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TAX POLICY AND
INTERNATIONAL CAPITAL FLOWS

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ABSTRACT

Although capital is now generally free to move across national borders, there is strong evidence that savings tend to remain and to be invested in the country where the saving takes place. The current paper examines the apparent conflict between the potential mobility of capital and 'the observed de facto segmentation of the global capital market.

The key to reconciling this "Feldstein-Horioka paradox" is that, although capital is free to move, its owners, and especially the agents who are responsible for institutional investments, prefer to keep funds close to home because of a combination of risk aversion, ignorance and a desire to show prudence in their investing behavior.

The paper presents evidence on the capital mobility and on capital market segmentation. The role of hedging and the difference between gross and net capital movements for individual investors and borrowers are discussed. The special place of foreign direct investment is also considered.

The segmentation of the global capital market affects the impact of capital income taxes and subsidies. This is discussed in the final section of the paper.

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Tax Policy and International Capital Flows

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I am delighted to be here in Kiel at the Institut fur Weltwirtschaft. It is a great honor for me to have been selected as the 1994 recipient of the Bernhard Harms prize and it is a pleasure to join you in paying tribute to Bernhard Harms on this 80th anniversary of his founding of the Institute.

An occasion like this is a pleasant way of linking one generation to the next within the economics profession. The fifteen recipients of the Harms prize since it was established in 1964 include the man with whom I first studied international economics, Sir Roy Harrod of Oxford, who received the prize in 1966 while I was a graduate student in Oxford. A few years later, the prize went to Wassily Leontief and then to Gottfried Haberler, both of whom were active members of the Harvard Economics department that I had just joined. So it is a special pleasure and indeed a great honor to have been included with these men in the group that the Kiel Institute has honored.

As you know, the Harms prize is based on contributions to international economics while my own research over the years has focused on the economics of the public sector, especially the problems of taxation, government spending and social insurance. Most research in public

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economics, including my own, focuses on microeconomic issues: how public policies affect the behavior of households and firms and how to design policies that lead to preferred outcomes. However, much of my own work has been motivated by aggregate national issues like the causes of high unemployment, the impact of inflation, and the determinants and consequences of aggregate capital formation.

It was my research on the link between public policies and domestic capital formation that led me to deal with explicitly international issues. About twenty years ago, I began to worry about whether the growing importance of international capital flows required a radical revision of the theory of how taxes affect our national economies. If capital moves among countries to achieve the highest available rate of return, national policies that change the domestic saving rate will not affect domestic investment. For example, if domestic tax incentives raise the private saving rate, the additional capital will simply be distributed around the world. Or if social security retirement benefits reduce domestic saving, the domestic investment rate will be maintained by an inflow of capital from the rest of the world. Moreover, a tax on corporate profits would not reduce the after-tax rate of return to savers because individuals will simply reduce their domestic investment and send capital abroad until the after-tax return is the same as the rate of return available elsewhere. The corporate tax burden would fall on labor income and land rents.

It was crucial therefore to my study of public finance to know the extent to which capital does move among countries to equalize the after-tax rate of return on long-term capital and more generally, to offset differences in national saving rates. To my surprise, the economists who specialize in international economics had not resolved this issue. Indeed, although there was

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research on the extent to which capital market rules inhibited the equalization of domestic and foreign interest rates for similar securities denominated in the same currency (e.g., Euroyen deposits in London and similar maturity yen deposits in Tokyo), there was no research that answered the broader questions that I was asking.

With the help of a Harvard graduate student, Charles Horioka, I therefore began a study of international capital flows that looked directly at the relation between decade-average domestic saving rates in the industrial countries of the OECD and the corresponding domestic investment rates in those countries. We found that countries with high sustained saving rates had high sustained investment rates while countries with low saving rates had low ratios of investment to GDP (Feldstein and Horioka, 1980). There was no indication that an increase in national savings would simply be dispersed through the global capital market. Instead, our estimated "savings retention coefficients" indicated that in the 1960s and 1970s more than two-thirds of incremental domestic savings tended to remain and to be invested in the country in which the saving occurred. A later study that I did with Philippe Bacchetta (Feldstein and Bacchetta, 1991) found similar results for the 1980s, though it did show a small decline in the coefficient.

The interpretation of this strong relation between domestic saving and domestic investment, which has been verified in subsequent research by a large number of researchers for different time periods and different groups of countries, has created a great deal of controversy.[1]

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[1] The recent survey papers by Frankel (1992), Mussa and Goldstein (1994) and Obstfeldt (1993) review the evidence on the relation between domestic saving and investment and discuss the controversy over the interpretation of this finding. See also the specific contributions of Dooley et. al. (1987), Murphy (1987), Sinn (1992) and Tesar (1991).

The observed absence of offsetting international capital flows in response to domestic savings differences seems in conflict with the strong evidence of a well integrated world capital market. There is no doubt that the formal barriers to international capital flows are small and that the growth of the derivatives market has made it possible for cross-border investors to hedge long-term as well as short term currency and interest rate risks. There is ample evidence of cross-border investments by institutional portfolio managers and individual investors. And the interest rates that prevail in the Eurocurrency markets show that capital movements can and do eliminate any international differences in the yields on similar securities in the same currencies.

And yet the evidence on the savings-investment relation, as well as other evidence that I will summarize in a moment, implies a de facto segmentation of global capital markets. My first aim in this lecture is to reconcile the apparent conflict between the evidence on capital mobility and on domestic savings retention. I hope to convince you that, although capital is free to move across national boundaries, the owners and managers of the capital do not want to move it as much as would be necessary to make the level of investment in each country and the rate of return in each country independent of that country's domestic saving rate. This de facto segmentation of global capital markets reflects investors' preferences rather than institutional barriers.

The savings retention rates will therefore not be the same in all countries or at all times. The estimates based on cross-country regressions are averages, not immutable constants. A small country like the Netherlands with a currency that is closely linked to the Deutschemark is likely to have a much smaller saving retention rate than a large country like Germany, Japan or the United States. However, even a relatively small country may have a very high saving

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retention rate if foreign investment involves a substantial currency risk.

After discussing these questions, I will turn to the special role of foreign direct investment. Like the components of portfolio investment, foreign direct investment does not respond to differences in national saving rates but is determined by operating business goals. It does however play an important part in transferring national saving across borders. Each incremental dollar of outbound foreign direct investment appears on average to decrease domestic investment by a dollar. This stands in sharp contrast to what would be expected in a completely integrated capital market. Outbound FDI is also important because firms that invest abroad appear to use substantially more foreign borrowing than they otherwise would, thereby circumventing the direct segmentation of portfolio capital flows. This use of foreign debt is an important consideration in the design of appropriate policies toward outbound foreign investment.

The analysis and design of national tax rules and other public policies that affect domestic saving and investment should therefore not begin, as a recent OECD study suggested, by "assuming that international capital markets are perfectly integrated." (OECD, 1994, page 136) Each country must assess its own saving retention rate and consider its implications for the effect of domestic policies on capital formation and tax incidence. Some suggestions along these lines will be the subject of the final part of my remarks today.

1. Reconciling Capital Mobility and Global Capital Market Segmentation

These is a substantial body of irrefutable evidence that indicates that capital is mobile between countries and that substantial actual capital movements do occur. I will quickly

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summarize that evidence as well as the evidence that savings are nevertheless invested in the country in which they originate. I will then discuss why these two bodies of evidence are not really in conflict and will speculate on the reason why portfolio investors do not choose to shift capital to equalize rates of return among all industrial countries.

1.1   The Mobility of Capital

The most direct evidence that capital is mobile across national borders is the equality of interest rates on identical securities in different markets. Back in the 1970s, before the Japanese government eliminated explicit capital controls, the interest rate on short term yen deposits in Tokyo differed from the Euroyen rate by as much as several hundred basis points for sustained periods. Such differences no longer exist in either the short-term or long-term markets for any of the major currencies.

Closely related to this equality of rates for the same security is the existence of covered interest parity. Interest rates on comparable securities denominated in different currencies differ only by the amount of the forward discount between the currencies. In other words, there is no unexploited opportunity for a riskless profit as there would be if institutional rules precluded certain cross-border transactions or if financial institutions were unwilling to seize such opportunities for cross-border riskless arbitrage.

Not all of the capital movements are riskless arbitrage. At the opposite extreme, the collapse of the European Monetary System in September 1992 was accompanied by massive private capital flows seeking to take advantage of the expected devaluations.   Mussa and Goldstein (1994) estimate that more than $200 billion was ventured by currency speculators

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during that episode.

A much more mundane example of international capital movements is the cross-border flows of bank deposits within Europe by individuals who are seeking to evade tax on their interest income. Although I have seen no estimates of the amount of capital that evades the tax authorities in this way, the high levels of tax rates on domestic interest income makes me believe that these amounts of illicit deposits might well be quite large.

There are of course substantial amounts of legal international portfolio diversification. The Morgan Guaranty Trust Company (1994) recently estimated that international holdings of foreign currency bonds and equities rose from approximately 9 percent of global securities investments in 1983 to 15 percent at the end of 1992.

Finally, but more difficult to make commensurate with ordinary capital investments, the notional volume of derivative securities, many of which involve cross-border currency and interest rate transactions, now exceeds some $10 trillion.

So there is ample evidence that capital can and does move across borders. And yet there is also strong evidence that global capital markets are segmented and that capital does not move across national borders in the same way that it does within countries.

1.2   *Evidence of Global Capital Market Segmentation*

The most striking evidence of global capital market segmentation comes from the investment-savings equations of the type that I estimated with Charles Horioka. When the decade average ratio of domestic investment to GDP is regressed on the decade average ratio of saving to GDP across the countries of the OECD, the coefficient of the savings ratio implies that

about two-thirds of an incremental amount of national savings is retained locally in the form of domestic investment.

This estimated saving retention coefficient has declined from more than 0.8 in the 1960s to about 0.6 in the 1980s but remains very much greater than the value of approximately zero that would be implied by a completely integrated market. It is also clear from the raw data that the very high saving countries like Japan continue to have very high investment rates while the low saving countries like the United States have low investment rates. Even in the 1980s, when Japan had its largest current account surpluses, Japan exported less than seven percent of its gross domestic saving. Japanese gross investment was 29 percent of GDP while U.S. gross investment was only 18 percent of GDP.

A variety of statistical explanations have been suggested in an attempt to dismiss the high savings retention coefficients and thereby to reconcile these estimates with the theoretical picture of perfect capital mobility and complete global capital market arbitrage. It has been suggested, for example, that the high savings retention coefficients could arise from productivity shocks or business cycle conditions. Although these might be valid criticisms of investment-savings regressions estimated with time series data for a single country (Feldstein, 1983; Baxter and Crucini, 1993), they are not relevant to the decade-average cross country regressions that I have been discussing. A second type of statistical explanation that seeks to dismiss the high savings-retention coefficients is that some variables are omitted in the simple cross-country regressions that raise both saving and investment in a country. Obstfeldt (1986) pointed to the demographic structure of a country and its rate of economic growth as factors that could potentially cause the savings retention coefficient to be overestimated. However, estimating extensions of the

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Feldstein-Horioka equations that explicitly include these variables does not alter the original

conclusion about the high level of the savings retention coefficient (Feldstein and Bacchetta,

1991; Frankel, 1992). Finally, although some critics have suggested the possibility of

simultaneous equations bias because the saving rate is an endogenous variable, instrumental

variable estimates confirm the original results (Feldstein and Horioka, 1980; Frankel, 1991,

1992). My reading of the recent literature on this subject (e.g., Frankel (1992), Mussa and

Goldstein (1994) and Obstfeldt (1993)) indicates that there is now a general agreement among

those who have studied this issue that the high savings retention coefficients cannot be explained

away as some kind of statistical artifact.[2]

A more economic explanation, first suggested by Branson and developed by Summers

(1988), is that the high savings retention coefficient could reflect explicit government policies

aimed at preventing large current account imbalances. According to this view, each government

adjusts its budget deficit to offset changes in private saving (or private investment). My reading

of the economic history of budget deficits makes me very skeptical of this view of government

behavior. A more natural explanation of the relation among these three variables is that private

investment responds equally to differences in private saving and in government budget

surpluses, an interpretation that is supported by regression equations that disaggregate national

saving in this way (Feldstein and Bacchetta, 1991).

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[2]The evidence on savings retention coefficients estimated for regions within a single country
supports the interpretation of the cross-country savings retention coefficients as true measures of
de facto international capital market segmentation. Within countries the savings retention
coefficients are approximately zero, just as one would expect in a fully integrated capital market.
For references to cross-region studies in the U.K., the U.S., Canada and Japan, see Frankel
(1993).

The investment savings regressions are not the only evidence pointing to the de facto segmentation of global capital markets. Maddison (1991) studied the evolution of the ratio of the capital stock to GDP in six OECD countries between 1973 and 1987. He reasoned that if the capital markets are effectively integrated, the ratios of capital to GDP would tend to converge over time, with faster growth of the capital-income ratios of the countries that initially had low capital-income ratios. In fact, he found no such convergence.

There is also substantial evidence of a "home country bias" in investment portfolios. French and Poterba (1990) noted that 94 percent of U.S. portfolios are invested in American securities and 98 percent of Japanese portfolios are invested in Japanese securities. Mussa and Goldstein (1994) noted that less than 10 percent of the portfolios of the 500 largest institutional investors around the world are invested in foreign securities.[3] And Tesar and Werner (1992) calculated that this home bias relative to an optimally diversified global portfolio costs American investors the equivalent of 200 basis points of yield because of the possibility of reducing risk by diversification.

Finally, although covered interest parity holds for major currencies, uncovered interest parity and real interest parity do not hold. Frankel (1992) has noted that this implies that expected real rates of return will not be equalized everywhere due to the existence of a "currency premium" associated with differences in the currencies in which assets are issued (as distinct from a "country premium" associated with cross-border differences per se). That it in turn reflects the fact that purchasing power parity does not hold even over relatively long periods of time.

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[3]See also the discussion in French (1991) and in Brainard and Tobin (1992).

1.3   *Reconciling Capital Mobility and High Saving Retention Rates*

The conflict between the evidence that there is global capital mobility and the evidence that there is global capital market segmentation is more apparent than real. Capital is mobile but its owners generally prefer to keep it at home. Evidence that capital *can* move and that *some* capital does move is not the same as evidence that capital is allocated globally without regard to national boundaries.

Those who are uncomfortable with the idea that the global capital market is more segmented than national capital markets have focussed too much attention on demonstrating that capital *can* move across borders. Although there are indeed still many substantial restrictions on the amount that various institutional investors like insurance companies and pension funds can invest abroad, the important issue is not the legal or institutional restrictions on capital mobility but the fact that investors prefer not to move capital internationally in the same way that they do domestically.

Although some capital may be truly global and devoted to obtaining the highest expected rate of return available anywhere, that is simply not true of most investors. The evidence on investment-saving correlations and portfolio composition reflects the fact that ignorance, risk aversion and prudence keep capital close to home.

For most individual savers, the neighborhood bank or savings institution is the depository of funds. Those institutions, faced with nominal obligations in the domestic currency, prefer to have similar assets.

Large institutional investors that can and do obtain information about investing in foreign securities are nevertheless reluctant to accept the risk of investing in markets with which they are

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less familiar than their domestic markets. They do make some such investments but they seize opportunities abroad in a more limited way than opportunities at home.

Risk aversion means that the gains from true cross-border portfolio investment may not be large enough to induce actual capital flows. A recent report from the Morgan Guaranty Trust Company (1994) suggested that, for a U.S. investor, the minimum variance global bond portfolio would be invested 90 percent in U.S. bonds. Only by accepting a substantial increase in risk could a more diversified portfolio add an additional 100 basis points of expected yield. So even an optimizing and well advised investor might decide to leave its capital at home despite the availability of higher yields abroad. Only a very risk-neutral investor would choose to maximize return by investing its entire portfolio in foreign bonds.[4]

A recent study by Campbell Harvey (1994) of equity investing in emerging markets indicated that U.S. investors could improve the risk-return tradeoff in their portfolios by including equities in emerging markets but the gains were not very large relative to the fundamental uncertainty of investments in emerging markets.

These two studies point to the importance of two aspects of the risk of international investing: political risk and currency risk. Although there may be little political risk associated with portfolio investments within the OECD countries, there are more substantial risks when investments are made in the emerging markets. Even within the OECD there is always the risk of some kind of capital controls or convertibility restrictions. These risks, which are not reflected in the covariance matrices that analysts use to calculate risk-return trade-offs of

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[4]Such consideration of risk aversion and desired portfolio diversification show why Summers was not correct when he wrote (Summers, 1988, p. 365): "As long as some mobile funds are located almost everywhere there is a presumption that rates of return must be equalized."

internationally diversified portfolios, tend to make portfolio investors more reluctant to invest abroad.[5]

The risks of changes in government policies are even more important for direct foreign investments than for portfolio investments since direct investments are much more difficult to reverse. Even OECD governments can change tax rules, government procurement rules and other regulations in ways that are particularly disadvantageous to foreign investors.

Currency risk is particularly important in cross-border portfolio investments. Frankel (1991, 1993) showed the importance of currency risks in explaining real interest rate differentials among countries. The Morgan Guaranty study that I mentioned a moment ago shows that if currency risk is eliminated by hedging the foreign bonds, the optimal portfolio would be very different than the unhedged portfolio. On the basis of the historic experience with hedged bonds that was analyzed in the Morgan study, a portfolio invested 100 percent in U.S. bonds gave the highest yield to a dollar based investor. Adding hedged foreign bonds to that portfolio could reduce the risk of the portfolio but only by reducing the expected return. A sufficiently risk-averse investor would minimize the portfolio risk by investing approximately two-thirds of the portfolio in non-U.S. bonds on a hedged basis, giving up less than fifty basis points of expected yield and reducing the portfolio risk (relative to a 100 percent U.S. bond portfolio) by about one-third.

As the Morgan study suggests, the importance of currency risk causes many portfolio managers to hedge substantial amounts of their foreign portfolio investments. This appears to be

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[5]See Eichengreen (1990) on the role of political risk in reducing cross-country capital flows in the period between the two wars.

true for equity as well as debt securities, even though foreign equities over long periods of time may be much more "self hedging" than bonds.[6] Portfolio managers may choose to hedge because they are concerned about the short-term performance of the funds measured in their home currency. This in turn may reflect pure short-term risk aversion, or an "agency problem" in reporting results to the owners of the funds, or regulatory standards that focus on short-term market values, or any of a number of other influences.

Hedging foreign investments is particularly important because hedging an investment can offset a gross cross-border transfer of capital and leave no net cross-border transfer of capital. Since much of the observed cross border investing and borrowing is hedged, it is very important to recognize that the existence of such hedged investments is not evidence for intercountry capital flows. Indeed, the prevalence of hedging is evidence of the segmented nature of the global capital market. With the help of currency hedges, investors can take positions in foreign securities without a net transfer of capital across borders.

Two examples will show how cross border investing and borrowing may not achieve net international capital flows when the currency is hedged. Consider an American pension fund that wants to invest in long-term German bonds. If the pension fund decides to avoid the currency risk of the cross-border investment, it can hedge its position by selling marks forward for dollars. That foreign currency hedging transaction is exactly equivalent to borrowing the

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[6]A rise in the general price level in the foreign country will tend in the long run to cause the currency of that country to depreciate by an equiproportional amount. Since the nominal foreign-currency value of equities should rise in parallel to the general price level, the value of the equities in the home currency of the investor ("dollars") will be unaffected by the foreign currency depreciation. In contrast, there is no similar adjustment in the nominal value of the foreign bond. See Froot (1993).

funds in the short-term market in Germany. Indeed, the bank or other firm that buys forward marks from the bond investor will generally hedge that transaction by borrowing marks in the spot market, converting them to dollars and having a marks obligation that can be satisfied when the bond investor delivers the marks for conversion into dollars.

As this example makes clear, a hedged investment in German bonds by an American investor need not involve a net cross-border flow of capital. The American shifts the composition of demand for securities within Germany but the entire transaction involves only German capital. The shift in the composition of securities may influence the way that real physical capital investment is allocated in Germany but it does not increase the amount of investment that can be undertaken. The same is clearly true for foreign equity investments financed by hedging (or, equivalently, by borrowing in the country in which the equities are issued.)

Multinational firms that finance by borrowing abroad and hedging the currency may also not be making a net transfer of capital across borders. An American firm that needs capital in the United States to finance some investment in plant and equipment may discover that it can borrow dollars more cheaply by issuing a ten year bond in Europe denominated in DM and hedging the foreign currency exposure. This hedging is equivalent to lending the funds in the short-term market in Germany. The American firm gains because the DM long-short spread that it faces is more favorable than the corresponding spread in dollars. It lowers its cost of investing in the United States not because it brings German capital to the United States but because it takes advantage of its access to the foreign market to make a financial profit on a currency transaction. Of course, since that transaction does involve long term borrowing, it is a transaction that it

would not have been willing to do had it not been making the domestic U.S. investment in plant and equipment. The two activities -- the domestic physical investment and the foreign hedged borrowing --- are a package that the American firm considers together because the risks of the long-term borrowing are balanced by the long-term physical investment. But the foreign borrowing and hedging do not effect a cross-border transfer of capital.

The key point in both of these examples is that what appears to be a cross-border flow of capital may in fact not be that at all. It is wrong therefore to look at the amount of foreign portfolio investment or foreign borrowing and try to draw any inferences about the corresponding amount of true cross border capital movements.

With this discussion in mind, let's look at some of the evidence of apparent capital mobility that I discussed earlier (in section 1.1). Consider first the fact that interest rates on identical securities in different national markets are equal. The transactions required to achieve this equality are essentially riskless arbitrage. The equality of these interest rates shows only that capital *can* move when there is a riskless incentive to make the transaction. It provides no evidence of a willingness to move capital when risk is involved. The same is true for covered interest parity. Moreover, these are hedged transactions that may simply be offset by borrowing the arbitraged funds.

The high-risk high-reward currency speculation of the type that occurred at the time of the EMS collapse is indeed a cross border movement of capital. The existence of such short-term speculative capital movements shows that there are no barriers to capital movements. But it provides no evidence of a willingness of investors to commit substantial amounts of capital for extended periods of time.

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Although data on individuals who move capital across borders to avoid taxes on interest income is obviously hard to obtain, the discussions that I have had with both individuals and bankers in Europe suggest that such foreign deposits are typically made in the currency of the home country whenever significant amounts are involved. A Frenchman who deposits funds in a Belgian bank is likely to hold a French franc deposit. Since the Belgian bank will hedge any increased currency exposure (by making a wholesale deposit in a French bank or purchasing a French franc security), there is no net transfer of capital from France to Belgium.

The substantial amount of international holding of foreign bonds and securities, amounting to more than 15 percent of total global securities investments, is also not evidence of an equal amount of inter-country capital flows since much of this portfolio investment is hedged. Recall that hedging can eliminate the cross-border capital flow if either side of the transaction is hedged -- the portfolio investor who buys a foreign bond or the company that borrows in a foreign currency.

Finally there are the international derivative securities that are attracting so much attention these days. Although such securities can be used to take substantially leveraged risks, the major institutions that create such securities are generally operating with hedged positions that effectively mean that no net capital flows result from what they themselves are doing. Again, the activity in the derivatives market shows that capital *can* flow across borders, but its actual effect is probably to make it easier for borrowers and investors to hedge transactions so that the volume of cash transactions (i.e., purchases of foreign shares and overseas borrowing) increases with little or no corresponding increase in net cross border flows.

In summary, then, we live in a world in which capital can flow and in which riskless

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arbitrage works very smoothly. Some high risk short term capital movements are also very visible. But much of the apparent cross-border position taking does not involve actual cross-border capital flows because of de facto currency hedging. None of this is incompatible with the picture of global capital market segmentation implied by the high saving retention coefficients, the home bias observed in portfolios, and the persistence of international differences in capital income ratios. Although capital is mobile, its owners generally prefer to keep it close to home. The rewards for committing capital in foreign markets do not seem large enough despite differences in saving rates to overcome the hurdles imposed by inertia, risk aversion, ignorance, and prudence.

2.   The Special Role of Foreign Direct Investment

Since I have been focussing on the limited effect of portfolio investment in transferring national savings abroad, it is important to consider the role of direct foreign investment. The evidence that I will now describe suggests that outbound foreign direct investment does contribute to real cross-border capital flows and, in an indirect sense, permits domestic corporations to utilize foreign portfolio capital.

The magnitudes of international flows of foreign direct investment are moderate but significant. During the decade of the 1980s, the flow of inbound foreign direct investment averaged 0.8 percent of GDP in the G-7 countries[7], ranging from essentially zero in Japan (0.02 percent of Japan's GDP) to 1.8 percent of GDP in the United States. The flow of outbound FDI

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[7]This and subsequent figures on foreign direct investment are from the unpublished data of the International Monetary Fund available on computer tape.

during the same decade averaged 1.5 percent of GDP, ranging from 0.4 percent of GDP in the United States and Italy to 2.7 percent of GDP in the UK.

The accumulated stock of outbound foreign direct investment by U.S. parents is now about four percent of total private wealth and therefore about twice as large as the amount of U.S. holdings of foreign bonds and corporate stocks. The stock of foreign direct investment in the United States is nearly as large as U.S. outbound foreign direct investment.

To assess the sensitivity of outbound and inbound foreign direct investment to differences in national saving rates, I have extended the original Feldstein-Horioka investment-savings equation to relate outbound and inbound foreign direct investment (expressed as percentages of GDP) to the domestic saving rates for the OECD countries. The coefficients are very small and do not differ in a statistically significant way from zero. For example, during the 1980s a one percentage point increase in gross saving relative to gross domestic product (e.g., from 15 percent of GDP to 16 percent of GP ?) reduced inbound flows of direct investment by 0.047 percent of GDP (e.g., from the average inflow of 0.8 percent of GDP to 0.75 percent of GDP) with a standard error of 0.041. To put that number in perspective, a rise in the U.S. saving rate by one percent of GDP would add about $70 billion to annual savings but would reduce the inflow of foreign direct investment by only $3.3 billion. The results are similar for the 1970s. Outbound FDI in both decades is negatively related to the domestic saving rate, contrary to what might have been expected, but these coefficients are also not significantly different from zero.[8]

The statistical evidence that FDI is not sensitive to domestic saving rates is not

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[8]These estimates, as well as estimates for several components of international portfolio capital flows, are reported in Feldstein and Sinai (1994).

surprising. Companies make foreign direct investments in response to a variety of direct business needs -- being close to customers, obtaining lower cost labor, responding to pressure from governments where sales occur, etc -- rather than as a way of shifting capital from countries where capital has a generally low marginal product to countries where the marginal product of capital in general is high.

But even though FDI is not sensitive to domestic saving differences, its impact on domestic investment and on foreign borrowing are important for the tax treatment of multinational corporations. In a recent study (Feldstein, 1994a), I extended the original Feldstein-Horioka investment-savings equation to study the effect of outbound and inbound foreign direct investment on the level of domestic investment. I found that outbound foreign direct investment reduced domestic investment by an approximately equal amount. For example, looking at the experience of 18 OECD countries for the decade of the 1980s, I found that raising a country's rate of outbound FDI by one percent of GDP reduced its domestic investment by 0.8 percent of GDP (with a standard error of about 0.5 percent of GDP). The results were very similar for the 1970s.

I believe that this virtually one-for-one displacement of domestic investment by outbound foreign direct investment can be explained by a combination of two things.[9] The first is the nature of corporate capital budgeting in multinational corporations. Since the capital budgeting process is carried out at the level of the corporation as a whole (and not separately for the domestic parent company and its individual foreign subsidiaries), any portion of the capital budget that is used for one investment reduces the funds available for other investments. In

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[9]This explanation is developed more fully in Feldstein (1994a).

particular, an increase in the total amount of outbound FDI (whether financed by retained

earnings or borrowing) reduces the amount of capital available for domestic investment within

the firm by an equal amount. The second piece of the explanation of the one-for-one

displacement of domestic investment by outbound FDI is the segmentation of the global market

for portfolio capital. That is, when outbound FDI depresses the volume of funds available for

domestic investment, there is no automatic tendency for foreign portfolio capital to enter and

replace it.

Outbound FDI is also important to the home economy for a second reason. Outbound

foreign direct investment induces parent firms to use much more foreign debt than they

otherwise would. I have studied the financing of FDI for the United States (see Feldstein 1994a)

but have not been able to get comparable data for other countries. For the United States, I found

that the vast majority of the capital stock of the foreign subsidiaries of U.S. multinational

corporations does not come from the United States but is accumulated or raised locally by the

subsidiary. More specifically, only about 20 percent of the assets owned abroad by U.S.

multinationals is financed by cross border flows from the United States. An additional 18

percent represents retained earnings attributable to U.S. parents. And the remaining 62 percent is

financed locally by foreign debt and equity, of which foreign debt is overwhelmingly the more

important part (constituting 53 percent while foreign equity is only 9 percent).

This use of foreign capital is far greater than it would be for additional domestic

investments. The foreign borrowing by subsidiaries may be undertaken, at least in the case of

U.S. corporations, in order to get a tax deduction for the full amount of interest paid. The use of

foreign debt may also reflect a greater willingness of foreign banks and other lenders to provide

credit to firms that have local assets as collateral.

Informal inquiries with corporations and banks suggests that the obligations incurred by subsidiaries are generally kept in the local currency while the obligation incurred when the parent borrows abroad for use at home is generally hedged back into the home currency. The multinational parent may thus use local borrowing explicitly as a way to hedge the effect of currency fluctuations on the value of future earnings. Since the subsidiary's borrowed funds are used locally, there is no cross-border transfer of capital.

Although the use of foreign borrowing by multinational subsidiaries does not involve a cross-border transfer of funds, it does give the parent firm the use of foreign debt capital that, given the segmentation of global capital markets, would not otherwise have been available at home. This is important at the level of the nation. When a U.S. subsidiary borrows abroad at an after-tax cost of funds that is substantially less than the real return on capital, the process confers a net benefit to the United States. In contrast, if the firm borrows locally in the United States to finance a domestic investment, the gap between the return on capital and the net cost of borrowing is simply a redistribution between equity owners, lenders and the U.S. government with no net impact on U.S. national income.

The borrowing that accompanies outbound foreign direct investment is therefore significant because the global capital market is segmented. The foreign borrowing by the subsidiary cuts through the de facto barrier to international capital flows to transfer to the parent country not the capital itself but the benefit of the lower cost funds that would not have been available without the subsidiaries' foreign direct investment.

3. <u>Some Implications for the Taxation of Capital Income</u>

I turn now to the relation between the aspects of international capital mobility that I have

been discussing and the effects of alternative ways of taxing capital income. For this purpose,

the key features of the global capital market can be summarized as follows:

(1) Although capital can move freely among the major national economies, the

preferences of the owners and managers of capital cause most of the incremental capital

that results from increased national saving to remain in the country where the saving is

done. The tendency of capital to move across borders to seek the investments with the

highest rates of return in the world is quite limited in practice.

(2) The extent to which national boundaries do segment capital markets will vary

from one pair of countries to the next, depending in particular on exchange rate

arrangements and on the relative size of the economies. For example, the tight link

between the Dutch guilder and the German mark probably means that the two capital

markets are more fully integrated in practice than other pairs of industrial countries.

Nevertheless, even in this case, the difference in sizes of the two countries means that the

savings retention coefficient is likely to be much higher in Germany than in the

Netherlands.

(3) Portfolio investors and corporate borrowers can participate in foreign equity and

debt markets without actually transferring capital across borders. Portfolio investors who

invest in foreign markets in pursuit of higher expected returns or in order to diversify

market risk but who hedge the currency aspect of their investments have separated the

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asset risk-taking aspect of investment from the cross-border capital transfer. Similarly, multinational corporations that borrow abroad while hedging the currency risk do not effect capital transfers.

(4)   Outbound foreign direct investment does transfer funds abroad that would not otherwise have been transferred but neither the outflow of FDI nor the inflow of FDI is related to national differences in saving rates.

(5)   The foreign subsidiaries of multinational corporations make greater use of unhedged foreign borrowing than the parent company would otherwise have done. Although these funds do not cross the border back to the parent, the parent company and the nation in which its owners reside benefit from the use of the lower cost foreign funds that, because of the segmentation of global capital markets, would not otherwise have been available as portfolio capital.

The effects of taxing capital income will therefore differ substantially from what would be expected in a world of perfect capital mobility.[10] That difference will moreover not be the same for all countries. A Dutch finance minister will face different effects from his policies than a finance minister in Germany or the United States. Within that framework, I will consider five questions:

Who bears the tax on corporate profits?

If long-term investment capital flowed among countries to equalize the rate of return that

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[10]Roger Gordon (1986) examined the effects of capital income taxes on the assumption of perfect capital mobility and this assumption is made in the recent OECD study of the potential effects of alternative tax-based savings policies (OECD 1994).

capital owners received everywhere (before personal taxes), changes in domestic tax rates on corporate profits or on business capital in general would be borne by labor and by the owners of land. Capital owners would be unaffected. In reality, the opposite is probably closer to the truth for most (but not all) countries. A tax on business capital will be borne by the owners of capital except to the extent that it influences the rate of domestic capital accumulation. The incidence of a tax on capital in the corporate sector alone will be more complex but will not be significantly influenced by the potential ability of capital to move abroad.

Can savings incentives be used to increase the domestic rate of investment in plant and equipment?

With complete integration of the global capital markets, domestic policies that alter national savings do not change domestic investment. The Feldstein-Horioka evidence implies the opposite. A tax change that causes a sustained rise in domestic saving causes a substantial rise in domestic investment in the typical OECD country. That rise in investment is likely to be somewhat less than the rise in saving. In some smaller countries, the difference will be more substantial than others.

If the countries of Europe do eventually adopt a single currency, an increase in domestic saving in any European country would tend to be diffused among the European Union as a whole.[11] A monetary union would cause member countries to lose their ability to use fiscal policies to affect domestic investment rates as well as their ability to have independent monetary policies.

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[11]There is some evidence that this has already begun within Europe, with lower savings retention rates among the European countries as a group than among the OECD as a whole (Feldstein and Bacchetta, 1991.)

In a large integrated capital market in which domestic savings do not translate into domestic investment, governments may be tempted to raise tax rates on the income from savings. That would be wrong from the point of view of domestic economic welfare. A tax on domestic saving decreases domestic economic welfare even if global capital market integration means that the rate of domestic capital investment is unaffected. Individual savers nevertheless face a different net rate of return and that distorts their individual decisions about their own intertemporal resource allocation. This is true even if the change in tax rules or tax rates does not alter the rate of saving. What matters for the analysis of economic welfare is the distortion in the choice between current and future consumption. A tax on interest and dividend income that leaves the domestic saving rate unchanged implies a significant reduction in future consumption The relative efficiency of taxes on labor income and on investment income depends on the relative sensitivity of labor supply and of future consumption (not savings).[12]

Can Investment Incentives be Used to Affect the Rate of Domestic Business Investment?

Here the result is just the opposite of saving incentives. With complete global capital market integration, incentives for businesses to invest in local plant and equipment will attract funds from abroad and achieve higher investment. Domestic saving rates are unchanged since the domestic rate of return to savers is unaffected by the more favorable tax treatment of investment. The investment incentives probably would reduce global economic welfare because their primary effect would be to distort the allocation of investment among countries.

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[12]In Feldstein (1978) I showed that a labor income tax is more efficient than a general income tax (that includes capital income as well as labor income in the tax base) even if changes in the capital income tax rate do not alter the rate of saving.

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But with the more limited mobility of global capital that actually prevails, domestic investment incentives in most countries draw little capital from abroad and only increase domestic investment to the extent that domestic saving is increased. The incentive to invest domestically has relatively less effect on domestic investment but may increase economic efficiency by reducing the bias in favor of certain kinds of investments that currently exist (e.g., investments in owner occupied housing or intangible business investments like advertising) or by counterbalancing the anti-saving effects of domestic income tax rules.

Can Governments Collect Taxes on Individual Dividend and Interest Income?

The ability of individuals to evade taxation by shifting funds across national borders is independent of whether this action involves a net cross border capital flow or is offset by a hedging transaction that brings the funds back to the individual home country. The substitution of tax deductions at source, i.e., a tax on interest and dividend income collected from the payers of that income, will only accrue to the country of residence of the individual capital owner if the funds that are sent abroad to evade tax are ultimately invested back in the original country. If there is complete net capital movement, as there might be with a monetary union, the countries would not be able to collect tax revenue on the income of their own nationals even by withholding at source. All taxes on capital income would become taxes on the capital independent of ownership.

What rule for taxing the income of foreign subsidiaries maximizes national income?

The United States taxes the income of multinationals when profits are repatriated but

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gives a credit for taxes paid to foreign governments. Some critics of this approach[13] note that if firms invest until the after-tax rate of return is equalized at home and abroad, the national return to the U.S. on the foreign investment is lower than the return on domestic investment by the amount of the tax paid to the foreign government. The same criticism would apply if the United States adopted the system used by many countries that do not tax profits on foreign investment at all. These critics suggest that the national income of the United States would be maximized by changing the credit for foreign taxes to a deduction so that the U.S. firm would invest abroad only until the after-tax return abroad was equal to the pretax return in the United States. The same argument would suggest that those countries that exempt the income of foreign subsidiaries should subject that income to tax but allow a deduction for foreign taxes paid.

This argument is wrong when the segmentation of global capital markets is recognized. The share of the subsidiary's return that is lost in the form of taxes collected by the foreign government must be balanced against the advantage of increased use of foreign borrowing. This advantageous use of foreign borrowing would not be a consideration in a completely integrated capital market because the amount of foreign capital available to U.S. firms would not depend on the amount of outbound foreign direct investment. In a recent study (Feldstein, 1994b) I evaluated the relative importance of the lost tax revenue and the gain from foreign borrowing and concluded that the advantage of foreign borrowing outweighed the loss of tax revenue. A tax rule aimed at increasing U.S. national income would seek to encourage more foreign direct investment, particularly investment that employs substantial amounts of foreign debt per dollar of U.S. capital.

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[13]See, e.g., Richman (1963), Musgrave (1969) and Horst (1977).

4.   A Concluding Comment

   The segmentation of the global market for long term capital investments is compatible

with the observed evidence that capital can now move quite freely among major countries. The

extent of that segmentation also differs among countries and is likely to evolve over time. For

those who are concerned with tax policy in individual countries, a high priority is to try to

understand the extent to which that country's capital market is fully integrated with the market of

one or more other countries. More generally, those who think about changing the exchange rate

relations within Europe or more generally should think about the implications of moving from

our relatively segmented capital market to a more fully integrated one in which governments lose

the ability to influence the domestic rate of investment in plant and equipment.

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