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A SURVEY ON THE DEBATE OF INTERNATIONAL CAPITAL MOBILITY & FINANCIAL MARKET INTEGRATION

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Abstract:

The debate on the issue of "international capital mobility and financial market integration" existing since Feldstein-Horioka attempted to test whether capital perfectly mobile and financial markets fully integrated among the countries has not been solved yet. The purpose of this study is to show how different authors have approached to the issue and to give some critiques about testing perfect capital mobility and financial market integration among countries.

Özet:

Uluslararası Sermaye Akımı ve Finansal Pazarların Entegrasyonu Belirsizliği Üzerine Bir Toplu Bakış Çalışması

Uluslararası sermaye akımı ve finansal piyasaların entegrasyonu konusu üzerinde Feldstein-Horioka'nin uluslararası sermayenin ülkelerarası serbestliğinin ve ülkelerin finanasal piyasalarının tamamen entegre olup olmadığını testinden bu yana bir belirsizlik bulunmaktadır. Bu çalışma farklı yazarların konuya yaklaşımlarını inceleyip, konu üzerine kritikler getirmektedir.

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Anahtar Sözcükler: Uluslararasi Sermaye Akımı, Finansal Piyasalar, Entegrasyon, Test ve Belirsizlikler.

Keywords: International Capital Mobility, Financial Markets, Integration, Tests and Debates.

Introduction:

According to Frankel, there are four distinct definitions of perfect capital mobility which have been used widely by economists. These are (i) the Feldstein-Horioka condition, (ii) real interest parity, (iii) uncovered interest parity, (iv) covered interest parity. The Feldstein-Horioka condition to hold, there is a condition that any and all determinants of a country's rate of investment other than its real interest rate be uncorrelated with its national saving rate, including the definition real interest parity.

Feldstein and Horioka (1980) regressed the investment rate against national saving rate to test whether perfect capital mobility exits among industrialized countries and, thus, whether capital markets highly integrated. They found regressor coefficient closer to one than zero. From this result, they concluded that there was no perfect capital mobility and perfect capital market integration, and also not to worry about incidence of a tax on capital, too. This result may imply that countries specialize on the production of a good basing upon Ricardian Theory of Comparative Advantages of production factors. Since this theory does not hold in today's' world, why one may worry about Feldstein's conclusion? Even many authors have reproduced the regressor coefficient closer to one, as Feldstein-Horioka, most authors have been unwilling to draw the inference that financial markets are not highly integrated. Empirical support is presented that the results of Feldstein and Horioka (1980) may in fact be partly due to mainly following factors (i) currency factors, (ii) procyclical movement in both national saving and investment in response to population and productivity growth rates, (iii) changes in public and private savings by endogenously government respond to incipient current account imbalances (iv) large country effect on world interest rate, (v) misspecification of the model, (vi) any exogenous shock to a country, (vii) financial market characteristics of a country. Such factors have been discussed in both theoretical and empirical basis by authors whose articles chosen for this survey mainly have concentrated on the Feldstein-Horioka's original paper in 1980 because of its specialty on the issue.

International capital movement in the long run and the short run:

In consideration of Feldstein's argument about international capital mobility related to finance investment within a country in order to test whether a perfect

capital mobility and financial integration across countries exists, *J. Tobin and U. Westphal*[1] have some comments on his findings, which was the result that domestic investment is a very much more financed by national investment than by foreign saving. His finding opposes the argument that countries' savings are allocated freely through international capital markets and a common world structure of interest rate across countries.

According to Feldstein, the level of national saving determines the level of investment in the country. And this result does not contradict to Keynes' dictum that savers and investors are not identical to observe that much saving goes directly into investment. It is deduced that if there were perfect capital mobility, it would contradict Keynes' famous dictum. In point of view of capital formation, a higher marginal propensity to save will lead more capital formation. Thus, a reduction in taxes of capital income would lead more capital formation. That would make Feldstein happy.

However, Tobin does not follow the motivation that greater saving invested abroad will augment the welfare of future generations even he agrees with Feldstein's findings about saving and investment correlation at the beginning. Then, he raises a question that is why not borrow from abroad if you don't want to rent?

At the extend of Tobin's comment, even if Feldstein found perfect international capital mobility (PICM), this would contradict to the Keynes' famous dictum. He argues that the barriers are not only across countries but they are also across states within the country. Then, wouldn't the Feldstein's finding contradict to the Keynes' famous dictum? Of course, the answer would be yes! However, the Feldstein evaluation on Keynes' famous dictum is not appropriate. Therefore, one should not conclude that a perfect capital mobility would oppose Keynes' dictum. If it were a conclusion as Feldstein did, then, there would be no perfect capital mobility across states within country, too.

Tobin compares Feldstein's long run approach with the *Sachc's argument that marginal efficiencies of investment change more rapidly than saving propensities over time in testing capital mobility* because there should be no inconsistency between these two approaches ultimately[2]. According to Sachc's identity, current account balance (N) is not stable, while it is assumed stable by Feldstein. Here, Tobin wonders in interpreting Feldstein's results for policy purposes because the

cross section results may be influenced by government policies with respect to N. This issue is also raised by Westphal. I will discuss their argument and evaluate later.

Feldstein model does not account for the international identity for the groups of the sample. Aggregate N is the group's total investment in the rest of the world. If perfect international capital mobility exist, if it were found by Feldstein, this would not mean an insignificant correlation between saving and investment of a large country. This would be conclusion by Feldstein if he found a PICM in his model.

Feldstein does not account deviation from the mean or derivative of the I/GNP and S/GNP ratios with respect to different kind of shocks. Here, Tobin does miss the point is that Feldstein followed this approach in order to reduce endogeneity problem in his model. But if someone think in view of Sachs marginal efficiency of investment approach this critique is so appropriate. In fact, Feldstein suggests that the direct test of the PICM hypothesis might be to examine the tendencies to equality of returns on capital in various economies, associating with Sachs approach, and opening a place to be attached by Tobin as it is seen. As a result, this would cause fluctuations not only in N but also in I, and there could be shift in the identity of I + N = S due to different kinds of shocks. One should also remember Lucas's model that the shocks are the factors of growth.

Finally Tobin has shown an alternative approach which accounts all I, S, and N in testing PICM, as follows:

$$I_1 = a_{11} S_1 + a_{12} S_2 + \ldots + a_{1n} S_n + a_{10}(-N),$$

$$\ldots\ldots$$

$$I_n = a_{n1} S_1 + a_{n2} S_2 + \ldots + a_{nn} S_n + a_{n0}(-N)$$

Because:

$$\sum I_j = \sum d_j - N, \text{ and } \sum a_{jk} = 1 \text{ and } \sum a_{j0} = 1.$$

The PICM hypothesis is that all saving is allocated the same way, wherever it originates,

$$a_{jk} = a_{j0} = a_j \text{ for all k, } \sum a_j = 1.$$

From these conditions, one shall understand that Feldstein did not test the hypothesis of PICM appropriately. In contrast, he tested his hypothesis:

$a_{jj} = 1$ for all j, $a_{jk} = 0$, for $j <$, or $> k$.

However, the procedure of testing these, including Feldstein's approach, requires a time series regression, according to Tobin. A cross section regression with multi-year averages is not an appropriate method. In my opinion, the use of both cross section and time series data is more appropriate one to test PICM.

Moreover, Tobin does not find satisfactory the deal of Feldstein on endogeneity problem in his article. He says the relationship between S and Y varies depending on the sources of disturbance, policy and nonpolicy, across counties. And he says the distribution of the current account balance also depends on the sources of disturbance. In short, the Feldstein's model and the results of it are so ambiguous to reach a conclusion in PICM. Such a comment is also given by Frankel.

In addition to the critiques on the Feldstein's model and approach given by Tobin, Frankel, Westphal give couple comments on it by putting Feldstein's model and the results of it in a view that allow him to make a comparison between domestic saving and interest rate. He says Feldstein rules out the possibility of a negative correlation between domestic savings and investment resulting from changes in world interest rate, similar to the critiques of Frankel. Thus, Feldstein's test includes the danger of accepting the hypothesis of PICM even though it could be wrong. An increase in world interest rate can increase the domestic rate of interest by the same amount[3]. Thus, one should expect a negative 'B' coefficient for investment-saving model set by Feldstein[4] because higher interest rate increases domestic savings and reduces domestic investment in the case of perfect capital mobility. In other words, he is trying to say that the magnitude of negative correlation between saving and investment may offset the magnitude of positive correlation between saving and investment, thus, the 'B' can have a coefficient equal to zero even one accepts the disturbance term of saving function (u) and the disturbance term of investment function (v) are uncorrelated.

However, u and v can be correlated significantly due to government policy aiming at restoring current account equilibrium. Since Feldstein takes policy instrument as exogenous, this aspect is ignored in Feldstein model. This makes sense much and associates with Tobin's critique about the distribution of current account

balance across countries (N_j) basing on Sachc's claim that countries with high investment opportunities borrow a lot, as from OPEC countries after 1973, so that their borrowings depend negatively on their investments. Tobin has not found appropriate to ignore the endogeneity of income, or dependence of interest rates, exchange rates, public and private saving, and current account balance on income. And Westphal says that if one accounts possibility of negative correlation between investment and savings due to the world interest rate increase, the reliability on the result of Feldstein model decreases further. These associated comments of two authors reduce reliability on the Feldstein findings further.

Another critique is related to the context of counter-measures of the government and central banks with account balance. In consideration, a positive shock in investment function associates with a positive shock in saving function. This occurs when the government Central banks take action to restore equilibrium after the positive shock in investment causes the deficit in the current account balance. Thus, countermeasures establish a positive correlation between u and v in Feldstein model. Since the success of the authorities in balancing the current account perfectly despite of shocks requires: perfect timing of policy measures to compensate shocks and appropriate intensity of countermeasures, which is measured with standard normal distribution of error terms, the coefficient may equal one in Feldstein model. Thus, a successful balance-of-payment policy may result this. This result would not mean the rejection of PICM although the hypothesis might be right. Moreover, countermeasures may last for some years associating with persistent current account problems. This fact is also important on the reliability of Feldstein results. Cross section analysis based on averages of "S/GNP" and "I/GNP" does rule out the possibility that u_i and v_i correlated at the opposite direction among countries. A positive correlation between disturbance can be the source of bias in Feldstein and be reason of the rejection the PICM hypothesis although it is right.

What saving-investment correlation tell us:

On the link of Feldstein and Horioka's finding about the high correlation between national saving and investment, there have been many studies confirming their findings. However, *two other authors, Frankel and* Mathieson[5], hypothesize that a high degree of substitutability for claims on physical capital located in different countries is not supported by the data for sixty-four industrial and developing countries over the 1960-1984 period.

Under the assumption of capital mobility basing upon the condition under which expected differential yields on physical capital in different countries are eliminated by net saving flows, there would be no reason to predict that countries with relatively high saving ratios would also have relatively high investment ratio. There are several plausible alternatives to the view of capital immobility concluded from high association between national saving and national investment ratio of countries. The view of decompositions the statistical covariance of saving ratios and investment ratios into economically meaningful components by authors does not provide an adequate explanation of the high saving-investment correlation. This is the contradiction between the saving-investment correlations and widely discussed integration of international financial capital. The authors developed an approach to show that the net savings flows to equalize international rates of returns on physical capital can fail even with highly developed financial markets. Such alternative approach is mentioned by Tobin, too[6].

They decompose the covariance between investment and national saving into three parts:

1. $Cov(e,NS/Y)$, which must be zero under the assumption that investment depends only on domestic interest rates.
2. $-h\ Cov(r^*,NS/Y)$, which must be zero under the assumption that world interest rates are exogenous.
3. $-h\ (Cov(r-r^*,NS/Y)$, which must be zero under the assumption of perfect capital.

Any failure among these violates the rationale of zero correlation between the investment rate and saving rate. In fact, they found that each of the three conditions often fails to hold for both industrial and developing countries, or for both highly integrated international financial market countries and less integrated international financial market countries. Therefore, their finding does not associate with Feldstein and Horioka's test of financial market integration.

From the empirical analysis of endogeneity problem, they reach the following conclusions:

1. From the result of earlier studies on industrialized countries, countries with high rates of gross fixed investment had relatively high rates of gross domestic saving. And countries that accumulated capital more rapidly in the most recent years

also experienced increases in saving ratio. However, the conclusion on relationship between investment ratios and current account ratios is different. Sachc (1981, 1983) found a negative and significant slope coefficient in cross-section regressions for either the levels or changes in current account balances and investment ratios indicating a high degree of capital mobility. In contrast, Feldstein and Horioka (1980) and Penati and Dooley (1984) found insignificant negative coefficient indicating high correlation between changes in share of investment and saving in that industrial country.

2. In examination of whether such relationship exits for (i) developing countries, (ii) for group of developing, (iii) and for group of industrialized, and (iv) for group of developing and developed countries. They found a highly significant coefficient in the regressions between the level of saving and the level of investment, as a result of OLS estimation. However, the coefficients lose all statistical significance in the case of developing countries, the results for industrial countries suggest the opposite conclusion when they use instrumental variable technique. This clearly means that the high coefficients reported in OLS regressions by many authors are entirely attributable to problems of econometric endogeneity, rather than capital immobility.

3. And they also found the coefficient didn't decline after 1973 period. Furthermore, the coefficients found, referring to different periods, are higher for industrial countries than coefficients found for developing countries.

Moreover, they argue that the gap between the domestic rates of return and world rates of return may be influenced by endogenous domestic factors, such as government policy-reaction and national saving. A fall in national saving of a large country might drive up interest rate and crowd out investment in everywhere in the world. This can explain why saving investment coefficient found is higher for industrialized countries than for developing countries.

The failure of the condition that domestic expected real rate of return relevant for real investment and giving decisions must equal the foreign expected rate of return is most likely the explanation for the positive covariance of national saving and investment.

The authors illustrate alternatively that the net savings flows to equalize international rates of returns on physical capital can fail even with highly developed

financial markets. A shift in investment schedule or saving schedule differs from a fiscal deficit shock and effect of it on the traded-securities market will be smaller. If the domestic financial markets are poorly integrated the size of the shock transmitted to the other country compared with domestic fiscal deficit will be smaller. If government targets their current account through changes in fiscal policy or interest rates, there still would be a close link between saving and investment. Thus, in relation, the current account imbalances will be smaller, too.

In conclusion, they suggest that the observed correlations between saving and investment may not reflect the level of capital mobility, but rather the behavior of the government sector. And any failure among three conditions violates the rationale of zero correlation between the investment rate and saving rate.

Saving, investment and international capital flow:

Tesar's paper[7] also opposes the conclusion that the high degree of saving-investment correlation provides enough evidence on the question of international capital immobility.

The author presents some basic statistics on saving and investment rates in a sample of twenty-three OECD countries by looking at the models of saving, investment and the current account as share of GDP and variability in each of these variables in both short and long run. Her results are similar to the results of many earlier empirical studies. The implication of this correlation for capital mobility is ambiguous. There are many factors, such as restriction on labor mobility or on trade in good markets, that influence the investment and saving simultaneously at a sufficient level. Moreover, possible technological shocks are positively correlated over time and across countries. Such disturbances are important in evaluation of the correlation between savings and investment. Indeed, distinguishing the degree of the saving and investment correlation comes from where to clarify the implication of this correlation for capital mobility. Economists have not attempted to measure and distinguish the degree of this correlations coming from variety of exogenous distributions widely, including the author. But she at least investigates some statistics alternatively, in addition to the traditional models of saving, investment, and the current account, which are important to be pointed out.

The table of ratio of savings and investment to GDP and working age population indicates that both saving and investment of a country respond to

percentage of labor force participation positively by the same way.[8] From her table, one can deduce that the savings and investment correlation is also influenced by the level of mobility of labor across countries or across states, as well as the production technology. In other words, the conclusion of capital immobility should require the test of perfect labor force mobility across countries, too. The author attributes part of co-movements between savings and investment to the population growth and percentage of labor force participation working at a moment and the tendency of it over time, as well as to the rate of technological progress.

She, moreover, provides a correlation between savings rates across countries, a correlation between investment rates across countries, as well as correlation with aggregate S/GDP, and correlation with aggregate I/GDP for each country. Table 6 and 7 in the article do not only show the effect of exogenous disturbances to productivity on saving and investment but also the effect of it across countries. Thus, distributions to productivity are correlated over time and across countries. Here, the co-movements in savings and investment are partially attributed to both temporary and permanent shocks. This is evidence from the largest OECD countries. Figures 5 and 6 refer to the correlation between individual country savings and investment rates for the smallest countries and aggregate measure of total saving and investments, which associate with Tobin's alternative approach to Feldstein and Horioka's model specification, for the sample period 1960-86. The evidence suggests that the countries' savings rates and investment rates are positively correlated across countries. Indeed, Tobin's model exhibits the problem of positively correlated shock across counties, in other words, exogenous disturbance shocks cause co-movements in investment and savings within and across countries.

Domestic versus international capital mobility:

There exists an empirical article about domestic versus international capital movement, which is written by Reitzes and Rousslang[9], in the literature. The authors' approach to issues is quite different from earlier ones. They specifically concentrate on industry returns within a country and across countries. They test whether capital moves more easily between industries or between countries within an industry. Indeed, this approach seems important to conclude whether the Heckscher-Ohlin-Samuelson trade theory holds, which assumes perfectly mobile factors of production domestically and perfectly immobile capital internationally. In view of industrial economists, the barriers among domestic industries are the sources of different rate of returns across industries.[10] The main point is that if capital is less mobile between

industries domestically than internationally, the traditional approach basing upon barriers between industries to explain differences in domestic rates of return is not appropriate. The authors think that such an approach to the capital mobility is necessary in order to clarify this debate in both fields of international trade and industrial economics. It, in fact, seems to me that they assume capital is mobile enough to see whether it is less mobile domestically (or more, or vice versa) than it is mobile internationally at a level of financial markets integration such that allows a profit maximizer multinational corporation to allocate its resources according to rate of return across countries to maximize its profits. So, they test which type of capital mobility is greater, rather than whether it is perfectly mobile internationally or domestically, and rather than whether financial markets are integrated fully or partially. For this purpose, they assume multinational corporation do not make systematic forecast errors about future rates of return in any market. Thus, this test does consider the behavior of multinational corporation about realized rate of returns in any market into the model. Importantly, they assume that the differences in the realized after tax-rates of return reflect barriers to capital mobility, premium for pure risk, or random forecast error.

After they adjust after tax rates to account for random forecast errors, they look at whether differences in the adjusted rates are greater between industries or between countries by comparing F-statistics across industries and country boundaries in 1966 and 1977 to test for the existence of industry and country barriers, and thus the mobility of capital.[11] The F-statistics derived from the following regressions of OLS do not only tell us about the statistical significant of these barriers but also they do tell us the degree of these barriers on the average.

$r_{ij} = m + b\,V_i + A_iI_i + B_jC_j + u_i$
r_i = the after-tax rate of return to capital in industry i and country j,

m = constant
V = measure of pure risk
I = dummy for industry i
C = dummy for country j
U = disturbance term for i industry in country j

Constraints: (1) $\sum A_i=0$, and
(2) $\sum B_j=0$

A higher F-value indicates higher degree of country (or industry) barriers to capital mobility relative to random differences among the individual market rates, In other words, it implies lower degree of capital mobility internationally (domestically). Comparison of international capital mobility with domestic mobility, a high F-value from the test for industry effect than from the test for country effects indicates greater international capital mobility than domestic capital mobility among the markets. Indeed, from Table:1[12], they conclude that international capital mobility was greater than domestic capital mobility in 1966. This is true for all kinds of markets, as we see more clearly the F values for country barriers are not significant in 1966. In contrast, a comparison of Table 1 (1966) and 2 (1977) results indicated relatively higher F values for country barriers in all market groups in 1977, and F values for testing industry barriers decreased, excluding EC members in case of all industry barriers. This means domestic capital mobility improved relative to international capital mobility. However, the F-value for testing EC all industry barriers does indicate higher degree of all industry barriers, meaning that higher international capital mobility among the EC members, and it is not the same for manufacturing industries. Within the manufacturing industries of EC members, the degree of country barriers is found relatively higher in 1977, meaning that lower international capital mobility in 1977 among EC members. Overall, domestic capital mobility was dominant in all the market groups containing only manufacturing industries in 1977, rather than international capital mobility is dominant among all countries in 1966. International capital mobility still was dominant among EC members containing all industries in 1977. In the market groups containing all industries, the results were inconclusive for the OECD members and indicated the dominance of domestic capital mobility among all countries in 1977. In general, domestic capital mobility improved relative to international capital mobility between 1966 and 1977. These results are consistent with the Frankel, Dooley and Mathieson (1986) about lower capital mobility after 1973, but the results here derived from the relative importance of country and industry barriers differently. On the other hand, their finding contradicts wholly to the argument that the degree of capital mobility among OECD countries risen between 1970-1986 period.[13]

In considering their F-test for the importance of country and industry barriers, I would mention a problem that may arise from the model specification, as they used for F test. These F values may not be reliable if the market structures are different from each other and so the traditional regression equation may not a good fit in 1977 even it was a good fit in 1966. As we know this is a period long enough for countries market structures to change and so the measure of pure risk. Thus the value of F may

be different from a regression model to another model specification. The authors do not provide a randomness test for their assumption about random forecast errors, too. These two factors give me doubt about reliance on F values that they presented in their article. Moreover, this test is not reliable unless the distribution of capital among countries is accounted in such a way in the model specification. But their new approach make sense much if all markets have similar characteristics and the capital distributed under similar market characteristics among both industries and countries, and thus open a road in testing international capital mobility.

One should choose a regression model or any other models, such specification should be done according to different model specification tests which vary based on which kind model is thought to be run. In the econometric literature, these tests can be found. Their testing differs in F ratio depending on change in market structure in the selected industries over time. The application of the same model without specifying it according to this fact is a weak point in their study. They do not mention a test that explains whether changes in industrial markets cause differences over time.

What can be done furthermore?

A panel study dynamic model that can show the level of capital mobility for countries as they integrate financially over time, or as they liberalize, can be developed for a bunch of selected countries specified characteristically. The estimation from such a panel study approach should tell something about the degree of linkage between these group of countries (or individual specific countries) and the world interest rates, and thus the level of integration between domestic and international financial markets accurately. Then, one can look at how the rates of returns converge across markets and the influence of monetary policy on domestic interest rates. Such study can be applied for stratified regional countries, or globalized countries, developing or less developed countries depending on model specification, and can be compared with each other to understand the degree of capital mobility and financial market integration. Thus, one can estimate whether the degree of linkage between regional and world interest rates has increased, or whether departures from interest rate parity induce increasingly responsive market forces to narrow existing return differentials with a high degree of capital mobility. Such a model can also be applied for saving and investment model simultaneously to see whether both models associate with each other in results over time. Then, one should tell something about whether two different models associate each other in explaining

mobility and financial market integration. The countries or group of them should be chosen according to criterions chosen much more carefully for a better model specification, which hasn't been done carefully in many studies up to now.

The other aspect is to develop a formula that measures the degree of capital mobility, or degree of financial market integration, across countries, or regional countries basing on distributions of capital across countries for different cross section periods. This idea needs to be thought deeply.

Another thing that is related to the study by Reitzes and Rousslang, which is about the comparisons of capital mobility across industries within country and across countries. Their model can be specified for less developed, or developing and developed countries in such a way that, as usual, developing countries have very low saving and lack of capital, on the other hand, they have cheaply abundant labor force, and vice versa for many of developed countries. If production structure of a country's specific industry, assuming such a country is willing to develop its infant industry basing on the abundant and cheap factor (labor) within country, requires the use of capital as well as labor at a level of less substitutability of production factors. At the same time, multinational firms of developed countries, assuming, want to get advantages of this cheaper labor force in developing, or less developed countries. And developing countries need foreign capital extremely for their development and thus they do follow policies to attract foreign investors. Their study can be extended to the stratified countries such as developed and less developing, or less developed, and to the developed and newly industrializing countries, rather than applying to only OECD and EC countries.

Alternatively that one can think of the application of their model to the countries where labor is highly mobile or there is no lack of labor as capital flows in. For this, one can choose South-Asian countries, here, under the assumption that both labor and capital are perfectly mobile across countries within industries. Then, one can compare the result derived from the developing countries where labor is immobile as capital flows in and the results derived from the countries where both capital and labor are assumed to be perfectly mobile. Such a study may tell something about the dependence of capital mobility on the degree of labor. Overall, I have figured out that there has been big emphasize on this issue in the literature recently. Most of studies have been done for OECD or EC countries and fewer for the rest. This debate may be clarified further as more studies shall be done for the rest of countries, as well as for EC and OECD, etc.

Footnotes:

[1] Tobin J., (1983): Domestic Saving and International Capital Movements in the Long Run and the Short Run, European Economic Review 21, 153-156.

[2] Sachc assumes I + N = S, and claims that countries with high investment opportunities borrow a lot.

[3] Westphal does not mention whether the country is small or large. But it is clear that if a large country increases its domestic interest rate, the world interest rate may be influenced by this. And since world interest rate is taken by the small country as it is, the increase in the interest rate of small country would be at the same magnitude of the increase in the world interest rate. But the magnitude of influence may differ for a large country. Westphal does not make such distinction basing on country level as a result of change in the world interest rate.

[4] Feldstein and Horioka, (1980): Domestic Saving and International Capital Flows, Economic Journal 90.

[5] Dooley, M., Frankel, J., Mathieson, D., "International Capital Mobility: What Do Saving-Investment Correlation Tell Us," International Monetary Fund Staff Papers 34:3, 503-53.

[6] Tobin, J., (1983): What Do Saving-Investment Correlation Tell Us ?, European Economic Review 21.

[7] Tesar, Linda L.,(1991): Savings, Investment and International Capital Flows, J. of International Economics 31, 55-78.

[8] See the referred article and the table.

[9] Reitzes and Rousslang, (1988): Domestic Versus International Capital Mobility: Some Empirical Evidence, Canadian J. of Economics 31:2, 312-323.

[10] There are many other factors affecting differential rates of return. These are competition, demand, input costs, i.e., and capital mobility may be less important. However, this paper does not test what are the factors which cause differential in rates of return. We would like to be aware of both.

[11] These are the OECD and EC countries and total of them. There is no information about how many industries are there in the sample. One shall concerned about the characteristics of industries and be aware of this, too. Indeed, one should specify carefully in concerning industries and sample size, including country, if one applies similar model.

[12] See referred article.

[13] Stephen S. Golub, (1990): The Correlation Between Gross Domestic and International Financial Flows, J. of International Money and Finance 9 (1990), 424-43. Golub examined the correlation between gross domestic and international financial flows. They found that the degree of capital mobility increased in the 1980s even gross flows were small in relation to gross domestic asset creation for OECD countries.

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