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Capital Controls: Rationale And Implications: For Canadian Trade And Investment Policy

by

Ehsan Choudhri
Professor of Economics, Carleton University

and

Prakash Sharma
Senior Economist
Trade and Economic Analysis Division (EET)

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Executive Summary

Since the late 1980s, trade and capital market liberalization, coupled with prudent macro-economic policies have allowed a number of countries in Asia and in South America to attract significant amounts of FDI. The benefits of such policies are also well illustrated in the case of Chile. This Paper uses the Chilean case to examine how further deregulation of capital markets can improve a country's financial and investment climate.

Foreign capital can finance investment and stimulate economic growth in the recipient country. However, short-term capital inflows in large amounts are feared to have less desirable macro-economic effects, such as inflationary pressures, real exchange rate appreciation and widening current account deficits.

- One policy option restricts the outflow of capital invested for a particular period of time.
- Another policy prescription requires a deposit (or a reserve) requirement on international credit.

Such schemes are designed to provide more macro-economic policy autonomy by slowing down international capital movements. However, serious doubts have been raised about the motive, effectiveness and the desirability of capital controls. Our research indicates that:

- International financial markets are likely to develop sophisticated mechanisms for evading national regulations on capital movements and, thus, capital controls may not be effective in segmenting international capital markets.
- Capital controls, if effective, reduce economic efficiency by restricting international trade and investment.
- It is not clear whether these controls improve macro-economic performance sufficiently to justify the loss in economic efficiency.

Since Mexico did not restrict capital flows before its peso crisis of December 1994, advocates of capital controls have pointed to this crisis as a dramatic example of the consequences of unrestricted capital mobility. However, given the severity of the attack on Mexican peso, it is unlikely that restrictions on capital flows would have allowed Mexico to delay the collapse of the peso.

Chile has maintained for some time reserve requirements and repatriation restrictions on capital inflows. Chile's deposit requirements (*encaje*) lock-in for one year 30% of foreign-credit financed investments. Chilean authorities maintain that capital controls are used to stabilize the value of Chilean peso in the short-term. The *encaje* regime also generates important revenues for the Chilean government as no interest payments are made on the deposit requirement.

A good proportion of foreign direct investment in Chile has been in the mining sector, which is of long-term nature. the long-term investors in Chile lose the use of their capital and forgo the return on their borrowed money. As a result, the deposit requirement allows the Chilean authorities to raise revenues at the expense of long-term foreign investors. Moreover, the deposit requirement in Chile, thought to be a prudent measure, in fact ends up discouraging investment in Chile and hurts small business.[1]

Since 1973, Chile has achieved significant improvement in its macro-economic performance. Capital controls do not appear to have been a significant ingredient in the Chilean economic success. The successful performance of Chile is generally attributed to a prudent and consistent macro-economic policy and a wide range of structural reforms. Consequently, financial success and stability in Chile cannot be exclusively attributed to restrictions on capital inflows, as some Chilean commentators would suggest.

[1] The Director of the Central Bank of Chile, María Elena Ovalle was quoted as favouring the elimination of the *encaje* requirement. On November 24, 1995, in a press conference following Senate approval of her nomination to the Bank, Mrs. Ovalle stated that the *encaje* "affects small and medium sized enterprises and restricts investment". Mrs. Ovalle further commented that "a greater development of the financial market was needed, allowing for wider coverage of individuals and firms." Source: Internet, http://www.copesa.cl/DE/1995/11_30/economia.html.

In sum, in the light of the weight of theory and evidence, especially the case study of Chile, the Paper concludes that the deposit requirement and the repatriation restriction impose an unnecessary penalty on investments without promising any significant curtailment of speculative activity. At best, the benefits of capital controls are uncertain. Yet capital controls jeopardize economic gains expected from freer trade and investment in the host country. Thus, this Paper finds that potential NAFTA partners, who currently regulate capital movements, should be prepared to reform their policies toward foreign investment and meet the NAFTA standards.

Résumé

Depuis la fin des années 1980, la libéralisation du commerce et des marchés des capitaux, alliée à des politiques macro-économiques prudentes, a permis à un certain nombre de pays d'Asie et d'Amérique du Sud d'attirer d'importants IED. Le Chili offre aussi un bon exemple des avantages d'une libéralisation réussie des échanges. Dans le présent document, nous utilisons le cas du Chili pour examiner comment une déréglementation plus poussée des marchés de capitaux peut améliorer le climat d'un pays du point de vue des finances et des investissements.

Les capitaux étrangers peuvent servir à financer les investissements et à stimuler la croissance économique dans le pays récipiendaire. Toutefois, on craint que les entrées importantes de capitaux à court terme aient des effets macro-économiques moins souhaitables, comme des pressions inflationnistes, l'appréciation du taux de change réel et l'augmentation des déficits du compte courant.

- Il y a une option en matière de politiques qui restreint la sortie des capitaux investis pour une période de temps donnée.
- Il y a une autre prescription issue des politiques qui requiert des dépôts (ou des réserves) obligatoires sur le crédit international.

De tels plans sont conçus pour fournir une plus grande autonomie aux politiques macro-économiques, en ralentissant les mouvements de capitaux internationaux. Toutefois, la justification, l'efficacité et le caractère souhaitable des mesures de contrôle des capitaux ont été sérieusement mis en doute. Les éléments suivants ressortent de nos recherches.

  - Les marchés financiers internationaux vont vraisemblablement mettre au point des mécanismes raffinés pour contourner les règlements nationaux visant les mouvements de capitaux, de sorte que les mesures de contrôle des capitaux ne réussiront pas nécessairement à segmenter les marchés de capitaux internationaux.
  - Si elles sont efficaces, les mesures de contrôle des capitaux réduisent l'efficience économique en restreignant les échanges et les

investissements internationaux.

- Il n'est pas évident que ces mesures de contrôle améliorent la performance macro-économique suffisamment pour justifier la perte d'efficience économique.

Étant donné que le Mexique n'a pas restreint les flux de capitaux avant que n'éclate la crise du peso de décembre 1994, les défenseurs des mesures de contrôle des capitaux ont cité cette crise comme exemple des conséquences d'une mobilité illimitée des capitaux. Toutefois, compte tenu de la gravité de la crise qui a frappé le peso mexicain, il est peu probable que des restrictions sur les flux de capitaux auraient permis au Mexique de retarder l'effondrement du peso.

Le Chili a imposé, durant un certain temps, des réserves obligatoires et des restrictions frappant le rapatriement des entrées de capitaux. Les réserves obligatoires du Chili (*encaje*) engagent pour une année 30 % des investissements financés par des crédits étrangers. D'après les autorités chiliennes, les mesures de contrôle des capitaux servent à stabiliser la valeur du peso chilien à court terme. Le régime des *encaje* génère aussi d'importantes recettes pour le gouvernement chilien, car aucun intérêt n'est versé sur les réserves obligatoires.

C'est dans le secteur minier, qui est un secteur à long terme de nature, qu'ont été effectués une forte proportion des investissements étrangers directs faits au Chili. Les investisseurs qui engagent des capitaux à long terme au Chili perdent l'usage de leurs capitaux et renoncent au rendement sur l'argent emprunté. Par conséquent, les réserves obligatoires permettent aux autorités chiliennes de collecter des recettes aux frais des investisseurs étrangers qui ont fait des investissements à long terme. En outre, les réserves obligatoires, considérées au Chili comme une mesure prudente, découragent en fait les investissements dans le pays et nuisent aux petites entreprises[2].

Depuis 1973, le Chili a sensiblement amélioré sa performance macro-économique. Les mesures de contrôle des capitaux ne semblent pas avoir été un instrument important de la réussite économique du Chili. La performance réussie du Chili est généralement attribuable à une politique macro-économique prudente et cohérente et à une vaste gamme de réformes structurelles. Par conséquent, la réussite et la stabilité financières du Chili ne peuvent être attribuées en exclusivité aux restrictions frappant les entrées de capitaux, comme certains commentateurs chiliens le donnent à penser.

Somme toute, à la lumière de la théorie et des cas observés, spécialement de celui du Chili, nous en venons ici à la conclusion que les réserves obligatoires et les restrictions frappant le rapatriement imposent un fardeau inutile aux investisseurs, sans nécessairement produire une sensible réduction de l'activité spéculative. Au mieux, les avantages des mesures de contrôle des capitaux sont incertains. Par ailleurs, les mesures de contrôle des capitaux compromettent les gains économiques attendus de la libéralisation du commerce et des investissements dans le pays hôte. Ainsi, les auteurs du présent document estiment que les partenaires potentiels de l'ALENA, qui réglementent actuellement les mouvements de capitaux, devraient être disposés à réformer leurs politiques en matière d'investissements étrangers et à se conformer aux normes de l'ALENA.

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[2] Mme Maria Elena Ovalle, directrice de la Banque centrale du Chili, a déclaré qu'elle était favorable à l'élimination de l'*encaje* obligatoire.Le 24 novembre 1995, à l'occasion d'une conférence de presse faisant suite à l'approbation par le Sénat de sa nomination à la Banque, Mme Ovalle a déclaré que l'*encaje* « nuisait aux petites et aux moyennes entreprises et restreignait les investissements ». Mme Ovalle a ajouté ensuite qu'« un élargissement du marché financier était nécessaire, élargissement qui couvrirait davantage les particuliers et les entreprises ». Source : Internet, http://www.copesa.cl/DE/1995/11_30/economia.html.

1. Introduction

The purpose of this paper is to:

- examine the case for and against capital controls, and
- discuss implications for Canadian trade and investment policy with special reference to potential NAFTA partners, who currently regulate capital movements.

The benefits of foreign direct investment (FDI) resulting from capital and trade liberalization are well-known. Accordingly, the NAFTA seeks not only to eliminate barriers to trade in goods and services but also to increase substantially the opportunities for cross-border credit. The control of capital movements, except in limited circumstances for prudential reasons, is in conflict with various NAFTA provisions.[3]

- The basic argument for capital controls is based on the concern that free capital mobility subordinates domestic macro policy to foreign conditions.

Our review of theory and empirical evidence on macro policy constraints implied by unrestricted capital mobility for flexible as well as fixed exchange rates reveals the following.

- Flexible exchange rates allow a country freedom to implement short-term interest rates that are different from those prevailing abroad. In the presence of unrestricted capital mobility, however, an independent interest-rate policy can lead to considerable fluctuations in the exchange rate.
- Fixed exchange rates avoid undesirable effects of excessive exchange rate variability but lead to a significant loss of monetary policy independence

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[3] For example, see section 1109 of the NAFTA on capital transfers and section 1410 on prudential capital-investment measures.

under free capital mobility. This exchange-rate system, moreover, is vulnerable to speculative attacks that can force the country to undertake unwanted policy measures.

Some of the key proposals for capital controls, and the arguments for and against these controls can be summarized as follows.

- One well-known proposal would impose a tax on foreign exchange transactions.

- Alternative proposals would introduce restrictions on capital outflows and a deposit (or a reserve) requirement on capital inflows.

These schemes are designed to provide more macro policy autonomy by slowing down international capital movements. The empirical evidence on the effects of capital controls under different exchange rate regimes leads to the following conclusion.

- It is generally found that while controls are usually successful in introducing a small wedge between national and foreign interest rates, there is no compelling evidence that they tend to significantly improve the macro-economic performance of the economy.

To motivate the discussion to reform the capital control regime, we zero-in on Chile's experience with capital controls. Foreign investors in Chile are required to maintain interest-free deposits, and are not allowed to repatriate capital before one year. The main purpose of these restrictions is to stabilize the value of the Chilean peso by controlling speculative activity.

- The experience of other countries suggests that capital controls are likely to have limited success in achieving this goal.

Long-term investment in resource sectors is not an attractive channel for speculative activity. Thus, even if Chilean controls are deemed useful for curtailing speculative capital flows, they should not penalize non-speculative direct investment. Our assessment of Chile's capital controls allows us to make a case for reforming the foreign investment regime. Should the Chilean authorities consider reforming their regime, we discuss certain proposals that would reduce barriers to the entry of direct investment without encouraging speculative inflows.

The rest of the paper presents the following discussion. In section 2, we review the theoretical analysis and empirical evidence on macro policy constraints implied by unrestricted capital mobility. In section 3, we review key proposals for capital controls, and discuss the arguments for and against these controls. Finally, section 4 examines the restrictions on capital inflows erected in Chile. Conclusions are in section 5.

2. Macro Policy Constraints Under Unrestricted Capital Mobility

2.1. Interest Parity

Unrestricted capital flows link financial markets in different countries to each other. These linkages are especially strong between markets that deal with short-term financial claims, usually defined as those having a maturity of less than one year. Short-term claims include a wide variety of instruments and tend to be highly liquid (i.e., can be bought and sold at low transaction costs). The liquidity of these claims allows short-term funds to move rapidly from one national market to another in search of higher returns. Such movements of "hot money" tend to eliminate differences in expected returns between short term claims denominated in different currencies. Under these conditions, short-term interest rates between two countries, A and B, are connected by the following interest-parity relation: the interest rate on a loan denominated in A's currency equals the sum of the rate on a loan (with the same maturity) denominated in B's currency and the expected percentage increase in the relative price of B's currency.[4]

The interest parity represents an important constraint on macro policy in an open economy.

- If a country attempts to influence its short-term interest rates, the exchange rate

[4] This relation is referred to as the uncovered interest parity, and is distinguished from the covered interest parity in which the interest rate differential between A and B would equal the forward premium on B's currency.

would need to adjust to maintain the parity between domestic and foreign interest rates.

On the other hand, if the country chooses to fix the exchange rate, it would loose control over domestic interest rates. The interest parity need not hold exactly if some premium is required to compensate for the risk associated with unexpected exchange rate movements. However, the determinants of the risk premium are not sufficiently well understood for policy makers to manipulate the premium to gain an extra degree of freedom. Consequently, we will ignore the role of risk premium in interest parity in our discussion of policy constraints. We first consider flexible exchange rates and then examine two varieties of fixed exchange rates.

2.2. Managed Flexible Exchange Rates

Under a pure flexible exchange rate system, the price of a country's currency is determined exclusively by market forces. In practice, however, this system is "managed" in that the central bank intervenes in the exchange market from time to time to influence the path of this price. Flexible exchange rates allow a country monetary independence to set its short-term interest rate at the desired level. However, the independence is significantly limited by the parity relation. Suppose, for example, that the country wants to achieve a domestic interest rate that is one percent below the international level. This objective can be met and be consistent with interest parity condition, provided the exchange rate changes and generates an expectation of one percent appreciation of domestic currency (or equivalently, one percent depreciation of foreign currency). The well-known "overshoot" model developed by Dornbusch suggests that the price of foreign currency in this case would rise sharply above its long-run value to induce expectations that it would depreciate by the required amount.[5]

Even if a country keeps its interest rate tied to the foreign rate, the exchange rate could still fluctuate widely because of shifts in expectations of its future values.

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[5] Rudiger Dornbusch, "Expectations and Exchange Rate Dynamics", **Journal of Political Economy**, 84, 1976, 1161-76.

Such shifts could occur because of changes in beliefs or misperceptions about the future exchange rate. Even under rational exchange rate expectations (i.e., optimal exchange rate forecasts based on all available information), expected values of future exchange rate could change in response to "news" that provide new pieces of information about fundamental macro-economic conditions.

- In the presence of free capital mobility, the exchange rate is likely to exhibit considerable variability under flexible rates.

Since prices of goods tend to adjust slowly, volatility in the nominal exchange rate would also produce volatility in the real exchange rate (the nominal exchange rate divided by the ratio of the home to foreign price level).

- Wide swings in the real exchange rate can cause serious adjustment problems for firms and workers in traded-goods industries.

Moreover, uncertainty produced by fluctuations in the exchange rate is generally believed to reduce international trade and discourage foreign investment. Fixed exchange rates are often advocated to avoid these undesirable effects of exchange-rate variability, but as we discuss below, this system also poses serious policy problems.

2.3. Adjustable Exchange Rate Peg

Under fixed exchange rates, the central bank announces buying and selling rates for its currency (in relation to a single foreign currency or a basket of currencies), and commits itself to buying and selling unlimited amounts at these rates. We first consider an exchange rate regime where the buying and selling rates are very close and the exchange rate can thus fluctuate only between very narrow bands.

If the country is perceived as fully committed to fixed rates, it would be expected not to devalue or re-value its currency under any circumstances. In this case, the price of the currency would be expected to remain within permanently-fixed narrow bands, and the interest parity would dictate that the home interest rate is always very close to the foreign rate. Under these conditions, the country would loose control over its monetary policy. It could still use fiscal policy as a tool to achieve its macro-economic goals. Fiscal policy measures, however, do not have the flexibility of the monetary policy to respond quickly and effectively to changes in macro-economic conditions. Consequently, a full commitment to permanently-fixed exchange rates would severely restrict a country's capability to deal with its macro-economic conditions.

Most countries would be unwilling to give up the use of monetary policy in order to single-mindedly pursue the goal of pegged exchange rates. A country can gain some monetary independence by allowing an occasional adjustment in the pegged exchange rate (via a devaluation or a revaluation). However, the option of an adjustable peg seriously undermines the credibility of a permanently fixed exchange rate regime and makes the regime vulnerable to a speculative attack.

A speculative attack on a currency is based on an expectation that it will be devalued. To maintain the price of the currency in face of such an attack, the country must be willing to sharply increase its short-term interest rates to offset capital gains expected from devaluation by speculators. If the country is not willing to follow this course because of concerns about negative effects of high interest rates on the economy, then international reserve losses will force the country to devalue the currency, usually by a large amount. A large devaluation would also have undesirable effects on the economy. Thus, speculative attacks cause a serious policy dilemma for an adjustable-peg regime.

A number of models have been developed to explain speculative attacks. One approach views these attacks as arising from inconsistencies between the behaviour of economic fundamentals under a policy regime and the fixed level of the exchange rate.[6] While this approach focuses on the inconsistencies of a policy regime, another approach emphasizes the self-fulfilling nature of currency crises. For example, suppose that a country experiences a run on its currency simply because of a

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[6] The basic models in this approach have been developed by Paul R. Krugman, "A Model of Balance-of-Payments Crises", **Journal of Money, Credit and Banking**, 11, August 1979, 311-25; and Robert P. Flood and Peter M. Garber, "Collapsing Exchange-Rate Regimes: Some Linear Examples", **Journal of International Economics**, 17, August 1984, 1-13.

contagion effect arising from a speculative attack on its neighbour. If the country is unwilling to raise interest rates sufficiently in this situation, it may be forced to devalue and, thus, confirm the expectation that initially triggered the attack on its currency.

2.4. Target Zones

An alternative form of the fixed exchange rate system is to allow wide bands around the announced parity. This regime—generally referred to as a target zone—is claimed to provide more room for monetary policy to manoeuvre without producing excessive fluctuations in the exchange rate. The target zone is thus thought to represent a happy compromise between rigidly fixed and uncontrolled flexible exchange rates. This regime has been analyzed extensively in the literature. The basic analysis assumes that the central bank is fully committed to keeping the exchange rate within the specified band, and intervenes effectively at the edges of the band.[7] A key result of this analysis is that the expectation of full commitment to intervention at the boundaries stabilizes intraband movements of the exchange rate.

- The result that target zones are inherently stable is, however, extremely sensitive to the assumption that this regime is credible.

The credibility of the regime would be undermined if macro-economic conditions or political pressures induce the country to follow policies that are inconsistent with the fixed parity. Expectations of a change in the parity would make the country prone to speculative attacks. A wide exchange rate band may delay but would not prevent currency crises. Once an attack on the currency starts, the country would experience the same speculative pressures and face the same policy dilemma regardless of whether the band is wide or narrow. To forestall a speculative attack, the central bank may even attempt to influence the exchange rate before it gets close to the boundaries of the target zone. In such a case, the target-zone regime would play-out much like a managed flexible exchange rate regime.

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[7] See Paul R. Krugman, "Target Zones and Exchange Rate Dynamics", **Quarterly Journal of Economics**, 106, 1991, 669-82.

Thus, a target-zone regime that lacks credibility is not likely to be effective in achieving its goals of policy independence and exchange-rate stability.

2.5. Empirical Evidence on Interest Parity, Exchange-Rate Variability and Speculative Attacks

The interest-parity relation has been tested extensively. Under rational expectations, the relation implies that the difference between the percentage change in the exchange rate and the relevant interest-rate differential is unpredictable (on the basis of currently available information) and, on average, equals zero. There is evidence of significant departures from this relation for certain periods and currencies. The foreign-exchange premium or errors in expectations could potentially explain these departures. However, determinants of the risk premium and causes of errors in expectations are not well understood. Thus, although the interest-parity relation does not hold exactly, not enough is known about the sources of errors in this relation for policy makers to shake loose the constraints that the relation places on their actions.

Since the breakdown of Bretton Woods system of adjustable pegs in 1973, a wide spectrum of exchange-rate regimes has emerged. Countries in the European Monetary System (EMS) have pegged exchange rates between currencies within the system but floating exchange rates with other currencies. Most of the industrial countries outside the EMS operate on flexible exchange rates with respect to all major currencies. There is much greater diversity of exchange-rate regimes among developing countries. Latin American countries, in particular, have experimented with a large variety of fixed, flexible and hybrid exchange-rate regimes.

The post-Bretton-Woods period has also seen the elimination or relaxation of capital controls by many countries and the emergence of a global capital market. These developments have heightened concerns about the constraints that international financial markets place on domestic macro-economic policy. There is now considerable evidence about the kind of macro-economic problems experienced under different exchange-rate regimes.

- A key finding is that regimes with flexible exchange rates exhibit large fluctuations in the exchange rate.

High variability of nominal exchange rates also tends to be accompanied by high variability of real exchange rates.[8] Real exchange rate variability is a major policy concern for flexible exchange rate regimes since movements in the real exchange rate exert important effects on economic activity, especially in the traded-goods sector.

Fixed exchange rate regimes reduce exchange rate variability provided that the fixed parity can be maintained. However, such regimes are often forced to make large changes in the parity or abandon the fixed exchange rate system as a result of speculative attacks. Some interesting evidence on speculative attacks is provide by recent currency crises in the EMS and the dramatic collapse of the Mexican peso.[9] The evidence shows that although attacks against a currency tend to occur suddenly,

- a widespread perception generally exists for some period prior to the attack that the fixed price of the currency is not sustainable.

One typical reason for such a perception is that the price level of the country is rising relative to the foreign level and is causing a real appreciation of the currency under the fixed exchange rate. This situation raises serious doubts about the credibility of the domestic monetary authorities to maintain a fixed parity regime.

Another interesting finding is that wide bands around the fixed parity do not appear to help much in the event of an attack. For example, during the 1992 EMS crises the 12% wide bands did not prevent successful speculative attacks against Britain, Spain and Portugal. Subsequently, Spain and Portugal adopted a 30% wide target zone. Nonetheless, they both were still forced to devalue in 1995.

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[8] For example, see Michael Mussa, "Nominal Exchange Rate Regimes and the Behavior of the Real Exchange Rate", in K. Brunner and A. H. Meltzer (eds.), **Real Business Cycles, Real Exchange Rates and Actual Policies**, New York: North-Holland, 1986, 117-213.

[9] For a discussion of these episodes, see Maurice Obstfeld and Kenneth Rogoff, "The Mirage of Fixed Exchange Rates", **Journal of Economic Perspectives** 9, Fall 1995, 73-96.

3. The Case For and Against Capital Controls

3.1. Tobin Tax and Other Proposals for Capital Controls

Macro policy implications of unrestricted capital mobility have persuaded a number of economists to advocate some form of controls on capital movements. A well-known proposal by Tobin makes a case for "throwing sand in the wheels" of international finance by introducing a small but uniform tax on all foreign-exchange transactions.[10]

Another widely-discussed proposal would subject all domestic-currency lending to non-residents subject to deposit requirements in the form of maintaining a proportion of the loan as an interest-free deposit at the central bank.[11] Such restrictions are intended to significantly decrease the payoff from a short-duration round-trip to a foreign market, while imposing a low cost on the profitability of long-term investment. These restrictions could open up significant differentials between short-term interest rates in different countries. For example, a Tobin tax equal to half percent would allow an interest rate differential on three-month loans as high as four percent (at an annual rate) if no change in the exchange rate is expected.

- One advantage claimed for capital controls is that national monetary policy would not be subordinated to foreign conditions.
- By allowing the central bank to set interest rates substantially different than foreign levels, restrictions on capital flows would enable monetary policy to deal with domestic macro-economic conditions.
- It is also argued that capital controls would reduce exchange rate variability

[10] James Tobin, "A Proposal for International Monetary Reform", **Eastern Economic Journal** 4, 1978, 153-9.

[11] See Barry Eichengreen, James Tobin and Charles Wyplosz, "Two Cases for Sand in the Wheels of International Finance", **Economic Journal**, 105, January 1995, 162-72. Also see Barry Eichengreen and Charles Wyplosz, "The Unstable EMS", **Brookings Papers on Economic Activity** 2, 1993, 51-143, for a similar proposal.

under flexible rates and discourage speculative attacks under fixed rates.

These arguments are evaluated below. We now examine the feasibility and the effectiveness of the proposed restrictions on capital flows.

3.2. Feasibility and Effectiveness of Capital Controls

Serious doubts have been raised about the ability of a country to effectively regulate transactions involving its currency in foreign-exchange markets.[12] Even the advocates of the Tobin tax acknowledge that it would be impractical to implement this tax on a unilateral basis. If the tax was imposed only by one country, there would be a strong incentive for the foreign exchange market of the country to move offshore. Thus, it is generally agreed that for the Tobin tax to be feasible, it has to be implemented and enforced in all countries at the same time. However, a multinational agreement to impose a global Tobin tax, would be difficult to negotiate and enforce.

As an alternative, it may be easier to enforce a unilateral deposit requirement (or a tax) on international borrowing or lending involving transactions with banks (or other financial institutions) within the country's jurisdiction. However,

- Regulations of capital flows are likely to divert cross-border credit to banks outside the country's control or non-bank channels that would be difficult to police.

There would be a number of opportunities available for speculators to evade a country's restrictions on international capitals flows. For example, suppose that a firm in country A is interested in short-term speculative investment in country B but would like to escape this country's deposit requirements on capital inflows. For this purpose, A's firm could purchase B's currency from a firm in B (that has need for A's currency for normal trading activities), and then lend these funds to the same firm at B's interest rate. The firm in B could offset this loan by investing an

[12] For a further discussion of this issue, see Peter Garber and Mark P. Taylor, "Sand in the Wheels of Foreign Exchange Markets: A Sceptical Note" **Economic Journal**, 105, January 1995, 173-180.

equivalent amount through a local bank. Since A's firm would not directly deal with a bank in B, these transactions would be difficult to trace and thus would enable the firm to circumvent B's deposit requirements.[13] Such methods for evading regulations on capital flows significantly weaken the effectiveness of capital controls.

- It is generally believed that the longer a set of regulations is in place, the more sophisticated are the techniques for evasion.
- Thus, the effectiveness of capital controls is decreases over time.

Consequently, this is one reason controls are often proposed as **temporary measures** to deal with transitional problems.[14]

In sum, problems in enforcing regulations on capital movements will make capital controls only partially effective. Therefore, the extent to which the domestic interest rate can diverge from the foreign rate may not be as large as calculated under the assumption of full compliance with capital restrictions.

3.3. Desirability of Capital Controls

Restrictions on foreign-exchange transactions and international credit are generally assumed to reduce economic efficiency because they interfere with optimal decisions regarding international trade and investment. They also waste resources by encouraging evasion-related activities. Despite these costs, it can be argued that capital controls are desirable because they improve macro-economic performance of the economy. To assess this argument, we now examine the macro-economic effects of capital controls under different exchange rate regimes.

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[13] An investor from country A may also finance purchases of materials and equipment by its clients in country B by arranging a line of credit in country A. Thus, the customer in country B buys materials on terms from suppliers in country A and can circumvent the 30% reserve requirement in country B.

[14] The deposit requirement proposed by Eichengreen, Tobin and Wyplosz (op. cit.) is intended to be implemented temporarily in transition to the creation of a European Monetary Union.

Under fixed exchange rates, a basic macro-economic problem is that the economy is susceptible to speculative attacks. One reason for such attacks is that macro policy of the country is perceived as inconsistent with maintaining a fixed price of its currency. Capital controls could effect the timing and the likelihood of speculative attacks based on this reason. There is an extensive literature analyzing speculative attacks in the presence of capital controls.[15] A general conclusion of this literature is that:

- although capital controls may considerably lengthen the life of an inconsistent regime, they do not prevent an attack on such a regime.

A tax or a deposit requirement adds a cost to speculative transactions, and would discourage such activity when a devaluation is expected in distant future so that the expected payoff from a speculative position is low. However, when a devaluation is imminent, the expected capital gains from speculation become very large and can easily offset the cost imposed by capital controls.[16] Capital controls can, thus, postpone but not eliminate speculative attacks on an inconsistent regime.

Supporters of capital controls argue that the extra time allowed by controls would enable a regime to improve its short-run macro-economic performance and introduce measures to make its policies consistent with the fixed exchange rate in the long-run. An alternative view is that political and economic pressures that lead to inconsistent policies are unlikely to be diminished by the availability of extra time. Capital controls would, thus, simply postpone the inevitable crisis. It is also argued that:

- monetary policy autonomy available from these controls would, in fact, weaken the monetary discipline and increase the likelihood that the regime would follow inconsistent policies.

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[15] For a review of this literature, see Michael P. Dooley, "A Survey of Academic Literature on Controls Over International Capital Transactions", National Bureau of Economic Research Working Paper no. 5352, November 1995.

[16] For example, if a 10% devaluation is expected in a week with a probability, say, equal to 0.2, the expected return from speculation is 2 % per week, which translates to over 100% at an annual rate.

Under flexible exchange rates, restrictions on capital mobility are likely to reduce exchange-rate movements in response to small changes in interest-rate differentials or expected levels of future exchange rates. These restrictions may not, however, have an appreciable effect on exchange-rate fluctuations caused by large shifts in yield differentials or expectations. According to these considerations, it is not clear whether capital controls would significantly reduce exchange-rate variability.

- An argument against capital controls is that they would tend to weaken a country's commitment to its long-term money growth targets and make its policy more unpredictable. Exchange-rate variability could, in fact, increase in this case.

The arguments discussed above suggest a considerable difference of opinion about how capital controls affect macro-economic conditions in economies with fixed or flexible exchange rates. It is generally agreed, on the other hand, that these controls restrict foreign-exchange transactions and thus impede international flows of goods and capital. As many countries have recently adopted measures to liberalize international trade and investment, capital controls would hinder such liberalization. Given that the benefits of capital controls are uncertain, except as a limited prudential measure, it is not prudent to adopt a policy that jeopardizes economic gains expected from freer trade and investment.

3.4. Empirical Evidence on the Effects of Capital Controls

A large number of studies have investigated the effects of capital controls for both industrial and developing economies.[17] Much of this empirical analysis has focused on the influence of controls on the differential between domestic and international short-term interest rates (or the difference between returns on on-shore and off-shore bank deposits). This research suggests that although capital controls have a quantifiable effect on yield differentials, the effect tends to be small and decreases over time. Large effects are rarely observed even among regimes that

[17] For an extensive review of this literature, see Michael Dooley, *op.cit.*, section V.

implement strong and pervasive controls. These results support the view that there is substantial evasion of controls, and as familiarity with controls increases over time, evasion becomes more successful. Some studies have also examined the effect of capital controls on international capital flows, and have found that controls tend to decrease officially recorded capital flows. It is not clear, however, to what extent the observed decreases are offset by "unofficial" capital flows that successfully avoid the controls.

A number of studies have also compared the behaviour of regimes with and without capital controls before a currency crisis or a major devaluation. These studies support the view that controls do not appear to prevent successful speculative attacks.

- When crises occur, countries with control do not appear to fare any better than countries without them. Controls do not seem to help countries avoid reserve losses or interest-rate increases.

Inconsistent regimes may, however, be able to use controls to survive for a longer period.

Since Mexico did not restrict capital flows before its peso crisis of December 1994, advocates of capital controls have pointed to this crisis as a dramatic example of the consequences of unrestricted capital mobility. However, as mentioned above, evidence on other currency crises suggests that capital controls are not very helpful in preventing currency depreciation under a major speculative attack. Indeed, given the severity of the attack on Mexican peso, it is unlikely that restrictions on capital flows would have allowed Mexico to even delay the collapse of the peso.

4. Case Study: Capital Controls in Chile

4.1. Current Capital Controls and Exchange Rate Policy in Chile

Chapter XIV of the Compendium on Foreign Exchange Regulations sets out general rules for all types of capital inflows (exceeding US$10,000) in Chile. The two key restrictions on capital flows under Chapter XIV are:

- foreign investors are required to maintain deposits (***encaje***), without any interest payments, equal to 30% of (the external credit portion of) their investment or pay an equivalent financial cost (through an alternative arrangement); and

- repatriation of capital is allowed only after one year.

Both of these restrictions impose an extra cost on investment in Chile. The cost of the deposit requirement depends on the interest rate and (expressed as a rate per unit of time) decreases with the length of the investment. The repatriation restriction, on the other hand, involves giving up the option to sell assets of the investment and repatriate funds before one year. The deposit requirement in practice also functions as a tax instrument on investment and generates revenue for the Government of Chile.

Foreign direct investment (in excess of US$25,000) in Chile can be made under Foreign Investment Statute Decree Law 600 (DL 600) which provides some favourable terms for such investment. Inflows under DL 600, however, are subject to the same deposit requirements and repatriation restrictions as those under Chapter XIV. Two types of portfolio investments are exempted from the deposit requirement. These are:

- investment (over US$25 million) in stocks of a number of Chilean companies listed on New York Stock Exchange through American Depositary Receipts (ADRs); and

- investment (over US$1 million) in Chilean Investment Funds to be sold outside Chile.

ADRs are exempt from any repatriation restriction, while a 5-year repatriation restriction applies to the investment funds.[18]

Since July 1992, the Chilean peso has been pegged to a basket of currencies

[18] For further details of these regulations see "Foreign Investment Regulation in Chile (as of April 1, 1996)", Department of Finance, International Economic Relations Division, Draft.

comprising of the US dollar, the German mark and the Japanese yen (with weights equal to 50%, 30% and 20%, respectively). A 10% wide band is added on either side of the fixed parity. Thus, the Chilean exchange rate policy represents a target-zone regime. In the pure form of this regime, the central bank supports the price of the currency only at the boundaries of the zone. In the Chilean case, however, the central bank also intervenes in the foreign exchange market to control the intra-zone movements of the exchange rate. Thus, the exchange rate policy in Chile could also be described as a "dirty float" or managed flexible exchange rates.

4.2. Assessment of Capital Controls in Chile

Capital controls, especially the deposit requirement, are maintained in Chile with the main purpose of stabilizing the value of Chilean peso.[19] We first briefly examine how successful Chilean capital controls are likely to be in attaining this goal.

Restrictions on capital flows are designed to introduce a wedge in the interest parity relation and thus discourage speculative capital flows. Short-term capital inflows in Chile have, in fact, decreased in the period following the introduction of the deposit requirement (since 1991).[20] A part of this decrease could, however, represent a diversion of speculative inflows to unofficial channels.[21] In any case, there was not much inducement for speculation in this period as expected changes in the value of the peso do not appear to have been large.

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[19] An appropriate and **a stable level of the real exchange rate is considered a key variable for Chilean economic development strategy** of promoting and diversifying exports; see Eduardo Aninat U. and Christian Larrain P., "The Flow of International Capital: Lessons from the Chilean Experience", draft (Santiago, Chile, June 12, 1995).

[20] See, for example, Raul Laban and Felipe Larrain B., "The Chilean Experience with Capital Mobility", in Barry P. Bosworth, Rudiger Dornbusch, and Raul Laban (eds.), **The Chilean Economy: Policy Lessons and Challenges**, Washington, D. C.: The Brookings Institution, 1994, 117-163.

[21] For a discussion of such channels commonly used in Chile, see Ricardo Ffrench-Davis, Manuel Agosin and Andras Uthoff, "Capital Movements, Export Strategy, and Macro-economic Stability in Chile", in Ricardo Ffrench-Davis and Stephany Griffith-Jones (eds.), **Coping with Capital Surges: The Return of Finance to Latin America**, Boulder, Colorado: Lynne Rienner Publishers, 1995, 99-144.

An important issue is how Chilean capital controls would stand up to speculative pressures in periods when large changes in the exchange rate are expected. The experience of other countries suggests that if such conditions were to develop, Chile would be forced to change its parity. The best hope of avoiding a crisis for Chile lies in it following policies that are consistent with the fixed parity. If such policies are not followed, capital controls would not prevent a successful attack but, at best, only delay it.

Over the past decade, Chile has achieved significant improvement in its macro-economic performance. The successful performance of Chile is generally attributed to a prudent and consistent macro policy and a wide range of structural reforms. Capital controls, however, do not appear to have been a significant ingredient of this policy. In fact, our appraisal of capital controls (in the previous section) suggests that they exert only a marginal effect on the variability of the exchange rate, and are not essential to maintaining a stable exchange rate regime. They may involve significant costs in terms of reducing economic efficiency and encouraging wasteful activities directed towards evasion of controls.

- The effectiveness of capital controls also tends to decrease significantly if they are kept in place for a long period of time.

A case can thus be made that Chile should dismantle its capital controls. However, if Chile remains committed to this policy, we discuss below two suggestions for reform which would reduce costs of these controls without significantly affecting their benefits.

4.3. Reforming the Foreign Investment Regime in Chile

The main benefit claimed for capital controls is that they deter destabilizing speculative activity. Speculation normally occurs through movements of liquid short-term funds. Investments under DL 600, however, represent purchases of relatively illiquid assets, and thus these investments are not suitable for speculation. The deposit requirement and the repatriation restriction impose an unnecessary penalty on these investments without promising any significant curtailment of speculative activity. Indeed, portfolio investments in ADRs are more liquid than DL 600 investments and yet they are already exempt from the two restrictions.

Should Chilean authorities consider reforming the capital control regime in the future, one option for them can be:

- Investments under DL 600 be exempt from the interest-free deposit requirement and the one-year repatriation restriction.

Such a reform would not affect investments under Chapter XIV, which could be used for speculative purposes but would still be subject to both restriction.

One potential problem with the above suggested reform is that some speculative activity may be diverted from other forms of investment to direct investment. We do not think that this is a serious problem. Buying and selling assets acquired through DL 600 investments are likely to have significant transaction costs. This program would, therefore, not represent an attractive channel for speculative activity. Undoubtedly, attempts will be made to disguise short-term inflows as foreign direct investment to seek exemptions under the above suggested reform. It should be possible for the Foreign Investment Committee in Chile (which regulates investments under DL 600), however, to distinguish such flows from genuine direct investment in most cases.

If serious concerns still remain about the possibility that short-term funds would enter through DL 600 under the above suggested reform, then we suggest the following alternative reform:

- Investments under DL 600 be exempt from the interest-free deposit requirement.

This suggestion retains the repatriation restriction under DL 600, and such a restriction alone would provide a strong deterrent for speculative funds to enter this program. As discussed in section 3, speculative pressures intensify when a change in the exchange rate is expected in the near future. The expected payoff in such a situation is high for short-term investments but would fall significantly for investments that are tied up (due to the repatriation restriction) for one year. Thus, DL 600 investments would not be an attractive vehicle for speculative activity. The deposit requirement on these investments would simply be a device to generate revenue for Chile but would not serve any other purpose.

The bulk of investment into Chile currently takes place under DL 600. The above reforms we have suggested would reduce barriers to this investment. These proposals would not significantly increase speculative pressures on the Chilean peso and thus would not create additional problems for exchange-rate policy in Chile.

5. Conclusions

The basic argument for capital controls is based on the concern that free capital mobility subordinates domestic macro policy to foreign conditions. There is a considerable difference of opinion about how capital controls affect macro-economic conditions in economies with fixed or flexible exchange rates.

However, it is generally agreed that these controls restrict foreign-exchange transactions and thus impede international flows of goods and capital. As many countries have recently adopted measures to liberalize international trade and investment, capital controls would hinder such liberalization.

Given that the benefits of capital controls are uncertain, except as a limited prudential measure, it is not prudent to adopt a policy that jeopardizes economic gains expected from freer trade and investment. Thus, this Paper finds that potential NAFTA partners, who currently regulate capital movements, should be prepared to reform their policy toward foreign investment and meet the NAFTA standards.

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