect barriers are the inability of a group of investors to trade in foreign capital markets as described earlier. The most common indirect barriers are cost of obtaining information about foreign securities, differences in the content and quality of financial reporting due to differences in accounting disclosure requirements, and impediments based upon cost of doing investment abroad. among these three the first one is common to all international investors. The following two appear to be relatively more important for those who invest in LDC capital markets.

The first group of market imperfections do not explain the major part of segmentation existing in capital markets. What explains the existence of segmentation (by segmentation we always mean partial

segmentation because perfect segmentation is an extremely unlikely case.) is the second group. This group consists of legal barriers to international investment.

In general, these barriers are anything that discriminates the country of origin. More specifically, we see restrictions on ownership of foreign securities, juridical status differences between foreign and domestic investments, differential taxation, and several other government impediments to capital movements as the most common applications of legal barriers.

There is sufficient evidence in the literature of international capital markets that legal barriers are in most cases the only source of capital markets segmentation. We will now look into the sources as observed in several capital markets and compare them to the U.S. markets on the basis of integration. Unless we note otherwise, we refer to a combination of NYSE and AMEX when we say U.S. markets.

A. Japanese Capital Markets:

Japanese capital markets are among the largest in the world. They have outperformed most securities markets both in terms of returns and market capitalizations. Thus, whether or not Japanese markets are integrated to the rest of the world becomes an important issue. Studies show that Japanese capital markets have increasingly become more integrated to other markets, especially to the U.S. markets. In this respect, there is a considerable difference between Japan in 1980 and Japan in 1990. What has made Japanese markets become more integrated in this decade is of interest.

Studies dealing with the integration versus segmentation issue in Japan proposed that government policies are (were) the major sources of segmentation (Gultekin, Gultekin, Penati, 1989) Japanese markets that were under strict government controls before 1980 have changed dramatically in the past decade. It has been shown that the effects of government impediments on stock markets in Japan are substantial. Gultekin, Gultekin, and Penati, after having examined the risk factor in the Japanese and U.S. capital markets have concluded that the capital controls of the decade of seventies were the only reasons for segmentation between the two markets. (Gultekin, Gultekin, Penati, 1990)

The Study looked at the market price of risk both before and after the enactment of the Foreign Exchange and Foreign Trade Control Law of December 1980 in Japan and tested the risk premia differentials. The two markets exhibited large risk premia differentials before the year of 1980. the differences in risk premia have gradually decreased from that year on.

TABLE I
Gross Equity Related Capital Movements In Japan

<u>Fiscal</u> <u>Year</u>	<u>Japanese Trade in</u> <u>Foreign Stocks</u>	<u>Foreign Trade</u> <u>in Japanese Stocks</u>
1977	466	6,131
1978	653	11,385
1979	1,030	12,034
1980	1,132	25,383
1981	1,533	44,699
1982	2,663	35,905
1983	3,356	70,025
1984	4,503	77,825

Gross Equity is measured as the sum of stock purchases and sales for the fiscal year.

Source: Bank of Japan, Annual Report, 1987.

The Foreign Exchange and Foreign Trade Law in December 1980 that was put into effect immediately after a period of heavy capital controls completely liberalized short term capital movements in Japan. Since December 1980 the Japanese government has supported the internationalization of the domestic currency and improved the access of foreign investors to all Japanese security markets. Foreigners were also allowed to trade in domestic money market in Japan. Japanese banks were encouraged to raise funds in international markets and to transfer them to Tokyo.

As a result of these radical measures, foreign investment in Japanese stocks has increased from some \$ 13.7 billion in 1980 to \$190 billion in 1987 as foreign purchases and from \$ 8.1 billion to \$ 250.6 as sales. Japanese investment in foreign stocks has also increased sharply during the same period. (See Table I for the trend of gross equity movements. This table shows the difference between the pre Act heavy control period and the after Act period. See also Table II for a comparison of 1980 to 1987)

This drastic change was primarily due to the Act. In this mentioned empirical study, Gultekin and others have found evidence to support the argument that the price of risk in the U.S. and Japanese stock markets was different before, but not after the liberalization act. This conclusion suggests that Japanese government in particular was only the source of segmentation.

TABLE II
Foreign Investment in Japanese Stocks

	Purchases	Sales	Net
1980	\$ 13.7b	8.1	5.6
1987	190.0	250.6	-60.6

Japanese Investment in Foreign Stocks

1980	0.3	0.3	-0.05
1987	89.0	67.6	21.4

Source: Hamao, Yasushi (1990)

B. Integration within the North American Markets:

Contrary to the general perception of the Canadian and the U.S. capital markets, these two are not well integrated. In an empirical study, Jorion and Schwartz have found out that this is not the case. (Jorion, and Schwarz, 1985) Using the return data on the U.S. and Canadian stock markets the authors concluded that the source of segmentation can be traced to legal barriers based on the nationality of the issuing firms. Although their conclusion is based on a very powerful estimation method that may result in a segmentation in any segment of the world if adopted correctly, it still sheds some light to where the North American capital markets integration stands. It is also the most recent empirical study investigating the integration issue within North American markets.

What is more interesting about their work is that they compare the Canadian stock market to a global North American capital market, and they fail to reject that the Canadian stock markets are integrated to a benchmark North American market. The most important reason for the existence of a high level of segmentation in case of the Canadian stock markets is the presence of investment restrictions.

It is further important to note that their rejection of integration held for both interlisted and purely domestic assets and that the exchange risk should be smaller than other countries in the world. This case study shows that a major source of segmentation can be linked to legal barriers.

3. European Capital Markets and Regional Integration:

European (EC in particular) capital markets are different in that they exhibit less market segmentation within Europe relative to their North American counterparts. This can be justified by the fact

that they have gradually eliminated restrictions and capital controls were virtually eliminated in most EC countries. Greece and Portugal are the only two that are still outside the exchange rate system (ERS)

The history of the idea of financial integration within the European Community goes back to the early sixties. The Council of Ministers of the Community -then of six member states had adopted two Directives that set out initial obligations for the removals of capital controls in member states in 1960 and 1962 respectively. These directives to deregulate the capital transactions associated with a number of basic financial freedoms in the Community such as short term and medium term credits, personal capital movements, investments, and trade in quoted securities. A third proposal was also submitted by the Commission in 1964. This was intended to remove the remaining discrimination in the legislations of member states regarding stock exchange listing, the issuing and placing of securities, and the acquisitions of securities through financial institutions. Nevertheless, this proposition was rejected by the Council of Ministers.

Early years of the decade of sixties were relatively successful. They would have been much more effective, had the international economic order of the late sixties and seventies been stable. Two major events caused serious setbacks toward the gradual liberalizations of capital movements -the objectives of the two proposals in the Community. First, the end of Bretton-Woods and the U.S. Treasury's cease the dependence of the dollar to gold brought about uncertainties for the future of the EC. Second, the oil crises of the seventies simply pushed the EC member states to concentrate on their domestic problems. The implications of all these for the capital markets were that most member states reintroduced controls on capital movements. Besides, the three new members of the Community, Britain, Ireland, and Denmark brought with them strict controls on capital movements.

The decade of eighties, unlike the seventies, was a decade of a fast movement toward an integrated European market. Britain and the Federal Republic of Germany had removed most of the restrictions on capital movements in 1979 and in 1981 respectively. After the 1983 financial integration initiative of the European Commission, three other EC member states, France, Italy, and Ireland followed Britain and Germany. France and Italy abolished remaining capital restrictions as recently as January and May 1990. With relatively less developed capital markets, Greece, Spain, and Portugal are still in the process of eliminating capital controls by the end of the deadline year 1992.

Share price indices in the EC capital markets exhibit greater movements in the second half of the decade of eighties than the first

half of the same decade. Comovements in stock prices are particularly displayed in the stock exchanges of Belgium, Denmark, France, Germany, Luxembourg, and Netherlands. The southern part of EC, Italy, Spain, Portugal, and Greece do not follow the same pattern of convergence. A high degree of convergence in share prices across the EC capital markets has been observed since the implementation of the Single European Act where the legal and procedural framework of the European integration have been determined. An important part of this act consisted of a number of initiatives on the liberalization of capital movements.

Although the European markets appear to be more integrated within Europe, they are not integrated to the rest of the world. One study has found evidence that the three of the largest capital markets in Europe, namely Germany, Switzerland, and Netherlands are more integrated than many others are. Besides, European capital markets are remarkably smaller than the North American and Japanese markets in terms of market capitalizations. The North American and Japanese capital markets account roughly 80 percent of the entire world capitalization. (See Table III)

TABLE III
Equity Markets Capitalization

Countries included in The World Index	\$ Billions	% World Total	% World Index
France	53	2.2	2.3
Germany	71	2.9	3.1
Switzerland	46	1.9	2.0
United Kingdom	190	7.8	8.4
Japan	357	14.7	15.7
Australia	60	2.5	2.7
Canada	113	4.6	5.0
United States	1371	56.8	5.0
The World Index	2271	93.4	100.0
Other Countries	159	6.6	-
Total World Equities	2430	100.0	-

Equity market capitalization is measured in U.S. dollar as of the end of 1980.

Source: Ibbotson, Carr, Robinson (1982).

4. Emerging Capital markets' Integration to the U.S. Markets:

LDC countries, on the other hand exhibit a peculiar case. Contrary to the traditional perceptions about the third world capital markets,

studies have indicated that these markets are fairly well integrated to their developed counterparts, and most particularly to the U.S. markets. It has been shown that the level of segmentation between the U.S. market and a basket of large number of securities from 10 emerging capital markets is "mild". (Errunza, and Losq, 1986)

Comovements between security price indices in a large number of LDC capital markets and the U.S. capital markets have been observed from the IFC emerging markets data. We think that this should be attributed to the fact that in the eighties third world capital markets have gradually become more open to the international investors and thus foreign borrowing has been replaced by foreign direct or portfolio investment to the LDCs.

CONCLUSION:

World capital markets are in general partially segmented. Based upon the theory that integration of capital markets necessitates the equality of risk premia between similar securities traded in different locations, the determinant causes of segmentation are the legal barriers to foreign investment, more specifically government impediments in the form of capital controls. Indeed studies have shown that government controls over the capital markets are the only source of segmentation between the securities markets. Persisting capital controls of any form can always bring about some level of market segmentation.

We have attempted to show the relationship between the market imperfections and segmentation in capital markets by surveying the literature. Particular type of imperfection we have concentrated on is capital controls. Evidence on stock price movements suggests that implementation of liberalization acts -such as the Japanese one and the Single European Act enable capital markets to become more integrated. Two other market imperfections have been subject to a number of studies in the literature. These are the exchange rate risk and inability of a group of investors to trade in foreign securities.

We have also discussed the risk premia differentials in the absence and in the presence of capital controls over stock markets. Our purpose however has not been to estimate the risk premia across several world markets. Our explanation is therefore partial. Macro data based on IFS share prices suggest that comovements in stock prices have become stronger after the introduction of several different liberalization packages all over the world.

Any attempt to remove still-existing capital market regulations so that world markets can become one and risk carries the same price across markets of different locations is likely to cause a greater in-

tegration and perhaps interdependence. as the experience of free trade areas in Europe, in North america, and in so-called Asia/Pasific Rim, the three industrial poles expand these will bring about capital markets integrations regionally. Unlike the common expectation, LDC capital markets are not segmented from developed markets, most particularly from the U.S. market.

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